

HIFI YEAR BOOK

1971

Pickups/Motors/Tuners/Amplifiers/Microphones
Recorders/Speakers/Cabinets



QUAD for the closest approach to the original sound

HIFI YEAR BOOK 1971

Editor Colin Sproxton

Technical Editor of Electrical & Radio Trading.

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Introduction

The successful formula, evolved over the years, of combining feature articles with detailed technical specifications is continued in this latest edition of the *Hi-Fi Year Book*.

The articles, which make up the front section of the book, cover a wide range of subjects, carefully chosen with the object of informing the newcomer to hi-fi while providing food for thought for more experienced enthusiasts.

Although the general pattern follows previous editions, there are this year a number of important innovations designed to make the book even more useful. In the first place there is a more open form of printing for the features which makes them easier to read.

Secondly, a new style of layout for the directory sections makes the brand names more prominent *very desirable in a reference book* and allows photographs of equipment to be grouped more closely to their directory entries.

With a book of this kind it is necessary to apply some yardstick in order to decide which equipment to list and which to leave out. And since there is no generally agreed definition for high fidelity equipment the choice is often particularly difficult.

As a guide the German DIN45-500 specification is followed, but, for a number of reasons, it is not adhered to absolutely. Some units, that may not quite achieve DIN45-500 standards, are included to complete a particular range of models, or in order to offer the reader a wider selection. This applies mainly in the sections on pickup cartridges and complete audio systems. At the top of the scale, on the other hand, there are models that come into the professional and semi-professional classes.

For certain types of equipment specifications alone are not always the best factor in deciding whether models should be included or not; so in two categories arbitrary price qualifications are also applied. These are £50 and over for tape recorders and £5 and over for microphones.

It should be noted that the specifications printed in this book are those supplied by the makers. No attempt is made by the publishers to test any of the equipment in order to verify the accuracy of the figures. In theory this appears to provide a loophole for unscrupulous manufacturers to classify equipment higher than it deserves, in practice this does not happen.

Apart from the stringent requirements of the new Trades Descriptions Act, any maker attempting to cheat over specification figures would inevitably be found out, with disastrous consequences for his future trade. It is an interesting point that most of the hi-fi equipment tested by independent reviewers not only reaches the performance claimed for it by the makers but in many cases the units are actually better than stated.

All prices shown are recommended selling prices. Where U.K. purchase tax is applicable it is either included in the price or, more usually, shown as a separate item. With the life of this edition extending well into 1971, when the U.K. adopts decimal currency, most makers have rounded off prices to give an easy conversion. Unfortunately these efforts have been frustrated in some instances by Customs and Excise which adds an unconvertible amount of purchase tax! To assist readers during the transition period conversion tables are included.

It is appropriate, perhaps, to remind readers that while this book was being prepared for press, manufacturers were under great pressure from rising costs. It is therefore likely that some increases in price may have taken place in the interim between printing and publication.

Efforts to persuade manufacturers to quote performance figures in similar units, and to ensure that tests are carried out under the same conditions, continue to produce results. But with such a vast range of equipment it is inevitable that there will be variations.

Considerable care is taken in compiling the entries and in checking prices to ensure the information provided is accurate, but the publishers regret that they are unable to accept responsibility for any errors that may have occurred.

Readers interested in similar specification and price information covering radios, radiograms, record players, unit audio, colour and monochrome television and popular-priced tape recorders are referred to a companion book from the same publishers, the *Radio and Television Year Book*.

Distortion, Noise and Dynamic Range

by Gordon J. King

In the present state of the art distortion, noise and dynamic range are together undergoing more critical appraisal than ever before, and they have assumed significant importance since the serious acceptance of the true-hi-fi solid state amplifier.

Towards the closing of the valve era the degree of amplifier fidelity was reflected almost entirely by the smallness of the total harmonic distortion (THD), this figure ultimately settling at the 'magic' 0.1% or better. Since power amplifier valves were run essentially at class A, or towards class AB, one had little doubt that the THD yield followed pretty linearly the power delivery. The specified THD percentage, therefore, was always taken to be the maximum, corresponding to full power.

In view of this it paid to purchase an amplifier of somewhat greater power than dictated by requirements, because it could then be operated well below its maximum power, even on signal peaks, and thus take advantage of the smaller distortion at lower power. It is still a good idea to purchase an amplifier of sufficient power to avoid having to run it close to the overload threshold, especially when it is to partner miniature loudspeakers of low sensitivity. But whether the reducing distortion advantage at outputs below full power applies nowadays is very much geared to the power amplifier design.

Class B

The majority of transistor amplifiers are based on the Class B design, which means that the drive on one $\frac{1}{2}$ -cycle causes conduction of only one of the output pair of transistors, the other being driven into non-conduction. The conditions reverse, of course, on the other $\frac{1}{2}$ -cycle of drive signal.

Compared with Class A, where both transistors are biased to conduct fairly heavily and steadily on both $\frac{1}{2}$ -cycles of drive irrespective of the drive signal amplitude, Class B is an *efficient*

way of securing high audio output since the power taken from the supply and dissipated by the output transistors is a direct function of the audio output power.

Thus when there is no drive the DC power consumed by the output transistors is minimal, it rising in sympathy with the audio power delivered to the loudspeaker. On a music signal, therefore, the average power taken from the supply and dissipated by the output transistors is considerably less than the steady power of Class A. For a given heat sink size, this means that Class-B-operated output transistors warm up less than Class-A-operated counterparts. When germanium transistors were the mode this was an important consideration, but with the latest silicon devices and an adequate heat sink mass Class A working has become quite feasible.

True Class B operation is basically incompatible with hi-fi reproduction since the switching of the two transistors produces a discontinuity in the middle of the overall transfer characteristic which reflects on the output signal as a 'flat' in the middle of the waveform, as shown in *Figure 1*.

This is termed *crossover distortion* and it was found by early workers in the solid state hi-fi field that the effect could be significantly reduced by biasing the push-pull output pair slightly

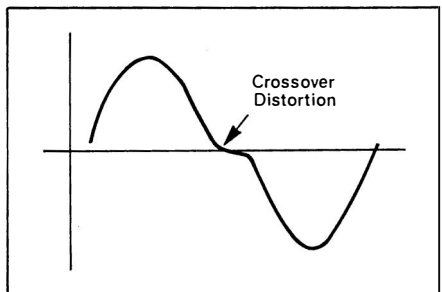


Figure 1/Crossover distortion of transistor push-pull output stage biased to Class B

away from true Class B towards Class A, thereby causing the power amplifier to pass a small current under zero drive conditions. This is called *quiescent current*, and in the early days of valves such a stage was called a quiescent push-pull output stage or Class B1. Nowadays, though, the term Class AB is more often given to power amplifiers which are biased in this manner, but it is a rather loose term since the amount of quiescent current turned on by the biasing appears not to be related to a common law.

Crossover distortion is responsible for a harsh sound in the reproduction because it is composed of a multiplicity of odd-numbered harmonic signals derived from the fundamental frequency. The integration of the harmonics gives birth to a signal waveform of a peaky nature with fast-rising and fast-falling sides.

Now, although a degree of quiescent current can diminish crossover distortion at the top end of an amplifier's dynamic range (i.e. towards full power output), it is not always instrumental in reducing the distortion to the same extent at the bottom end of the dynamic range. Indeed, it is possible for crossover distortion to rise as the power delivered to the output load is reduced. This, of course, is the exact opposite to the distortion performance of a Class A amplifier.

During recent years a great deal of attention has been focused on this problem, and various artifices in addition to quiescent current have been evolved for taming the low-power distortion of Class B amplifiers. Some of these have been referred to in earlier editions of the *Hi-Fi Year Book* and others have more recently appeared.

One solution, of course, lies in the use of Class A output stages, but for large power output the amplifier size (large heat sinks and power sections, for example) can weigh on the debit side when the call is for a relatively small yet powerful integrated stereo unit. Nevertheless, the low-to-medium power solid state Class A amplifier has a keen band of followers.

Returning to Class B, it was found with some designs that the point along the dynamic range where the distortion tends to rise with downward swing of power is somewhat related to the choice of quiescent current. Later designs have therefore been based on a compromise setting of quiescent current geared to fairly large doses of negative feedback, the plan being to keep the distortion as low as possible down to 1 watt or

less without running the output transistors too close to Class A.

This scheming is quite reasonable so far as the less exacting (and hence usually less costly) type of amplifier is concerned, and such amplifiers with the THD down almost to the magic 0.1% at full power have been evolved. Even so, if one compares subjectively an amplifier of this kind with a more expensive model of similar power and frequency response which has had design attention focused on eliminating low-power crossover distortion a less coloured and more transparent sound is discerned.

This goes to show that low-level sounds when distorted by odd-numbered harmonics detract from the overall reproduction to a greater extent than implied by the specifications. The chief reason for this, of course, is that most specifications give THD at full power only.

Recently there has been a trend by some manufacturers to refer to THD at powers right down to measurement threshold, and this has been encouraged by new designs which exhibit very low measured distortion right down to noise level.

Noise

I shall return to the question of distortion again later, but right now we are set to investigate the noise aspect of amplifiers. An amplifier specification commonly refers to hum and noise as being so many decibels down from maximum power. It is important that we understand just what this means.

Maximum power is assessed the British way by loading the output with a pure resistance and measuring the r.m.s. voltage across this up to waveform clipping when the amplifier is carrying a pure sinewave, usually at 1 kHz. The steady-state power in the load is then the square of the r.m.s. voltage divided by the load resistance in ohms.

Now, if we remove the input signal and short or load the input socket, the hum and noise of the amplifier will produce a very much smaller r.m.s. voltage across the load. To measure this we have to increase significantly the sensitivity of the readout device, which is usually a millivoltmeter.

Let us suppose that maximum signal power gave 10 volts across the load and we found that the hum and noise gave 10 millivolts, the hum and noise would in this case be 60 dB down from

full power. Looking at it in terms of *power*, 10 watts into 10 ohms would give 10 volts r.m.s. across the load, and 60 dB below 10 watts is 10 microwatts, so this would be the *power* of the hum and noise. Note that it is 60 dB in both cases, but in voltage (and current) ratio it is $10^{-3}:1$ and in power ratio $10^{-6}:1$.

We can delete the hum component (and the low frequency content of the noise) by introducing a high-pass steep-slope filter in the meter circuit, and this might give an improvement of something like 10 dB in the signal-to-noise ratio, yielding -70 dB instead of the previous -60 dB. The idea is illustrated in *Figure 2* which shows the maximum power at the top, referred to 0 dB, the hum and noise 60 dB down and the noise alone 70 dB down. To facilitate measurement the millivoltmeter is generally scaled in decibels and a dB datum is established relative to maximum power, it then being necessary merely to increase the meter sensitivity by the necessary number of decibels to obtain a dB readout.

It is noteworthy that the ratio can be influenced by the setting of the volume control. This is because the amplifier consists of two sections, the voltage amplifier on the input side of the control and the power amplifier on the output side.

Thus, with the volume control turned right down the noise contribution of the voltage amplifier is blocked from the power amplifier and the noise signal then indicated is that

generated in the power amplifier alone. Hum and noise in the power amplifier section is commonly better than 80 dB below maximum power, and by switching a high-pass filter into the readout circuit a signal-to-noise ratio of -100 dB can sometimes be obtained.

Now, if we gradually turn up the volume control while reading hum and noise, the ratio (relative to maximum power) falls by 10 to 20 dB, depending on the nature of the voltage amplifier and the design philosophy of the amplifier overall. When the noise voltage of the voltage amplifier is equal to the noise voltage of the power amplifier the readout increases by 3 dB since noise is added by a square law.

This means, therefore, that volume control settings approximately below the halfway mark introduce only a small amount of voltage amplifier noise, while at settings above halfway the voltage amplifier noise gets progressively more important. It should be mentioned that the term 'voltage amplifier' usually includes the whole of the control amplifier section, for the volume control is commonly placed well towards the rear-end of this department.

There are one or two exceptions to this, and notable in this respect is the latest 'P' range of Cambridge amplifiers (for example, the P40). Here low-noise input stages A1 and A2 (see *Figure 3*) provide the majority of signal voltage gain and each operates aperiodically (i.e. 'flat' without equalising).

Moreover, the gain of each stage is deter-

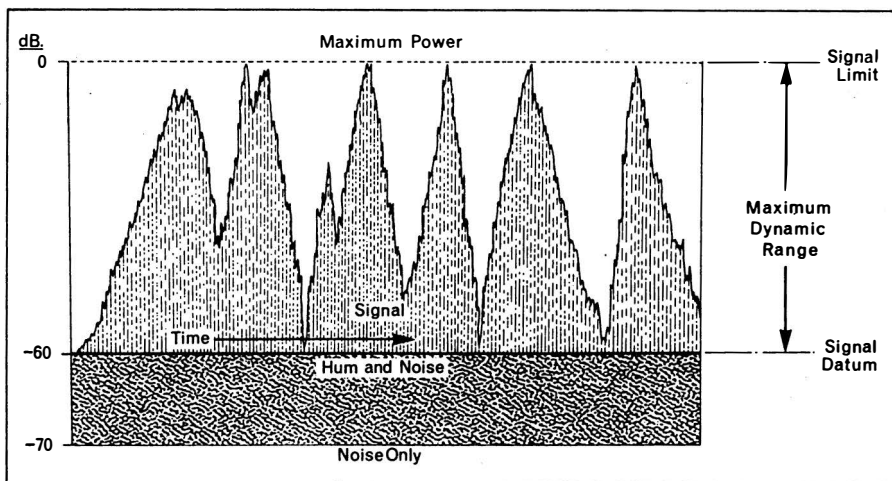


Figure 2 | Hum and noise 60 dB below maximum power and noise alone 70 dB below full power

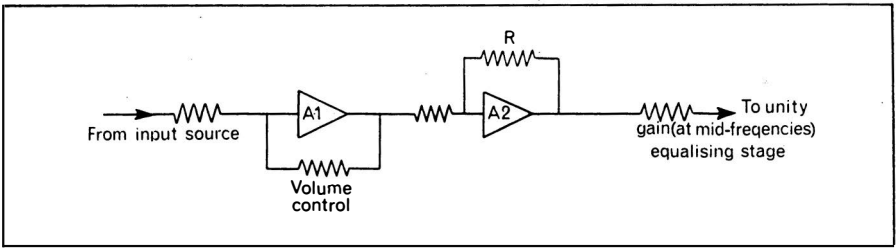


Figure 3 | Variable and fixed negative feedback loops control gain in Cambridge P40 amplifier

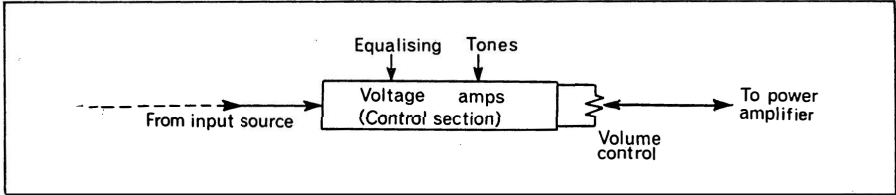


Figure 4 | Conventional layout showing volume control in circuit after the preamplifier

mined by a local negative feedback loop, that of A1 being regulated by the volume control and that of A2 by fixed resistor R. In essence, this means that the signal-to-noise ratio is unaffected by the setting of the volume control. Moreover, the 'virtual earth' design of the input stage is arranged so that the source always looks into a resistive load (useful for some magnetic cartridges) while endowing the amplifier with an incredibly high overload margin.

The pickup equalising follows stage A2 and since this operates at unity-gain at mid-frequencies adequate equalising loop-gain is available to endow this section also with a remarkably high overload margin. I shall return to the question of equalising stage overload later, but for the moment it will be useful to compare the Cambridge scheme in Figure 3 with the more conventional arrangement shown in Figure 4.

When the voltage across the output load due to hum and noise (or noise alone) is compared in dB ratio with the signal voltage at maximum power across the same load, the ratio is said to be 'unweighted'. It is common practice to compare ratios in this manner and most amplifier specifications give unweighted signal-to-noise ratios.

A 'weighted' ratio implies that the output voltage or power has been measured in terms of hum and noise (or noise alone) via a frequency-weighting network which adjusts the readout in terms of subjective values.

Relative to 1 kHz where zero weighting is applied, this being referred to 0 dB, some idea of the weighting can be gleaned from the following values.

10 Hz—70.5 dB, 100 Hz—19.1 dB, 400 Hz—4.8 dB, 1.6 kHz+1 dB, 2 kHz+1.2 dB, 4 kHz+1 dB, 6 kHz—0.1 dB, 10 kHz—2.4 dB and 20 kHz—9.2 dB. A weighted ratio thus generally looks better than an unweighted one!

The ratio is sometimes given relative to an output below the maximum power of the amplifier. For example, if the specification says that the hum and noise is 40 dB below 100 millivolts and the maximum power of the amplifier is 10 watts then it could be assumed that the ratio relative to 10 watts is —60 dB. This is because 100 milliwatts is 20 dB below 10 watts and —40 dB plus —20 dB equals —60 dB.

DIN 45-500 specifies a signal-to-noise ratio of at least 50 dB relative to 100 milliwatts for power amplifiers rated up to 20 watts. However, this is an area in which confusion can reign.

We have seen that the ratio worsens as the volume control is turned towards maximum and improves as it is turned down; thus, if the datum power is established with the volume control turned down, to produce this smaller power for the ratio, it will be significantly better than if taken with the control at maximum and the datum power reduced by turning down the input signal (from the test generator).

In the latter case the —60 dB signal-to-noise ratio illustration just given would apply, but if

the control is turned down the ratio could be a number of decibels better since then the voltage amplifier noise would be attenuated by the same degree as the signal.

For this reason it is desirable to express the ratio thus:

$$\frac{\text{Max. r.m.s. signal voltage}}{\text{r.m.s. hum and/or noise voltage}}$$

with the volume control at maximum. Even so, the ratio must be used with caution since the greater the power of the amplifier the greater is likely to be the ratio, although the noise performance of the more powerful amplifier may not be any better than that of the less powerful one—indeed, it *could* be a little worse.

This means that a particularly powerful amplifier exhibiting a good signal-to-noise ratio (i.e. in advance of or equal to that of a smaller amplifier) might not be totally hum and noise free used under low-level domestic conditions.

To bring in the reduced noise effect of turning down the volume control, the ratio can be expressed as shown, but this time with the volume control turned down and the input signal amplitude turned up to compensate to the point where the input signal just commences to overload the input stages (as indicated by waveform clipping). This is sometimes referred to as the maximum usable signal-to-noise ratio.

Dynamic Range

Returning now to *Figure 2*; from hum-and-noise to maximum power the peaks of the programme signal operate, and this defines dynamic range. Dynamic range, therefore, is the ratio between the maximum signal peaks and the datum (usually noise). An achievable hi-fi ratio is 60 dB. However, this does not imply that the ratio in reality is restricted to this value.

Indeed, it has been shown that a massive orchestra can yield sound intensities ranging from around 70 watts maximum down to a mere 0.000004 watt minimum. These are acoustic watts in the ratio of $18 \times 10^6:1$. Nevertheless, a more realistic ratio is $10^6:1$, which we endeavour to match with our hi-fi. $18 \times 10^6:1$, incidentally, corresponds to about 73 dB and $10^6:1$ to 60 dB. These are *power* ratios, of course, and in decibel values are the same whether the power is acoustic or electric.

Acoustic power (i.e. sound intensity) is an objective or physical occurrence and is proportional to the square of the sound *pressure* wave,

in a similar way as electric power is proportional to the square of electric pressure or voltage. Thus dB-wise a sound intensity ratio corresponds to power while a sound pressure ratio corresponds to voltage.

On the other hand, *loudness* is a personal or subjective experience. It is related to how our personal sense of hearing translates sound intensity (or acoustic power) to the loudness we hear. A sound of a fixed intensity varies in loudness over the audio spectrum, maximum loudness being discerned around the 3 kHz mark. The loudness falls at frequencies above and below this subjective peak, but the variation of loudness becomes less over the spectrum as the intensity is set at higher levels.

The loudness control engineered into some amplifiers attempts to counteract the subjective effect of loudness by giving the treble, and to a smaller degree the bass, increased amplification relative to the mid-frequencies, the amplification becoming greater as the control is turned down.

Acoustic Watts

Although both represent power, acoustic watts are somewhat different from electric watts. For example, it requires only about one half of an acoustic watt to simulate full-orchestra sounds in the living room! Sadly, to secure this maximum 0.5 acoustic watt we need to drive the loudspeaker with at least 10 electric watts. This is because the loudspeaker is not a very efficient converter of sound electric power to acoustic power.

Indeed, the 5% efficiency implied by the above would be a relatively good value for modern speakers. The smaller the speaker and the more it is critically engineered to delete coloration the smaller usually becomes its efficiency. Some speakers can barely boast an efficiency of 1%. Most efficient are the very large horn systems.

Just how loud a 10 watt amplifier sounds at maximum power, therefore, depends partly on the efficiency of the loudspeaker system which it is driving and partly on the hearing efficiency of the listener. Both of these factors can influence the dynamic range to some extent.

Because loudness is subjective it cannot be measured directly as power. Nevertheless, resulting from subjective tests conducted over past years loudness has been related to a unit called the *phon*. This occupies the same logarithmic scale as the decibel, but it also takes into

account the frequency of the sound, which the ordinary decibel does not. In other words, it is a weighted unit.

When listening to a 1 kHz pure tone, the loudness in phons is equal to the number of decibels relative to the reference intensity, but at other frequencies it has a different value from the intensity in decibels in accordance with the contours of equal loudness after Fletcher and Munson.

Zero phon at 1 kHz is equivalent to the sound pressure of 0.0002 dyne/cm², corresponding to the threshold of hearing so far as the *average* person is concerned. At the other end of the scale is the threshold of pain—at which point the sound is so loud that it starts to hurt—equivalent to about 130 phons.

Between zero phon and 130 phons, therefore, we get the normal range of loudness values. Decibels are also employed as an expression for loudness over a similar range of 0 dB (threshold of hearing) to 130 dB (threshold of pain). It is noteworthy that the ambient sound in a good hi-fi listening room might have a value around 30 dB (possibly a little higher if near a busy street), while the smallest loudness sensation produced by an orchestra might be around the 35 dB mark, with the highest rising to 95 dB or thereabouts, thereby accounting for the 60 dB dynamic range.

Having now established a dynamic range value for the sounding source we can easily translate this to electric power with reference to the efficiency of the loudspeaker. Let us suppose

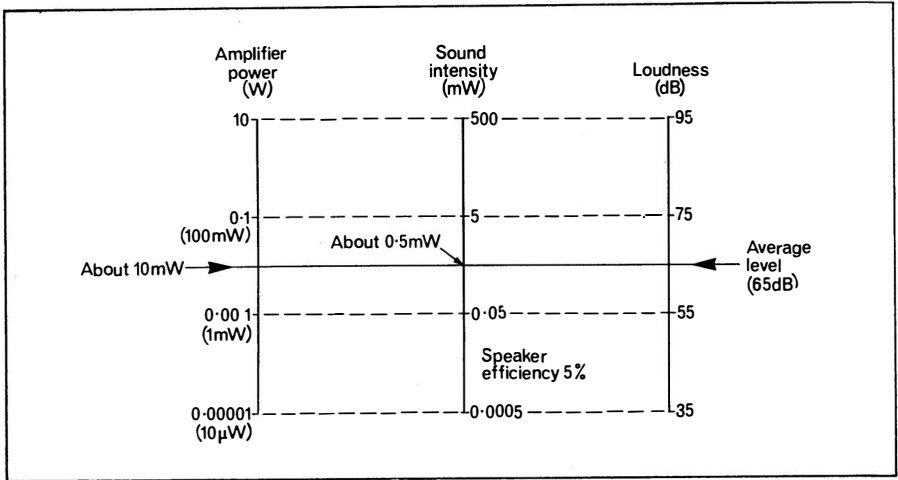


Figure 5 | Relating amplifier power to sound intensity and loudness over a 60 dB range

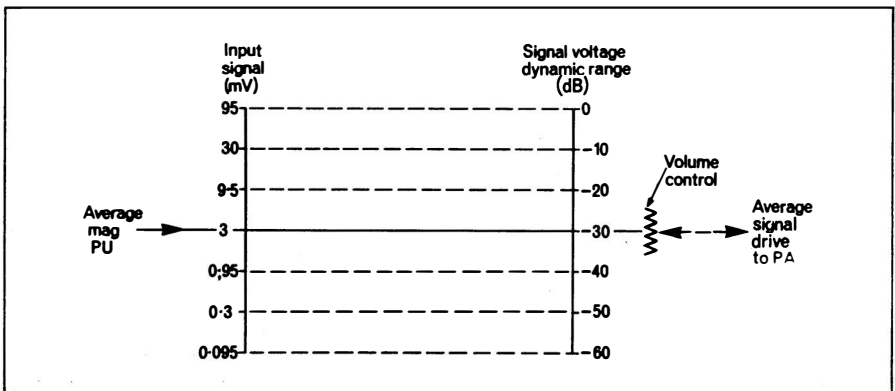


Figure 6 | Input signal levels from typical magnetic pickup over a 60 dB dynamic range

that an amplifier has a maximum power of 10 watt and we *scale* this to 95 dB of loudness via a loudspeaker system of 5% efficiency. We will then discover that an amplifier power of only 10 microwatts is required to secure the the lowest-scaled loudness of 35 dB (resulting in this case from the remarkably low sound intensity of 0.5 microwatt), thereby giving the 60 dB of dynamic range.

This is illustrated in *Figure 5*. When, as shown on the diagram, an average level is established in the middle of the range (i.e. to facilitate ± 30 dB level swings), the average power will be a mere 10 milliwatts at the amplifier, corresponding to 0.5 milliwatt of sound intensity and 65 dB of scaled loudness.

Now, assuming that the amplifier and loudspeaker system will accommodate signal peaks up to 10 watt without clipping or running into overload distortion, and that the overall hum and noise of the amplifier is not worse than -60 dB when the volume control is adjusted relative to the input signal amplitude to establish the average, we can then expect the system at least to cater for the full 60 dB dynamic range.

Whether the programme signal itself will possess a usable dynamic range of matching value is another matter. Even if it does the full range would only be discerned subjectively when the noise level in the listening room is below the scaled 35 dB of programme material loudness. In other words, the dynamic range depends not only on the system (amplifier and loudspeaker), but also on the programme signal, the ambient noise level of the listening room and the efficiency of hearing.

It is not an easy matter to scale loudness accurately to amplifier power, but we would possibly be closer to the mark—and more comfortable—by scaling 95 dB of loudness to a power of about 70 watts, corresponding to about 3.5 watts of acoustic power from a loudspeaker of 5% efficiency.

In a stereo system, of course, we have available the power capacity of both channels, and in spite of the sum of the power of two stereo channels not being quite the same thing as a similar power in one channel, an amplifier of about 35 watts per channel should be able to reproduce a full orchestra at *fff* fairly realistically in a room of adequate size, assuming that the loudspeakers are capable of handling the full power per channel without distress.

However, the dimensional volume of the

listening room and the distance the loudspeakers are placed from the listeners ultimately determine the maximum power requirement, and in many domestic scenes a stereo amplifier of 10 watts per channel working into quite inefficient loudspeakers is more than adequate.

In practice, the average power at the amplifier is around the 100 milliwatt mark when the volume control is adjusted to optimise the dynamic range (approximately the twelve o'clock position on most amplifiers). In some cases, especially when the loudspeakers are reasonably efficient, the average power could be less than this, and nearer to the 10 milliwatts shown in *Figure 6*. It is really surprising how much loudness arises from a reasonable loudspeaker running at only 10 milliwatts!

Input Dynamic Range

So far we have considered mostly the dynamic range of the power amplifier, which leaves the signal itself and the control section. *Figure 4* shows that the control section of most amplifiers is coupled to the power amplifier via the volume control potentiometer. Under normal conditions the average level of signal from the source gives roughly the correct drive to the power amplifier to yield the average value of output power when the volume control is set approximately to the centre of its range.

This comes about by the control section as a whole having been designed, in terms of input sensitivity, to match the source signal amplitude. Thus, provided the input signals are reasonably close to the input sensitivity voltages the dynamic range of the control section will equal that of the power amplifier, on the flat unequalised inputs at least.

However, the control section embodies the pickup and sometimes tapehead equalising circuits, and the pickup equalising in particular can exhibit a smaller overload margin than the rest of the system. Magnetic pickup equalising is usually achieved by a frequency-sensitive feedback loop round an early voltage amplifier, the feedback being arranged so that relative to mid-frequencies the bass is boosted and the treble attenuated to compensate the opposite effect of the RIAA recording characteristic.

Figure 6 shows the input signal conditions from a typical magnetic pickup over the 60 dB dynamic range. The average pickup signal is here given as 3 millivolts, corresponding to -30 dB. Thus, assuming that the record is

carrying modulation equal to such a dynamic range we see that the signal level swings to a maximum of 95 millivolts on peaks and to a minimum of 0.095 millivolts (95 microvolts), which would be towards the noise level of the amplifier and possibly below the surface noise of the disc.

However, for the moment let us suppose that the disc carries modulation corresponding to a dynamic range of 60 dB. At the bottom of the range amplifier noise must certainly not mask the signal, but at the top end the control section and the equalised amplifier would be called upon to handle an input signal of almost 100 millivolts without clipping or running into overload distortion.

There is little doubt that the aperiodic amplifiers of the control section would be capable of coping with such a signal, but the RIAA-equalised amplifier would be in doubt. Such stages in some amplifiers can handle well over 100 millivolts before clipping the signal; indeed, amplifiers of the Cambridge 'P' series have an overload margin of 60 dB (1000 times) at least, meaning that several *volts* of signal can be applied to the magnetic pickup input before waveform clipping commences. On the other hand, some less exacting amplifiers clip at inputs below 50 millivolts.

As mentioned at the start of this article, the general trend is to include the equalised stage in the gain equation of the control section, and since gain, low noise and adequate overload margin are conflicting factors, the overload performance on the magnetic pickup channel tends to suffer on some amplifiers.

One might question whether a disc can carry modulation corresponding to a dynamic range of 60 dB. In reality this is a very wide range for an electro-mechanical system to accommodate, but it must not be forgotten that the record makers are doing their utmost to establish an almost true dynamic range in the grooves and the dynamic range of the best stereo discs is improving all the time.

We must also remember that we are dealing with signal peaks and transients rather than r.m.s. signal voltage. The oscilloscope picture in *Figure 7* shows how high such peaks can rise due to a heavily recorded passage of music. This signal was sampled at the output of the control section, after equalisation, and the largest peak is just being clipped. The amplitude of this direct from the magnetic pickup correctly loaded was

in the order of 35 millivolts, as indicated on a calibrated oscilloscope.

It is also noteworthy that poor overload performance of the pickup circuit can aggravate clicks and impulsive noise from the surface of a record. This is because the resulting high-amplitude transients themselves clip and thus become modified in terms of spectrum, thereby becoming more audible.

Low Power

In the light of what we have discovered about dynamic range and noise, it will be instructive to look again at total harmonic distortion (THD) at low power. It was earlier mentioned that amplifier designers are now employing circuit artifices to avoid the rise in distortion that occurs in quasi Class B amplifiers as power is reduced. There are various schemes.

A recent one by Welbrook Engineering Electronics employs a diode in one half of a quasi-complementary output stage to balance the input impedances of the upper and lower halves of the stage. Also recent is the Cambridge idea of running complementary output transistors at relatively high drive impedance. While this introduces non-linearity into the transfer characteristic, it also significantly reduces the discontinuity at the crossover point.

In fact, instead of being flat at this point the characteristic exhibits a slope, indicating gain, and when the non-linearity is removed by negative feedback and a small quiescent current is applied, an extremely linear overall transfer characteristic results, thus ensuring low distortion from maximum power down to a level that is virtually inaudible.

Figure 5 reveals the importance of maintaining low distortion when the power is hovering around the 10 milliwatt mark, but considering the hum and noise produced by any amplifier, the need for keeping the distortion components down to very low levels at output power close to the hum and noise threshold might be questioned on the basis that such distortion components are likely to fall below noise anyway. Moreover, it might well be wondered just how much distortion at very low power can really be measured considering the masking effect of the hum and noise.

Well, firstly, the distortion which can arise at low power from some Class B type amplifiers is often of a particularly disconcerting kind, being composed of a series of odd-numbered harmonic

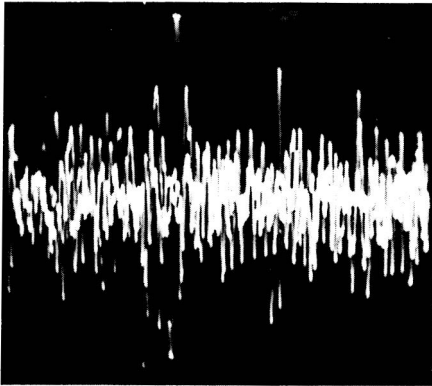


Figure 7 | High peaks due to heavily recorded music. Note tendency to clipping on the largest peak

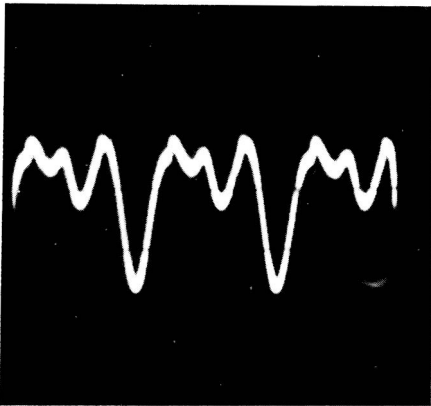


Figure 8 | Oscilloscope trace showing 0.2% total harmonic distortion with very little noise

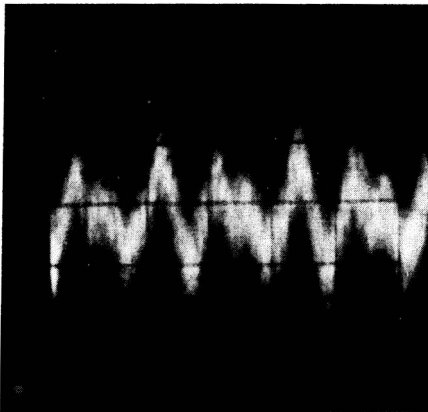


Figure 9 | Oscilloscope trace showing 0.1% total harmonic distortion with significant noise

components whose integration results in a waveform of squarewave features not uncommonly accompanied by a relatively high amplitude peak due to crossover effects. This kind of distortion is singularly discordant—similar in effect to bad intermodulation distortion—even at levels into noise and must thus be checked.

Secondly, the readout of distortion at low power depends on the signal-to-noise ratio of the amplifier and on the nature of the distortion measurement. The simplest way of measuring distortion is with a distortion factor meter or analyser, the readout of which is an effective sum of the total harmonics generated, or THD.

THD is the ratio of the r.m.s. voltage across the load due to the signal to the r.m.s. voltage across the load due to the 'impurity' components after the fundamental has been deleted by a narrow band filter. THD can be expressed either as a dB value or percentage. -40 dB implies 100 times down or 1%, -20 dB 10 times down or 10% and -60 dB 1000 times down or 0.1%.

When the test frequency permits, it is common practice to include a high-pass filter in the readout circuit to minimise error due to hum. However, the impurity components include noise since the distortion analyser has a bandwidth essentially equal to that of the amplifier under test, and this puts a limit on the THD readout.

For instance, THD at full power cannot accurately be measured much below 0.01% if the amplifier's signal-to-noise ratio is -80 dB. Similarly, if an amplifier has a signal-to-noise ratio of -70 dB relative to its maximum power of 10 watts and we wish to measure the THD at, say, 100 milliwatts, which is 20 dB down from maximum power, we would find with such a simple set-up that the readout would be unable to distinguish THD from noise much below -50 dB or 0.32%.

There is a tendency towards readout error when the level of the noise approaches that of the THD, but it is possible to calculate the noise out to some degree, resulting in an answer of true THD. However, this is only necessary at really low THD level when the noise is of a comparable level. The error of such measurement, though, can be fairly high especially when the level of the noise is up to 3 dB above that of the THD.

Figure 8 shows 0.2% THD arising from a 20 watt amplifier of -70 dB signal-to-noise ratio running at 5 watts. Here the distortion is

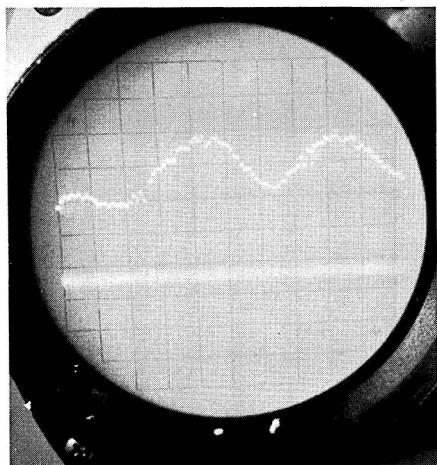


Figure 10 | Lower trace of this correlelogram shows distortion well below noise. Upper trace indicates second harmonic distortion of about 0.003%

pretty well above the noise. However, at (b) in Figure 9 the noise amplitude is approaching the THD amplitude because the waveform represents 0.1% THD from a 10 watt amplifier of -80 dB signal-to-noise ratio running at about 200 milliwatts. Clearly, then, noise very much influences the accurate readout of THD at low power based on the system described. The better the signal-to-noise ratio the smaller the value of THD that can be measured at maximum power and at powers below maximum. In any event, the measurement of THD much below 0.05% can be a tricky business.

A more sophisticated scheme of distortion measurement involves first separating the fundamental from its harmonics and secondly measuring the value of each harmonic up to the highest of interest. A wave analyser is required for this which, in essence, is a very selective voltmeter.

A narrow bandpass filter contained therein filters the harmonic of interest from the residual and compares its voltage amplitude with the voltage of the fundamental, giving a dB or percentage readout as with the THD analyser. However, since the noise equivalent bandwidth is significantly less than the full-spectrum bandwidth of the amplifier due to the filter, the effect of the noise is correspondingly reduced. A first-class wave analyser might have a noise equivalent bandwidth of around 7 Hz, and owing to this the readout relative to the noise is improved by 30 dB or so (this, of course, being a

function of the actual bandwidth of the filter and the input noise bandwidth).

Thus, while 0.1% (-60 dB) THD can be measured down to noise with a simple distortion analyser looking at 100 milliwatts output from a 10 watt amplifier of -80 dB signal-to-noise ratio, a wave analyser facilitates the measurement of towards 0.003% (-90 dB) selected harmonic distortion from the same amplifier down to noise. Or viewed another way, 0.1% selected harmonic distortion from such an amplifier could be measured down to about 0.1 milliwatt (i.e. 30 dB below 100 milliwatts), assuming that the instrument has sufficient sensitivity and good inherent noise performance.

Noise can still be a problem when distortion measurements are performed at very low power, however, but by the employment of special techniques it is possible to measure distortion which is up to 60 dB deep in noise. A correlation function is involved and special instruments and computers have been created by the AIM Electronic Group at Cambridge to handle such tasks. Indeed, one such instrument can measure the impulse response of a concert hall while the orchestra is actually playing without intruding in any way upon the enjoyment of the audience.

A more practical illustration of the AIM CFC205A Correlation Computer, working in conjunction with a type HP 334A Automatic Distortion Analyser, is revealed by the correlelogram in Figure 10. The lower trace is the residual from the HP 334A which is analysing a 10 milliwatt 10 kHz output from the Cambridge P40 20W-per-channel stereo amplifier, while the upper trace is a delta correlation function of the residual using a 10 kHz reference signal. The waveform shown is the distortion actually extracted from the noise of the lower trace and is representative of second-harmonic of approximately 0.003%, being mostly that arising in the signal generator itself.

There is little doubt that hi-fi in the seventies is becoming a very exacting science.

Demonstration Discs

A selection of records designed to show off the performance of your equipment

by W. A. Chislett

One has only to visit an audio fair or similar event to realise that different people have vastly diverse ideas of how to demonstrate the sound quality of equipment to its best advantage and what records are best suited to the purpose. One assumes that when makers demonstrate their wares the object is to let them be heard at their optimum, but because of poor choice of material they often fail lamentably.

Similarly, many private owners of good quality equipment frequently fail to reveal it at its best when showing it off to friends. There are, of course, some people to whom volume for its own sake seems to be of prime importance. Then there are others who fail to appreciate the true meaning of stereo and who proudly present effects that are no more than gimmickry.

I hold the view strongly that to judge the quality of sound from records accurately one must listen to *the real thing*, under the right conditions, pretty often. Despite enormous improvements in recording techniques and sound reproduction in recent years the copy still falls well short of the original. But the human ear, being such an accommodating appendage, quickly comes to accept distortion of a kind to which it has become accustomed. Conversely it reacts strongly against unfaithful reproduction of a different kind and with which it is unfamiliar.

Before compiling the list that follows I consulted a number of friends who between them have vast experience of both testing the performance of equipment and demonstrating the sound quality from records. They made a number of interesting comments.

One of them, a man who is world famous for successful audio demonstrations, says that psychology plays a large part in putting over a piece of music.

'If you wish to make equipment sound good,' he told me, 'select tight, spectacular recordings that will suit the volume level and acoustics of

the place where you are demonstrating'. On the other hand, this is probably the last type of record one should use if one really wants to reveal the truth about a hi-fi set-up!

Another friend, who probably tests more audio equipment than anyone else in the country, prefaces his short list of recommended demonstration records with, 'I believe familiarity with what's on the record is a great thing. My choice is therefore often influenced by my having been at the recording session. Having heard the original master performance I kid myself that I can better detect any loss in fidelity'.

The volume level at which you wish to reproduce your chosen demonstration discs is important, and it is worthwhile spending a little time finding the optimum that suits your equipment, the room acoustics—and your neighbours! Most hi-fi assemblies seem to have a particular level at which they are happiest, rather like cars having a natural cruising speed, but this is something that cannot easily be gleaned from specification tables.

The following list of records is a composite one, based on the experience of a number of keen and knowledgeable ears. It should be remembered that no single record can be a complete test of quality, although it may serve to show off certain aspects of the equipment. In selecting the pieces all forms of music have been considered, in order to meet individual preferences and predilections.

A word of warning; a record capable of showing off good equipment at its best is likely to reveal the weaknesses of an inferior set-up. But that is what this article is all about, so if you are willing to discover whether your equipment is whiter-than-white, read on.

HMV ASD2477

My first choice may surprise some. It is *In a Summer Garden* by Delius, played by Sir John Barbirolli and the Halle Orchestra. Although

unspectacular this record gives nearly everything. There is even a bit, although not much, of the heavy brass. But in the main it is orchestral music of semi-chamber quality, with delicate colours of the utmost subtlety, all of which come through exquisitely on really good equipment.

Particular joys are the distinctive tone of the violas and the infinite variety of colours from the woodwind. Moreover, the overall tone has what I can only call a luminosity that is rare.

Decca PFS4175

A complementary record, calculated to show off capacity to cope with both the weight and brilliance of brass without losing inner detail, is that called 'Great Rhapsodies for Orchestra' and containing Chabrier's *Espana*, Enesco's *Rumanian Rhapsody No. 1*, Liszt's *Hungarian Rhapsody No. 2* and Ravel's *Rapsodie Espagnole*.

I have heard more exciting performances than those of Stanley Black, who conducts the London Philharmonic Orchestra, but I have never heard more exciting sound on equipment that will cope. The first choice is, perhaps, *Espana*, but the sound throughout is thrilling.

HMV ASD2139

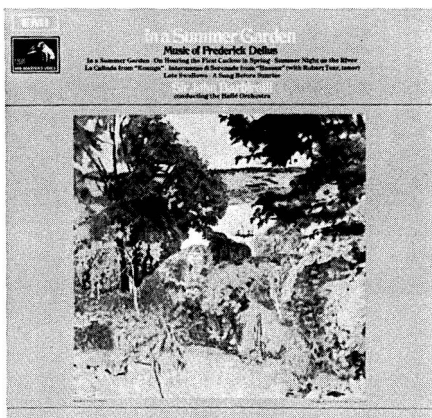
Another revealing and testing record of the full orchestra is Vaughan William's *Symphony No. 6* magnificently played by Sir Adrian Boult and the New Philharmonia Orchestra. The sound is both rich and clean, with no congestion even in the loudest passages.

There is also the added bonus of the same composer's lovely *Lark Ascending*, with Hugh Bean as the soloist, to reveal ability to cope with high violin harmonics in a balance which quite rightly does not favour the soloist unduly.

Decca SXL6301

The piano has always been a difficult instrument to record and reproduce faithfully because of its combination of percussive quality and lack of sustaining power. I know of no record in which the tone is more natural, rich and velvety, than that of a group of Mozart sonatas played by Backhaus. It is significant that this record appears in the lists of all the friends whom I have consulted.

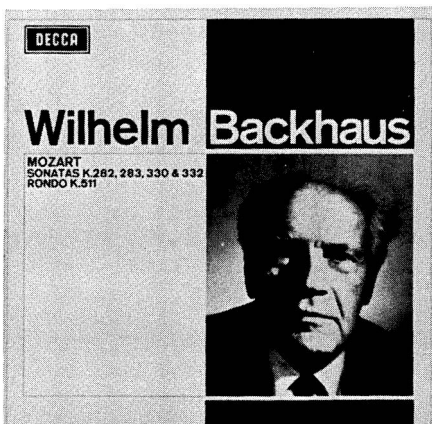
Backhaus was over 80 when he made this record, but the combined clarity and smoothness of his legato playing is something to marvel at, and this has been caught by the recording



HMV ASD2477 | Everything from violas to woodwind



Decca PFS4175 | Weight and brilliance of brass



Decca SXL6301 | Natural and rich piano tone

engineers to perfection. The two sonatas which are particularly recommended are *No. 10 in C* and *No. 12 in F*.

DGG SLPM138907

Another instrument which demands great care and skill from those who essay to record it is the organ; and many of the churches and other buildings which house organs present acoustic problems of their own. Not all the Bach works played by Karl Richter on the three-manual tracker organ of the Jaegersborg Church in Copenhagen are equally successful, but in the *Fantasia and Fugue in G minor* and the *Trio Sonata No. 2* both the quality and the spread of sound are quite remarkably good.

These two pieces are splendid tests for the bass response of any equipment on which the record is played.

HMV CSD3660

For organ and choir there is the recent record of some of Elgar's sacred music sung by the Worcester Cathedral Choir directed by Christopher Robinson and with Harry Brama at the organ. There may be more spectacular recordings but their *Te Deum and Benedictus* and *O Harken Thou* are eminently satisfying in their different ways, and are excellent tests.

Solo voices present less problems than many media, but they are by no means always well balanced against the accompaniments. Here are a few which have nearly all the qualities that connoisseurs look for.

HMV ASD2517

Victoria de los Angeles is at her glorious best in a selection of Spanish songs called 'Songs of Catalonia'. Some of the songs are not at all familiar in this country but the songs themselves, their singing and their recording may be described as sunshine in sound.

Every song is a perfectly safe choice but those looking for something out of the ordinary are referred to *Lo Violi de Saint Francesch*, for its charming 'hurdy-gurdy' effect.

HMV ASD622

Mirella Freni is another soprano to be recommended in a selection of operatic arias, although not all the tracks are of equal quality. Her French accent is a little suspect in *Depuis le Jour* from



DGG SLPM139432 | Strings, flute and oboe



EDWARD ELGAR
Sacred Music



The
Choir of Worcester Cathedral
conducted by
CHRISTOPHER ROBINSON
with Harry Brama at organ

HMV CSD3660 | Satisfying music and ideal test

THE YOUNG BEETHOVEN

Early Piano Music for
Two and Four Hands

George Dennis and Norman Shetler
pianos



DGG 643216 | Piano music for two and four hands

Charpentier's *Louise* but it is easy to forgive this for the way she caresses the lovely melody.

There is a wealth of affection in *Ah! fors e lui* from Verdi's *La Traviata* and as someone has put it, there are tears in the voice instead of the usual melodramatic sobbings in two arias from Puccini's *Turandot*.

Decca SKL4710

Those who prefer ballads to operatic arias are referred to 'Songs of the British Isles' sung by Kenneth McKellar, with Bob Sharples directing the accompaniments. The voice is reproduced with quite remarkable fidelity and the balance between it and the small orchestra is as near perfect as we have any right to expect in an imperfect world.



Decca SKL4710 | Near perfect reproduction



Decca SKL4757 | Brilliantly effective stereo

I have said little so far about stereo. All the records mentioned gain greatly from the spaciousness which only stereo can give and in several the positional effects are notably effective. Those who want something more spectacular in this direction are referred to a couple of records which are, perhaps, less well known than they deserve to be.

HMV ASD2998

The first couples Panufnik's *Sinfonia Sacra* and *Sinfonia Rustica*, played by the Monte Carlo Opera Orchestra under the direction of the composer. Andrzej Panufnik is a Pole who settled in England fifteen or more years ago. *Sinfonia Rustica* is the more immediately appealing work in general and features two bodies of strings set one against the other, with dramatic effect.

The former piece is notable for the accurate positioning of the four trumpets that play the long opening fanfare and are spaced at the extreme ends of the orchestra.

Decca SKL4757

The second record recommended for demonstrating spectacular stereo is one which I had not heard until it was recommended by one of my friends. It contains a group of jolly trifles called 'A Taste of Tijuana' played by The Mexicans. The pundits tell me that this is no more than an imitation of Herb Alpert.

This may well be so, but the stereo effects (some doubtless 'contrived') are quite brilliantly successful. The record is also an admirable test of both bass and treble responses. A track which is particularly recommended is *The Spanish Flea*.

Saga STXID5227

Finally, returning to solo voice, there is a tendency to regard really cheap records as necessarily inferior in quality of recording if not in content. This is by no means always so, as witness Schumann's *Frauenliebe und Leben* as sung by Janet Baker, with Martin Isepp as her partner at the piano.

To my ears this is not only the best performance but also the best recording of this lovely song-cycle currently available. Voice and piano are both recorded with great fidelity and the balance is splendid.

Hi Fi Limitations and Specifications

by John Borwick

The aim of all good quality sound reproducing systems (hi-fi) is to increase the pleasure of listening to recorded or broadcast music by making the sounds *as heard* as nearly perfect (in technical terms) as possible. Clearly, as techniques improve, it becomes possible to raise the standards and approach more closely to truly faithful reproduction.

This steady progress can be appreciated better if one looks back through the issues of *Hi-Fi Year Book* since its first appearance in 1956. In any given year, of course, the equipment on the market varies considerably in the degree of accuracy with which it can reproduce the complex sounds of musical instruments and voices. In general, good quality costs money: so manufacturers, much as they might like to produce only the best regardless of price, offer a range of units to bring reasonable sound quality within reach of small as well as large budgets.

Faced with a bewildering choice of equipment, the intending purchaser quite naturally studies manufacturers' technical specifications, in advertisements and in the directory sections of this Year Book. But the specifications themselves need a certain amount of knowledge if we are to understand and interpret them properly. This article sets out to provide that background knowledge.

Ears or Instruments

One of the difficulties is that entries in a technical specification only tell us the readings we would get on test instruments (and there is often confusion in the way in which even this basic information is quoted). We are really interested in how the equipment performs as judged by ear.

Each of the objective quantities listed in the specification no doubt relates to a subjective quality that will form part of our overall aural impression. The secret is getting to understand the jargon used in specifications and being able

to translate it into meaningful clues as to the equipment's actual purity of sound.

Here I would like to get rid of two popular misconceptions. The first is that reproduced music should have some kind of special sound of its own. Unfortunately, there are many people (and even some manufacturers) who think that hi-fi should sound 'different'. And so they often accept poor quality—until they hear something better. The real yardstick, as I suggested in my opening paragraph, will never let you down. High fidelity equipment should reproduce sounds so naturally that it becomes difficult to distinguish the copy from the original.

The second smoke screen that is often put up is that we all hear differently and so the quality of sound is a matter of individual taste. Now I would defend to the last ditch a man's right to buy anything he likes and to twiddle the knobs to produce any noise that pleases him, however excruciating it may sound to others.

But the aims and achievements of hi-fi are much more clear cut than this kind of woolly thinking would suggest. The best hi-fi outfits sound very much alike. Indeed, when the millennium is reached, and we really can reproduce musical sounds with perfect fidelity, it will be impossible for any of us to tell blindfold whether we are listening to a Quad or a Leak or the real thing.

Personal taste remains an important factor, at the low end of the price scale particularly, because we must choose between the different compromises or aberrations of individual designers. But the aim of true hi-fi still shines through and is universal.

Take the case of a fine painting (as analogous to a fine performance of a Beethoven piano sonata). If reproductions were made of this painting, we should have no difficulty in deciding which, if any, were hi-fi—by simply hanging them alongside the original. All arguments that 'we each see differently' would fall away. Any

colour errors, changes in scale or distortions would be immediately apparent.

Well this is not quite true. None of our perceptory senses has infinite resolution and so there are limits to the degree of difference which we can detect. This is indeed fortunate because it means that reproductions of paintings and recordings of Beethoven Sonatas can be deemed perfect without necessarily being theoretically perfect. We can define a perfect copy of a painting as one in which 'the technical imperfections are below the limits of perception'. This definition will also serve for hi-fi sound reproduction.

Fidelity Limits

Now we are ready to look at the main ways in which reproduced sound can fall short of perfect reproduction and, instead of striving for the moon, use the known limits of average hearing acuity to establish the thresholds below which errors can be regarded as unimportant.

Frequency Range

Human hearing extends over a range of frequencies from about 20 to 20,000 Hertz (Hz). For the uninitiated a Hertz is the standard term for one cycle or oscillation per second. The lowest frequencies correspond to very low pitched sounds indeed, produced only by the largest pipes on an organ or the bottom few notes on a piano. The highest frequencies are actually well above the highest *written* notes in music but they are present to varying degrees as overtones

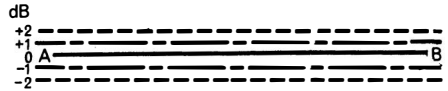


Figure 1 | Ideal response is straight line A-B. 1 dB is still hi-fi and 2 dB would satisfy most people

or harmonics in the notes played by different instruments. So they must be reproduced if we are to hear the true tonal quality or timbre of the music.

The graph of an ideal unit's response to different frequencies is therefore the straight line AB in Figure 1. This tells us that all frequencies from 20 to 20,000 Hz will be passed on by the equipment in exactly the same relative proportions as received, i.e. no frequencies will be either boosted or suppressed relative to the others.

In fact, this ideal response is better than we need. Even keen ears will not detect level changes of about 1 decibel (26%) and so the broken lines at ± 1 dB in the diagram would be very good tolerance limits. Even wider limits at ± 2 dB would still mean acceptable quality for many people.

Power (dynamic range)

Human hearing extends over a range of about 120 dB of sound pressure levels. However, audio equipment is never required to reproduce such a wide range of dynamics. Figure 2 shows the approximate thresholds of pain (too loud for

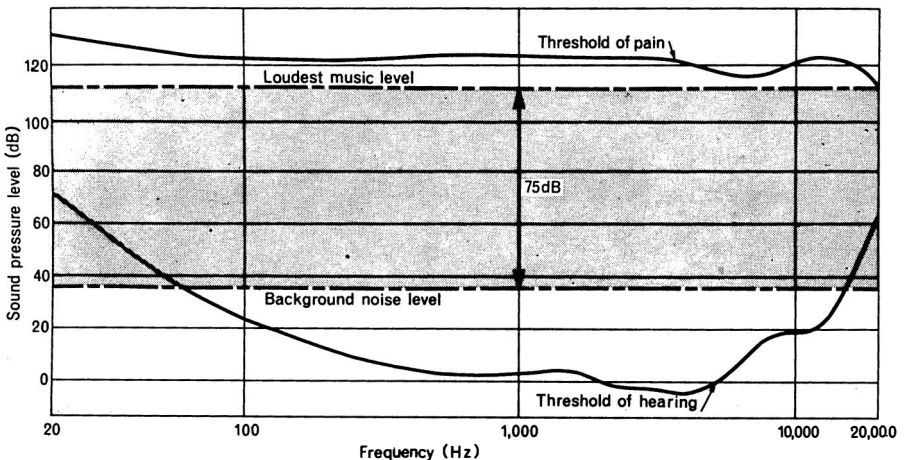


Figure 2 | The ear can accept a dynamic range of 120 dB but music does not usually exceed 75 dB

comfort) and hearing (too quiet to be audible even under ideal conditions). In practice, music occupies a dynamic range of no more than about 75 dB. This is because of ambient noise, which raises the practical threshold of hearing by about 35 dB even in studios and concert halls, and the need to keep the volume at a reasonable distance below the threshold of pain!

As it is, this ideal spread of 75 dB is seldom achieved in practice either during recording or reproduction. An upper limit is set by the level at which the equipment or recording medium is overloaded, so causing serious distortion. The lower limit depends on the inherent noise in the system. Gramophone records, tapes and broadcasts therefore have a restricted dynamic range. But they are improving year by year and it obviously makes good sense to buy replay equipment which can cover a wider range of signal levels than is presently available.

Two items in specifications which have a bearing on this are the rated output power and the signal-to-noise ratio. The output power listed is the number of watts which the manufacturer claims the amplifier can deliver continuously into a stated load resistance at a frequency of 1,000 Hz without exceeding a specified value of harmonic distortion.

We want our hi-fi system to be capable of reproducing the music at the original sound pressure level (for fidelity). Fortunately for us (because watts cost money) and to the gratification of our neighbours, sounds build up more steeply in a small living-room than in a concert hall. Quite moderate powers are therefore adequate. The amount of power needed for realistic reproduction depends a bit on the efficiency of the loudspeaker(s), but about 10 watts is good enough for small rooms and up to 40 watts will suit almost any size of room.

Distortion

Any non-linearity in the transfer characteristic of a piece of audio equipment, that is any failure to follow the precise rise and fall in signal levels, will introduce distortion. The ear is able to detect quite small amounts of distortion, which shows up as harshness and is usually associated with the higher signal levels—loud chords, voices, etc. (Paradoxically, many transistor amplifiers introduce more distortion on *quiet* signals and so have to be designed with extra low distortion to begin with.) Two types of distortion will be found in makers' specifications.

Harmonic distortion is the spurious generation of harmonics (multiples) of the signal frequencies. It is quoted as the total level of harmonics, expressed as a percentage of the signal, at the rated output.

Intermodulation distortion is the spurious generation of sum and difference frequencies. It is more objectionable than harmonic distortion, since many new unwanted frequencies are introduced, but is less often quoted by manufacturers. Again it is expressed as a percentage.

Noise

Background noises are inherent or induced at all points in the signal chain and, of course, will become audible if they exceed a certain level. They include hiss, mains hum, motor rumble and microphony (mechanically generated noise in valves etc.).

The signal-to-noise ratio is expressed as the number of decibels by which the rated output exceeds the inherent noise level. It should include mains hum, unless otherwise stated, and is either measured 'flat' or 'weighted', when the noise signal is passed through filters which approximately register the nuisance value of the noise. Since there are different ways of measuring noise, it is sometimes difficult to make exact comparisons between equipment from different manufacturers.

This is even more true of the particular type of noise known as rumble. Rumble is the low frequency noise introduced by gramophone motor vibrations, and the motor and turntable bearings, and is quoted as the noise level in decibels below a reference recorded level on a disc. At least two quite different methods of measurement are used, the American NAB standard and the German DIN, the latter giving slightly better apparent readings.

Pitch

The average ear is not particularly sensitive to long term errors in musical pitch caused, for example, by a turntable or tape machine running slightly slow or fast. Drifting over long periods will also be unnoticed unless quite severe. However, a small percentage of people, usually musicians, are endowed with perfect or absolute pitch hearing, and so for their benefit, and in the interests of accuracy to the original performance, speed tolerances and stability are usually maintained within about $\pm 1.5\%$. Fine adjustment of speed, checked on an optical stroboscope, is

a useful facility on many transcription turntables.

Much more pernicious are short term fluctuations in the running speed which cause the musical pitch to wobble and which can annoy even the most untrained ear. This is called wobble and flutter and is expressed as a percentage fluctuation about a centre frequency. Sometimes separate figures will be quoted to distinguish between wobble, where the repetition rate is below about 10 Hz, and flutter which has higher

fluctuation rates. Continental specifications appear at first sight to be worse than British and American ones because the former tend to quote peak values and the latter r.m.s. (root mean square). Peak values are about $1\frac{1}{2}$ times r.m.s. values.

Stereophony

An important aspect of live music performances, which must be recreated by the reproducing system, is the spatial distribution of the per-

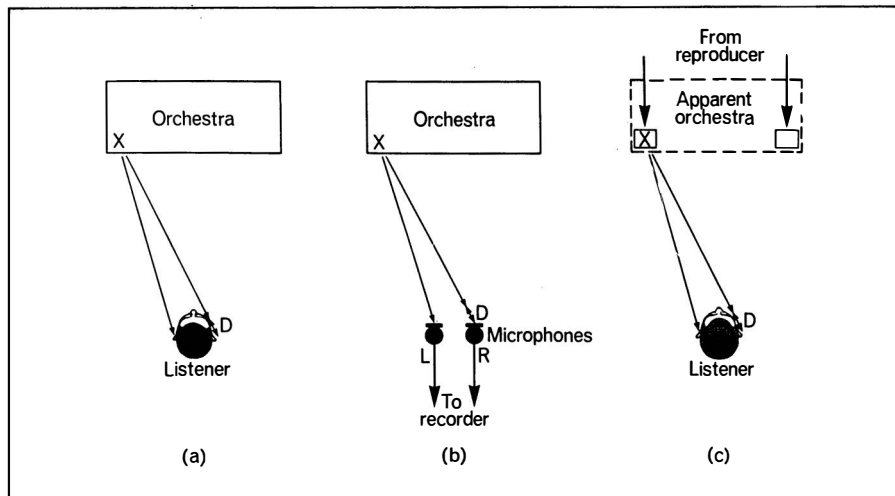


Figure 3 | Stereo provides the extra path length that gives apparent position to individual sounds

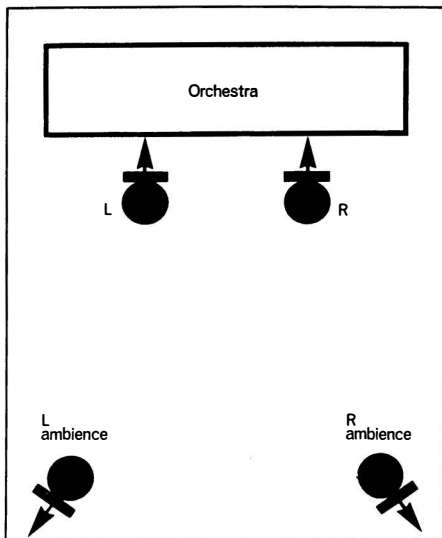


Figure 4(a) | Proposed four-channel stereo system

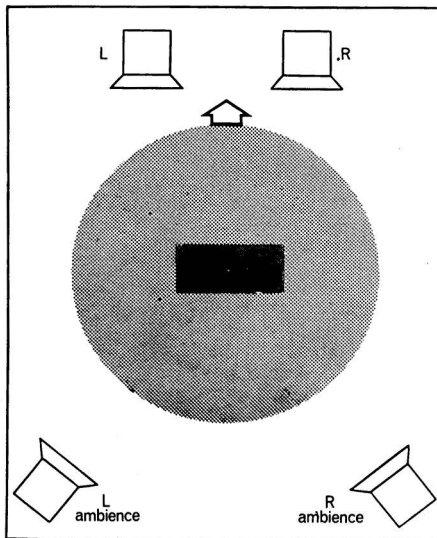


Figure 4(b) | Ambience signals from the rear

formers. When we attend a concert, our ability to separate out the strands of the music depends on our brain analysing the sounds picked up by our two ears. For sounds arriving at any angle other than straight ahead, (see *Figure 3*), there will be tiny differences in intensity and time of arrival. These clues are lost when the music is recorded and reproduced monophonically (through a single chain) but they can be captured and replayed with a high degree of realism in two-channel stereo.

Except that there must be two independent channels, the requirements for hi-fi stereo equipment are the same as for mono and the two channels should be identical. It might be thought that 5 watts per channel would suffice for a room where 10 watts were needed from a mono system. But much more than half the power may originate in the left or right signals at any given point in the music and so about 7 or 8 watts per channel is certainly better.

Crosstalk is the name given to break-through of stereo signals from one channel to the other. It causes a shrinking of the stereo 'stage' and may result in odd shifts in the apparent location of individual performers. It is expressed as the number of decibels by which the 'wanted' signal drops when measured in the 'unwanted' channel.

Ambiophony

Ideal sound reproduction would also recreate the overall acoustic environment or ambience of the original, so that the series of impressions on the listener would be exactly the same as if he were present at the original performance. In the present state of the hi-fi art, this counsel of perfection cannot be achieved. The acoustics of the room in which we listen still largely dominate the overall sound we hear.

However, attempts are being made, particularly in America, to produce all-round stereo by means of a four-channel technique. One shortcoming of two-channel stereo is that all the sounds in the original recording, including the random reflected sounds, come from the two loudspeakers in front of us. Any reverberation added by our room is small and characterised by the short distances between reflections.

At a concert, a much higher proportion of the reverberant sound would reach us from behind our heads and would have travelled quite long distances. The new technique, just mentioned, employs another pair of microphones located at the back of the concert hall (see *Figure 4*). When

a normal two-channel recording is being made, using two forward-facing microphones, the extra rear-sited microphones pick up different sounds and these are recorded on separate tracks.

On playback the system requires four loudspeakers, two in front and two behind the listening area.

At the time of writing, this four-channel idea is still largely experimental but tapes and broadcasts in the USA have created plenty of interest. The system was demonstrated at the Sonex 70 Exhibition which took place in London last April.

The Sending End

Figure 5 shows in outline the complete programme chains for gramophone and tape records and for radio broadcasts. We can distinguish the 'sending end' and the 'receiving end' by making the former include all stages up to the production of the final record or the transmission of the radio signal.

Each stage will have its quality limitations and be at least a potential source of noise and distortion. We see at once why it is so important to make each component as good as possible in order to keep the cumulative effects to a minimum.

Up to a point it could be argued that it is pointless to make the receiving end better than the signals we are being sent, and indeed this argument was pretty persuasive in the days of 78 r.p.m. records and poor AM broadcasts. However, we now know that the quality actually recorded on 78 r.p.m. records was often much better than most contemporary gramophones could reproduce and many AM radio sets still fail to extract the full potential from broadcasts in the long, medium and short wavebands.

Rapid strides have been made at the sending end and a quick look at present-day standards will be enough to convince anyone that high fidelity reproducing equipment should now be built to extremely exacting specifications.

The acoustics of the studio or hall in which the programme originates will affect frequency response as well as the stereo and ambience properties. However, a vast volume of experience has been accumulated over the years and broadcast engineers can now be expected to choose almost ideal venues and make the best of them in terms of microphone technique.

Microphones (professional ones that is) have

been refined to the point where their noise and distortion contributions are almost negligible and they cover the full audio range of frequencies and dynamics. It is true that odd directional effects and phasing problems do arise but again we must assume that these will be minimised by the engineer.

Professional tape recording machines and their associated electronics are not blameless, of course, but they come near to it. Potentially they have a wellnigh perfect frequency response, though different interpretations of the standard equalisation curves (to combat inherent frequency losses) on either side of the Atlantic can be a nuisance. A dynamic range of 70 dB is possible, helped by noise suppression techniques such as the famous Dolby system, though faint traces of hum, tape hiss, wow and flutter may remain. These will be aggravated if re-recording takes place during editing or if a multi-channel technique makes narrower tape tracks necessary.

Very sophisticated equipment is used to transfer the master tape recording to disc, or to mass produce tape copies, so that gramophone records and tape records (at $7\frac{1}{2}$ in. per second) have roughly comparable quality standards. Tape records at the slower speed of $3\frac{3}{4}$ in. per second, and more particularly the tape cassettes at $1\frac{7}{8}$ in. per second, have a less extended frequency range and relatively poor noise and wow figures. On the other hand, all tapes score over gramophone records in terms of stereo separation, since the left and right channels are allotted separate tape tracks. Unlike discs,

where all the information has to be recorded with in a single groove.

Discs have another limitation of their own too. As the groove spirals towards the centre of the record the distance tracked for each revolution becomes less. But since the time taken per revolution is the same it follows that the recorded waveform becomes more and more cramped.

This characteristic of records restricts the high frequency response and makes distortion on replay more likely. Also economy dictates that the grooves will be packed reasonably close together and this ultimately gives the disc slightly less dynamic range than the best tapes.

In the broadcasting chain, the signal can be degraded in its journey from the studio to the transmitter. Studio centres are inevitably in large towns, with the signals networked to hill-top transmitters all over the country. Radio links can give quite wide-band, low-noise relays, but the BBC is still obliged to route most programmes via Post Office landlines.

These vary in quality and while a few are rated up to 15,000 Hz or beyond, some of the longer landlines hardly go up to 10,000 Hz and are noisy into the bargain. Interference is much reduced on VHF/FM compared with AM and while an upper frequency limit of 15,000 Hz may be claimed for the VHF programmes (including stereo) less than half this is available on AM. An overall dynamic range of more than 40 dB is achieved, with some restriction on stereo.

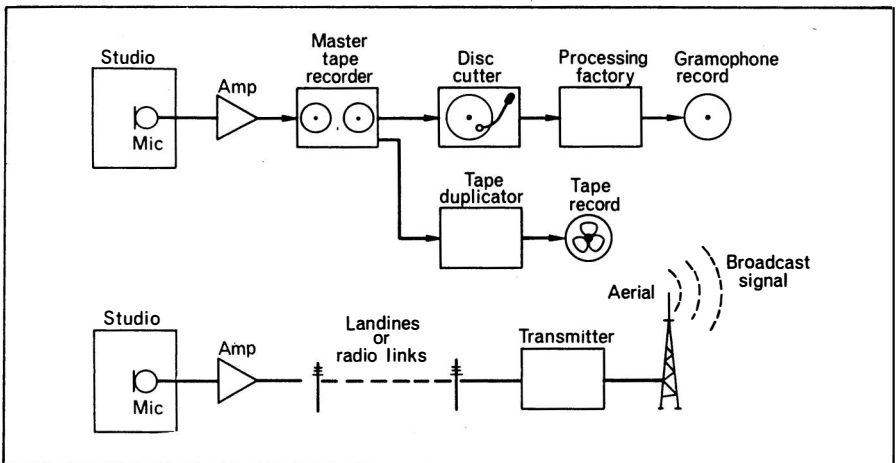


Figure 5 | Programme chains up to the production of the gramophone disc, tape record or radio signal

The Receiving End

Just as units vary enormously in price, so the equipment listed in this Year Book achieves widely differing standards of reproduction. Unfortunately there is no universal standard of High Fidelity by which we can grade the equipment's performance. But we do have a useful yardstick to the *minimum* standards for specifying units which can reasonably be said to deserve the tag 'Hi-Fi'.

This is DIN45 500, published by the German standards institute (Deutscher Industrie Normenausschuss). The basic recommendations of DIN45 500 are summarised in *Tables 1-6* and

Figure 6. It will be seen that the requirements are in fact rather modest, so that nearly every product in this book meets these specifications quite easily. Remember, however, that these are *minimum* requirements (and not everyone's ideas on this are the same). The best way to use the *Tables* is as a simple datum line to show to what extent particular units in which you are interested *exceed* the DIN standard.

Properly set up and matched to each other, modern hi-fi units can come very close indeed to perfect reproduction in which, to quote our earlier definition 'the technical imperfections are below the limits of perception'.

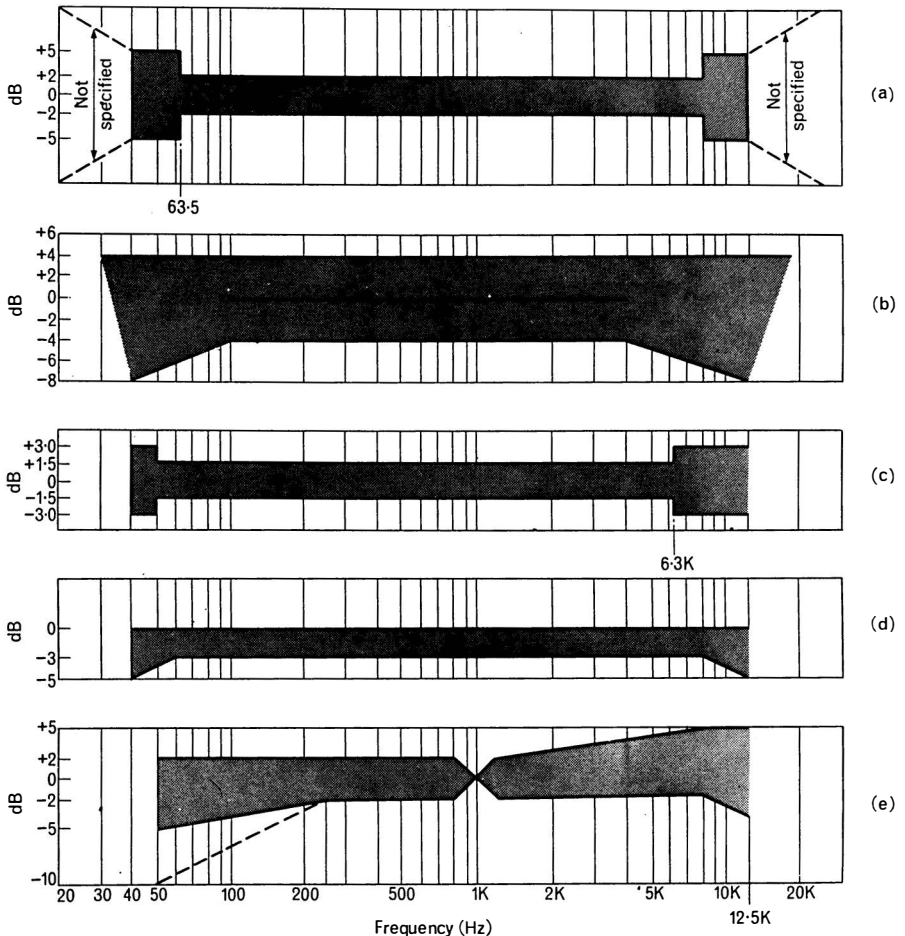


Figure 6 / *Graphs illustrating DIN45 500 frequency response tolerances for (a) gramophone pickup cartridges, (b) loudspeakers, (c) radio tuners, (d) tape recorders and (e) microphones*

Table 1/DIN45 500 record player requirements

Turntable	
Speed tolerance	+1.5%, -1%
Wow and flutter (peak)	±0.2%
Rumble (ref 1 kHz at 10 cm/sec)	-35 dB (unweighted) -55 dB (weighted)
Pickup	
Frequency response	40-12,500 Hz ±5 dB 63-5-8,000 Hz ±2 dB
Channel balance	within 2 dB
Intermodulation distortion	1%
Crosstalk at 1,000 Hz 500-6,300 Hz	-20 dB -15 dB
Max. playing weight	5g
Compliance	at least 4×10^{-6} cm/dyne
Stylus tip radius spherical elliptical	0.6 ± 0.1 thou 0.78 × 0.24 thou
Stylus tip mass	2mg
Vertical tracking angle	15° ± 5°
Sensitivity (ref. 10 cm/sec) crystal/ceramic magnetic	0.5-1.5V, 470kΩ 8-20mV, 47kΩ

Table 2/DIN45 500 VHF tuner requirements

Frequency response	40-12,500 Hz ±3 dB 50-6,300 Hz ±1.5 dB
Channel balance	within 3 dB 250-6,300 Hz
Harmonic distortion	2% for 40 kHz deviation
Crosstalk 250-6,300 Hz 6,300-12,500 Hz	26 dB 15 dB
Signal-to-noise ratio	54 dB
Pilot tone suppression at 19 kHz at 38 kHz	20 dB 30 dB
Audio output	0.5 to 2 Volts into 470K

Table 3/DIN45 500 amplifier requirements

Frequency response "flat" inputs equalised inputs	40-16,000 Hz ±1.5 dB 40-16,000 Hz ±2 dB
Channel balance	within 3 dB
Harmonic distortion pre-amplifier power amplifier	1% from 40-4,000 Hz 1% from 40-12,500 Hz and down to -20 dB
Intermodulation distortion	3%
Crosstalk (interchannel) at 1,000 Hz from 250-10,000 Hz	-50 dB -30 dB
Crosstalk (between inputs) at 1,000 Hz from 250-10,000 Hz	-50 dB -40 dB

Signal-to-noise ratio	50 dB
Output power mono amplifier stereo amplifier	10 Watts 2 × 6 Watts
Inputs linear magnetic pickup	500 mV at 470K 5 mV at 47K
Outputs pre-amplifier to tape recorder	1 Volt at 47K 0.1 to 2 mV for each 1,000 Ohms
speaker impedance	2, 4, 8, 16, 32, 50, 100, 400 or 800 Ohms
damping factor	at least 3

Table 4/DIN45 500 tape recorder requirements

Speed stability	±1% over 30 seconds
Wow and flutter (peak)	±0.2%
Frequency response	40-12,500 Hz (see Figure 1)
Distortion for full modulation at 333 Hz	5%
Signal-to-noise ratio	45 dB (unweighted) 50 dB (weighted)
Crosstalk (at 1,000 Hz) mono stereo	-60 dB -25 dB
Erasure	-60 dB

Table 5/DIN45 500 loudspeaker requirements

Frequency response (axis)	50-12,500 Hz (see Figure 1)
Matching of stereo pairs	within 3 dB 250-8,000 Hz
Polar response	within 4 dB at 15° from axis up to 8,000 Hz
Sound pressure at 1 metre at 3 metres	12 microbars 4 microbars
Distortion factor 250 to 1,000 Hz 1,000 to 2,000 Hz above 2,000 Hz	3% falling from 3% to 1% 1%
Transient performance	Slope not to exceed 12 dB/octave in range 50-250 Hz
Impedance variation (over frequency range)	within 20% of nominal
Power handling capacity	10 Watts
Nominal impedance	4, 8 or 16 Ohms

Table 6/DIN45 500 requirements for integrated systems

Record player/Amplifier	
Frequency response	40-12,500 Hz ±6.5 dB 63-5-8,000 Hz ±3.4 dB
Channel balance	within 5 dB
Crosstalk at 1,000 Hz from 500-6,300 Hz	-19dB -14 dB

Tape recorder/amplifier

Crosstalk (stereo) at 1,000 Hz	-24 dB
from 250-10,000 Hz	-21 dB
Signal-to-noise ratio	41 dB

VHF tuner/amplifier

Frequency response	40-12,500 Hz \pm 4.5 dB 50-6,300 Hz \pm 3 dB
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Channel balance (250-6,300 Hz)	within 6 dB
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Harmonic distortion (40 kHz deviation)	2-5%
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Crosstalk at 1,000 Hz	-24 dB
from 250-6,300 Hz	-18 dB
from 6,300-10,000 Hz	-14 dB

Signal-to-noise ratio	50 dB
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Pilot tone suppression at 19 kHz	-19 dB
at 38 kHz	-29 dB

Taking the plunge

Practical advice for newcomers on the problems of buying Hi Fi

by Colin Sproxtton

Having acquired an interest in the very real pleasure that high fidelity sound can bring, it would seem to be a fairly simple matter to count the pennies in the piggy bank, choose the equipment and go out and buy it. Unfortunately this is not so.

In the first place there are wide differences in price between models that to the layman may look very much alike. Secondly, as a study of this book will show, there is a bewildering range of equipment from which to choose. And thirdly, hi-fi equipment is not something that you can buy from *any* electrical or radio shop. Supplying high quality audio equipment is a highly skilled job that can be carried out satisfactorily only by specialist dealers, or by those shops and stores that are large enough to incorporate a separate hi-fi department.

The price you want to pay is fairly easy to determine, since you alone will know to what extent you are prepared to deplete the family fortunes (or to mortgage future income) in order to enjoy hi-fi sound. But what about choosing and buying? This also is an individual choice and much depends on who you are, what you are and where you live. We all want good value for money, but what may be a bargain for one could be money-down-the-drain for another.

For example, suppose you are a technical expert who can decide from manufacturers' specifications alone what equipment will suit you (indeed a super man!). And let us suppose that you have the facilities for matching the units, making up the connecting leads and installing the equipment so that it will give the best results.

In this case it will possibly save you a few pounds to shop around for a discount store that will hand the goods over-the-counter in sealed cartons at something below normal shop price. Of course, you will have to be prepared to do any future servicing yourself and you will need to have access to the expensive and sophisticated

test equipment necessary to keep your installation working at its optimum for year after year.

If all the foregoing applies to you, then read no more. This article has nothing to offer such exalted experts.

Aha! So you are an ordinary mortal who does not have the time or inclination to acquire a specialist knowledge of electronics but who wants to enjoy hi-fi sound? Well what practical steps can be taken to reach this happy objective without mishap?

A careful study of the directory sections in this book, together with the manufacturers' advertisements, will help to narrow the field of choice. This can be done by eliminating equipment that is well beyond the family budget, and by deleting those units that do not appeal—perhaps because of size, style or finish.

At this point expert help is needed. It is essential to *listen* to the equipment, under the right conditions, before deciding to buy. After all, *listening* is what hi-fi is all about. You must also have the opportunity of comparing what you hear with the sound produced by other similar equipment. It is a known fact that equally good hi-fi systems, with closely similar specifications, can make quite different sounds.

In fact it is often not easy to tell which one of several hi-fi systems is the best, but at least after listening the individual can decide for himself which one he finds the most pleasing.

When comparing equipment listening conditions need not be, in fact should not be, acoustically perfect. No home is like a recording studio. But there should be facilities for careful listening, without interruption from extraneous noises, and in quiet enough surroundings to ensure there is no hum, noise or low-level distortion in the equipment.

As well as listening to the equipment you will want to be able to view it in comfort. Hi-fi systems *are* expensive and you are probably going to have to live with what you buy for a

long time, so you want to be sure it will harmonise with your home decor, both now and in the future.

Having made your choice the equipment will have to be installed, or at least you will want some expert advice on installation. And remembering that even a Rolls-Royce car *can* get a puncture, you will want to be sure that in the event of a breakdown, or any difficulty in obtaining the proper results, skilled service will be quickly available.

After you have compared several different systems it may be that your final choice is going to cost rather more than originally intended. In this event, rather than settle for something which is second best, you may be pleased to accept some simple confidential credit arrangement.

So far so good, but where does one obtain all these facilities and how can one be sure of complete satisfaction? The short answer is that there is no absolute guarantee that everything will turn out perfectly, but there are a number of practical steps that can be taken to avoid most of the pitfalls.

It is sensible to shop locally if you are lucky enough to have a specialist audio dealer in your district. If you find it more convenient to shop

in the busy centre of a town or city, ensure that the equipment can be delivered, installed and serviced where you live.

Enquire among friends and acquaintances for the names of audio equipment retailers who have a reputation for technical ability and honest dealing. A good reputation is something a shop must earn over the years, it cannot be bought or produced by slick advertising. By the same token avoid those premises that have a reputation of the other sort.

Study the directory of hi-fi dealers included in this Year Book to find the ones nearest to you. Every firm listed undertakes to stock an adequate range of equipment and to offer demonstration and servicing facilities.

Examine also the hi-fi dealer panels at the back of the Year Book for names of shops in your area, noting especially those displaying the sign of the High Fidelity Dealers Association. Members of this recently formed organisation provide the nearest thing possible to an absolute guarantee of satisfaction. In fact every purchaser of equipment from an association member receives a written guarantee incorporating the following benefits.

1. A free replacement for any stock equipment found to be faulty immediately after purchase.



Few audio shops are as extensive as this Hi-Fi Centre in the West End of London, but nevertheless, even the smallest specialist retailer offers a reasonable range from which to choose



Well-equipped demonstration rooms provide the right conditions for listening and for looking too. A comparator enables quick changes to be made from one set of equipment to another

2. A right to receive full credit of the price paid by the purchaser against any other stock equipment if the buyer wishes to change the unit originally supplied, within seven days.

3. A minimum of at least six months service guarantee providing free labour in addition to the manufacturers' component guarantee. This facility will also be available if the purchaser moves house and takes the equipment into the service area of another association member who is an agent for the make of equipment concerned.

In addition, association members undertake to give their customers a free hi-fi advice service. Also, like other dealers in the Directory Section of this book, they are pledged to maintain demonstration and comparison facilities for all equipment stocked, and to have fully qualified staff to offer sound and honest advice.

Of course there are some very excellent hi-fi dealers who for one reason or another are not members of the association. Conversely even association members are not infallible and with the best will in the world unexpected difficulties can occur when handling sophisticated electronic equipment.

With hi-fi, as with all commodities, there are sometimes well worthwhile cut-price bargains to be had. But it is a sad fact that in general you

get what you pay for. In other words, to quote a well-known legal phrase, 'Caveat Emptor'—let the buyer beware!

To end on a brighter note; genuine high fidelity sound is truly fabulous. Whatever your tastes in music or drama, a first class audio system will open up new horizons of pleasure and give all the family years of real enjoyment. So take a chance—go and have a chat with your local audio man, you will find him friendly and enthusiastic.

Making the most of Radio Reception

by R. S. Roberts, C. Eng., FIERE. Sen. MIEEE

There are numerous signal sources available for high quality sound reproduction. They include records, tapes, electronic musical instruments, microphones and, of course, radio. In each case the requirements for high fidelity are relatively simple; a wide and level frequency response, a high signal-to-noise ratio, adequate dynamic range and the avoidance of harmonic distortion.

But while the requirements may be simple the methods of achieving them are far from easy. In this article we will consider the problems of radio reception and the best ways of taking advantage of the high quality programmes that are now available.

Radio reception on the short, medium and long-wave bands cannot provide good quality sound, but the very high frequency (VHF) transmissions in Band II offer a high quality alternative to the programmes broadcast on the other bands. The difference is due to the system of modulation that is used (called frequency modulation or FM) and to the fact that on the VHF bands there is enough 'space' to permit each station to send out the full range of audio frequencies.

Amplitude Modulation

Broadcast transmissions on short, medium and long-waves use a system termed amplitude modulation, usually abbreviated to AM. In this system a carrier wave is radiated continuously and its amplitude is varied by the modulation (programme signal). Modulation by a pure tone will cause the carrier amplitude to vary at the tone frequency (see Figure 1).

In addition, two new frequencies will appear on either side of the carrier frequency, spaced from the carrier by an amount equal to the tone frequency. These new frequencies are called sidebands. If the modulation is provided by a voice or music, two bands of side frequencies are generated. If the highest audio frequency used for modulation is 15 kHz (15,000 cycles per

second), a band of frequency 30 kHz wide is required to accommodate the station. This band is referred to as a channel.

A limit to the modulation amplitude is set by the fact that a carrier wave can only fall to zero and rise to twice its normal, or unmodulated, value during each cycle of modulation. This limit is called 100 per cent modulation. (see Figure 2)

There are several reasons why AM broadcasting (i.e. short, medium and long-wave stations) cannot provide high-quality programmes:

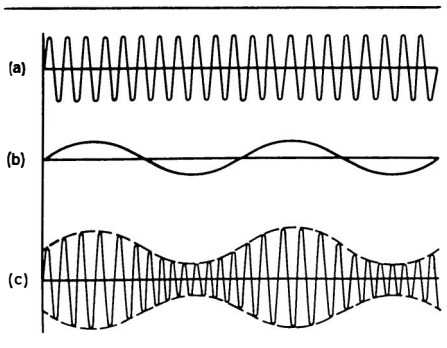


Figure 1 | Amplitude modulation (a) carrier wave, (b) audio signal, (c) modulated waveform

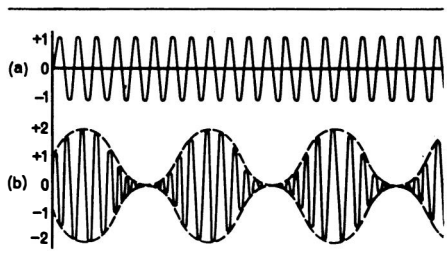


Figure 2 | 100% modulation varies carrier amplitude from zero to twice its normal value

1. National and international demands for channel space in the AM bands do not permit a spacing between channels of 30 kHz. On the medium wave stations are spaced only 9 kHz apart, thus making the highest modulation frequency available only 4.5 kHz. And human hearing extends up to around 20 kHz!

2. Accurate channel spacing is, unfortunately, not maintained, and the encroachment of one station into the channel space allotted to an adjacent station can cause beat effects between the two carriers. This interaction can produce distortion and noise, ranging from high pitched whistles to low-frequency beats.

3. Stations far apart geographically often share the same channel. This is reasonably satisfactory during daylight, but propagation conditions at night can cause massive interference.

4. Electrical noise, such as produced by the opening of a switch, or arcing produced by rotating electrical machinery, is a form of amplitude modulation. Because of this it will be accepted and amplified by the radio receiver along with the required programme, with disastrous results to the quality.

5. Signal fading, especially at night, can produce considerable changes in the signal-to-noise ratio.

Frequency Modulation

A better method of modulation, now used by the BBC for its radio programmes transmitted on VHF, is called frequency modulation (FM). The system was first proposed for a broadcast service in 1936.

With FM the amplitude of the radiated signal is constant, but during modulation the frequency of the carrier swings about a mean value. (see Figure 3). The extent of the swing (called the deviation) is determined by the modulation

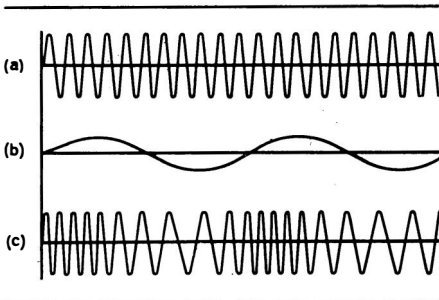


Figure 3 | How a frequency modulated signal (c) differs from the AM waveform in Figure 1

level. The rate at which the swing takes place is determined by the modulation frequency.

Initially FM was rejected because it required a channel space much wider than equivalent AM stations. But with the development of higher frequency bands it was realised that space could be found for wide FM channels.

There are many advantages in FM operation, both for both the broadcast engineer and the listener:

1. Interference between stations is practically nil. This is due partly to the fact that the range of each station is limited, even at night, but mainly to a phenomenon known as capture effect. Because of this, if two stations are being received on the same channel, the stronger signal will provide the output and the weaker signal will be rejected. A national broadcast service can therefore use a given channel many times over without risk of interference.

2. The types of noise (electrical interference) that cause most annoyance on AM receivers are automatically suppressed in FM sets, assuming of course that the receiver is well-designed, incorporates a system of amplitude limiting and is installed with a suitable aerial.

3. An internationally agreed band (Band II) for FM broadcasting extends from 87.5 MHz to 100 MHz (in Europe the upper limit is 104 MHz and in the USA it is 108 MHz). The band provides ample space for high-quality FM channels and permits such refinements as two-channel stereo. As mentioned, transmitter ranges in this band are normally short and, due to capture effect, common-channel operation of transmitters is perfectly feasible.

FM/VHF Service

Three of the main four BBC programmes, i.e. Radio Two, Radio Three and Radio Four, are transmitted simultaneously on VHF in Band II. On a limited number of Radio Three programmes two-channel stereo is available.

The transmitters are capable of radiating signals modulated up to 15 kHz, but Post Office lines linking studios to the transmitters can impose frequency limitations. Nevertheless, a frequency response up to 8 or 10 kHz can be enjoyed anywhere and this, with the noise-suppression properties of FM, is a very marked improvement over AM reception.

Deviation is standardised at plus and minus 75 kHz for maximum modulation. This does not mean a channel space of 150 kHz because the

side frequencies extend, theoretically, to infinity. But those containing little energy can be discounted and this results in a practical bandwidth of at least 220-240 kHz; wider when stereo programmes are involved.

A further feature of FM operation is that noise follows what is called a triangular spectrum, i.e. it increases as the modulating frequency rises. To counteract this effect, a process of pre-emphasis is used at the transmitter whereby modulation is increased for the higher audio frequencies. The receiver incorporates a de-emphasis network which restores modulation to its correct value and, in the process, cuts down any noise.

The amount of pre-emphasis is expressed as a time-constant and in the U.K. this is standardised at 50 microseconds. The receiver designer therefore uses a top-cut circuit in any convenient manner with a time-constant of 50 microseconds to provide the correct amount of de-emphasis.

Two-channel stereo involves the use of a rather complex system at the transmitter whereby a sub-carrier is modulated by the 'left minus right' component of the two channels. 'Left plus right' becomes the normal modulation necessary for monophonic reception. A stereo radio includes a decoder which extracts and processes the left and right-channel information for the two audio amplifiers. The system is compatible in that an ordinary mono receiver ignores the left-minus-right information on the sub-carrier.

FM/VHF Receivers

Many portable transistor radios now cover FM/VHF, and the number is increasing as the BBC extends its local broadcasting service on Band II. But for genuine high fidelity reproduction a more specialised tuner or tuner-amplifier is generally necessary.

The selection of a tuner is very much a personal choice. It will depend on cost, styling, ease of operation and the other equipment with which it is to be matched. Most modern tuners have high sensitivity and all embody some form of amplitude limiting. Main differences, apart from presentation, concern tuning arrangements and the ability to handle a stereo programme.

Tuning methods vary considerably. Some units have a tuning scale with pointer and manual control, usually supplemented by some form of visual tuning indicator. Often automatic tuning control (called AFC for automatic frequency control) is incorporated. This causes the

receiver to lock-on to the station and ensures accurate tuning (providing the AFC circuits are properly aligned).

A popular form of tuning consists of preset stations selected by a switch or pushbuttons, this system generally including AFC. While this type of tuner is very convenient, it is as well to make sure that there are enough buttons or switch positions to cater for future local radio stations as well as the national BBC network.

As already mentioned, stereo reception requires a decoder. This may be an extra piece of equipment that is added to a mono tuner, or more likely, with most modern tuners, it will be an integral part of the main assembly. Many stereo tuners give a visual indication when a stereo signal is being received. In some cases there is automatic switching to two-channel output when a stereo encoded signal is picked up, failing this a switch must be operated to provide the two outputs.

FM/VHF Aerials

Modern tuners are extremely sensitive, some requiring an aerial input signal of only one or two microvolts to provide full output. Within the service area of an FM/VHF transmitter this high sensitivity can result in acceptable results on almost any sort of aerial, however primitive. But this can also be deceptive. The user may be satisfied with what he hears but, in fact, may not be realising anything like the full potential of his tuner for full programme enjoyment.

There are four very good reasons why an adequate aerial should always be used:

1. Input signal level to the tuner should be as large as possible to ensure that the amplitude limiter is driven hard. This will help to produce the lowest possible noise level.
2. So that reception is equally good from all stations the input signal must be of comparable level. A properly designed aerial provides the bandwidth necessary to achieve this condition but any form of primitive aerial will be totally inadequate in this respect.
3. A large margin of signal level is necessary when stereo radio reception is required. This is because switching to stereo at the transmitter degrades the signal-to-noise ratio by about 20 dB. It is therefore desirable that the aerial should be able to provide such a margin.
4. Multipath signals (termed 'ghosts' in television reception) can produce various forms of distortion and also give rise to buzzing sounds.

To avoid this problem an aerial possessing as much directivity as possible should be used. In general, this means that for optimum results a single dipole cannot be considered satisfactory, even though the *signal strength* it provides may be more than sufficient. Such a simple type of aerial has poor directivity and is vulnerable to multipath signals from many directions.

Type of Aerial

A well-sited outdoor aerial should be used where possible. Within the service area of a transmitter an 'H' type should suffice, of the form shown in *Figure 4*. At the fringe of service areas, or in low-lying badly screened regions, a more ambitious aerial similar to that illustrated in *Figure 5* may be required.

In some instances it may not be possible to erect an outdoor aerial. In such cases the next best location for an FM aerial is the loft. Since FM/VHF transmissions are horizontally pola-

rised the aerial can lie flat on the floor of the loft or, preferably, be raised a few inches above the joists.

If possible the aerial should be kept clear of electrical wiring, plumbing and water tanks. Especially try to avoid having large metal objects between the aerial and the direction of the transmitter.

The precise alignment of the aerial can be determined by observing the tuning indicator on the receiver (if one is fitted) while someone slowly rotates the aerial in the horizontal plane. When there is no tuning indicator, or signal strength meter, adjust the aerial to the position that gives the minimum noise level.

Many people, such as those living in blocks of flats without access to a good aerial site, are obliged to use some form of indoor aerial. A typical indoor FM/VHF array is seen in *Figure 6*. Telescopic elements provide adjustment to enable results to be optimised, but positioning in the room is also important and requires great care.

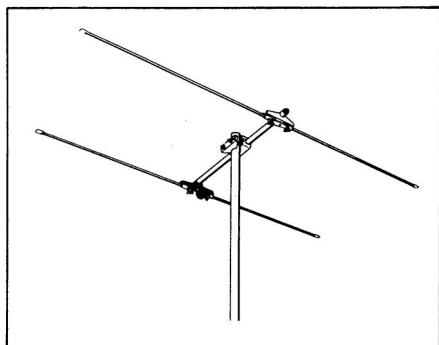


Figure 4 | General purpose aerial, suitable for most locations within the service area of an FM transmitter (Courtesy: Antiference Ltd)

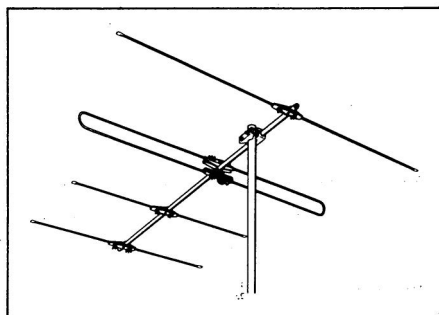


Figure 5 | Aerial for use at the fringe of a transmitter service area, or in low-lying regions within the service area (Courtesy: Antiference Ltd)

Aerial Installations

Outdoor aerials should be erected as high and as clear of obstructions as possible. Careful positioning and alignment is called for to achieve a high signal and low noise input to the tuner.

It should be noted that as signal input to the tuner increases, audio output also rises, up to the point where amplitude limiting takes place. Further increase of input level will not increase output, but it will decrease the noise level.

British made aerials are designed with an impedance of 75 ohms, to match into 75 ohm coaxial feeder cable. Tuners intended for this type of aerial cable have a suitable coaxial input socket. Some European tuners are designed for use with balanced feeder, in which case they will have an input socket for a two-pin plug.

An impedance matching unit, *Figure 7*, provides a correct match between a 75 ohm coaxial cable and the aerial input sockets of a tuner designed for balanced feeder.

If you have a tuner that incorporates long, medium and short-wave bands as well as VHF, it will be found that the FM aerial and feeder system provide an excellent aerial for the AM bands. For this purpose the coaxial cable outer and inner connections should be joined together to form a single aerial lead. The most convenient way of providing this facility is to have a spare coaxial socket with the pins connected together

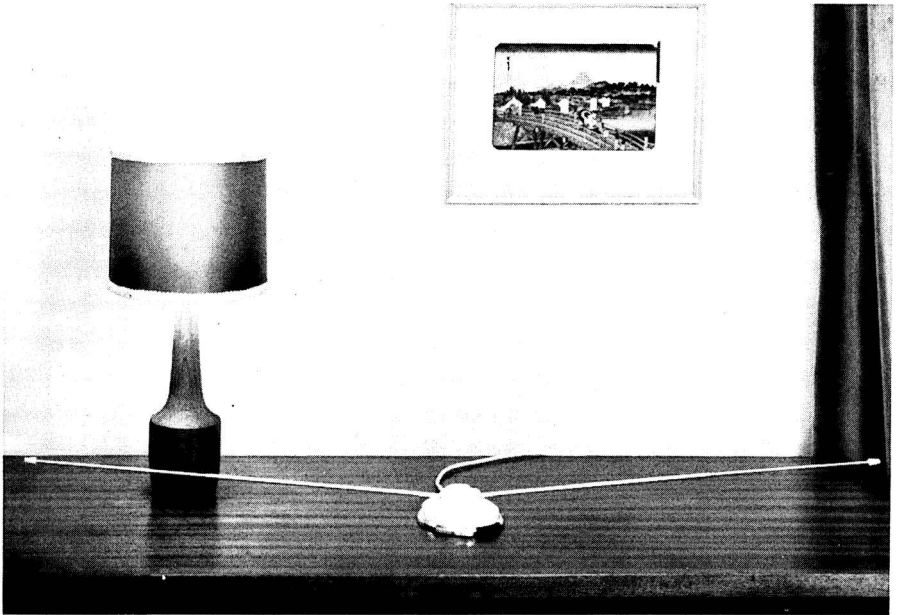


Figure 6 | Where it is not possible to erect an FM aerial outside or in the roof space an indoor type will often provide satisfactory results. Typical example shown (Courtesy: Antiference Ltd)

and wired to a short length of lead with an AM aerial plug on the end.

Finally; remember that an aerial cannot be too good—so aim for the best possible. Once installed it will require very little attention and will give you many years of pleasurable listening.

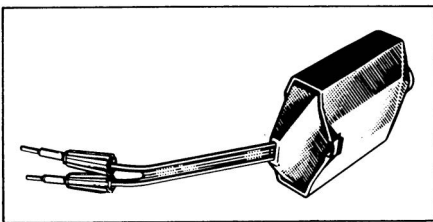


Figure 7 | Impedance matching transformer for connecting 75 ohm coaxial cable to balanced input sockets of a tuner (Courtesy: Antiference Ltd)

ABC of Pickup Parlance

Simple definitions of pickup, disc record and allied terminology

by Donald Aldous

Acoustic feedback

Unwanted transfer of vibrations from a speaker to a pickup which, in turn, are amplified and fed back to the speaker, building up into an audible oscillation or howl. Sometimes referred to as 'howl-back' or 'singing'.

A.E.S.

Abbreviation for Audio Engineering Society, a responsible American technical organization whose disc record/replay characteristic (curve) is now identical with the RIAA and BSI fine groove (33/45 rpm) standards.

Alignment

In this context, refers to the process of setting up a pickup arm for minimum distortion and friction, as the stylus and cartridge move across the record surface. See *Tracking Error* and *Radial Tracker*.

Alignment Protractor

Device (usually of ivory or cardboard) for measuring or indicating errors in lateral alignment of a pivoted pickup arm. Locates on turntable centre spindle, with pickup stylus placed in small hole. A simple template for checking tracking error (and reducing to zero on the inner grooves) can be made from a piece of cardboard having a spindle hole and a series of lines ruled across it. See *Tracking Error*.

Amplitude Pickup

In this type of cartridge the output voltage is proportional to amplitude of stylus displacement, as with piezo-electric (crystal or ceramic) or strain-gauge type of transducers. Automatically compensates, approximately, for recording characteristic when coupled with suitable load impedance.

Anti-Skating Device

Method or mechanism providing outward force on a pickup arm to counteract inward bias swing by groove/stylus friction and offset geometry.

Arm*

Refers to *Pickup Arm*, i.e. a movable bracket that should hold the pickup in the correct position to track the record grooves. Sometimes called a tone-arm which, strictly, refers to the

coupling device between the sound-box and horn of a mechanical (acoustic) gramophone. Often applied to the whole assembly, although strictly it excludes the cartridge element.

Bi-radial

See Elliptical Stylus.

Bias

In this context, side-thrust on pickup arm.

Bias Compensation

The provision of some method of compensating for the side-thrust, that is, an outward force on a pickup arm to counteract the inward swing or bias caused by groove/stylus friction and arm offset geometry. Means include a small weight on a nylon thread attached to the arm at a point behind the pivot and threaded over a bracket on the left of the arm (as promulgated in 1960 by John Crabbe, although his original idea was to put the thread on the righthand side in front of the pivot) and the magnetic bias compensator devised by Decca. Magnetic compensation for side-thrust is also used in the Audio & Design arm. The latter also eliminates friction from lead-out wires (which must always be carefully placed to avoid impairment of movement) by making its internal connections terminate in four tiny probes dropped into a sectionalized mercury bath.

Bottoming

Pickup stylus touches bottom of record groove due to smaller than optimum tip radius, thereby introducing distortion. The term, with a different meaning, is used extensively in transistor circuitry.

B.S.I.

British Standards Institution. Standard relating to record and groove dimensions is BS. 1928: 1955.

Cantilever

Strictly, a rigid bar or rod supported at one end. In pickup parlance, where cartridges employ the cantilever principle (e.g. most crystals/ceramics and variable-reluctance types), the stylus is attached to a small arm projecting from the

element. This cantilever system contributes to the vertical compliance necessary to cope with pinch effect. In some designs protection from damage to the assembly by dropping is provided by two small horns each side of the stylus tip.

Cartridge

The electro-mechanical elements of the transducer-plus-stylus assembly inserted into the pickup head. When prefixed by 'tape', refers to an endless loop, closed tape container for car or domestic music reproduction.

Ceramic

Synthetic piezo-electric or permanent-magnet material used in some pickups and speakers.

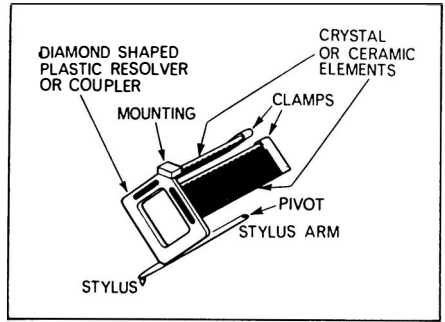
Ceramic Pickup*

A pickup cartridge containing piezo-electric elements composed mainly of barium titanate, but present-day materials have various additives and are two to three times more sensitive. Ceramic types are more resistant to high temperatures and humidity conditions than the original Rochelle salt cartridge elements.

cm
Centimetre.

cm²
Square centimetre.

cm/sec
Centimetres per second. Velocity expressed in these units and referring either to linear speed (of disc groove or tape) or the alternating velocity of disc groove, speaker diaphragm, etc.



Basic construction of ceramic cartridge

Coarse Groove

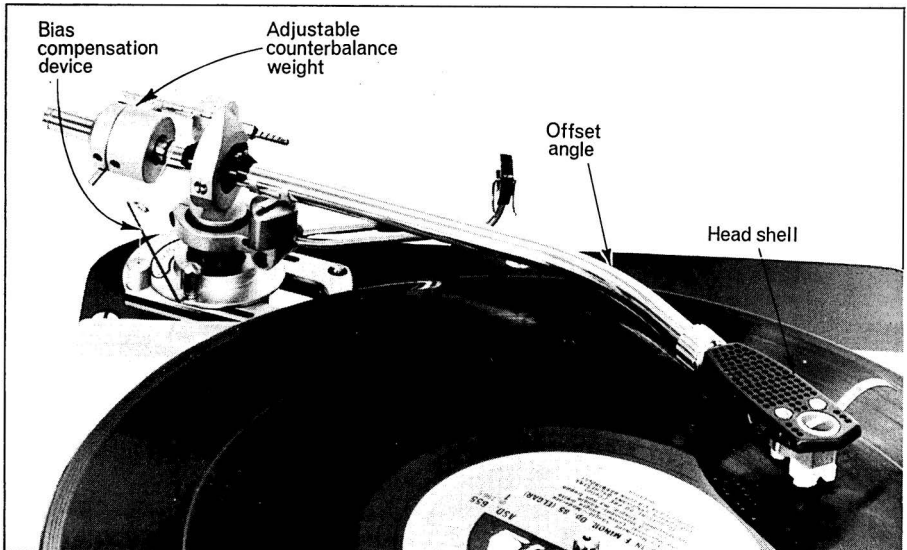
Refers to 78 rpm records, having about 100-120 grooves to the inch and a width across top of groove between 0.006-0.008 in. (6-8 thou).

Compatible

This term has several meanings, e.g. stereo disc claimed to be playable with a mono pickup; a mono pickup claimed to be suitable for playing stereo discs without damage; and a stylus (in stereo cartridge) with a tip dimension of, usually 0.0007 in. (0.7 thou) intended to be suitable for playing mono and stereo discs.

Compliance

Term applied to the movement of pickup stylus and speaker surround. Indicates how freely or stiffly a part required to move at audio frequencies can do so. Reciprocal of stiffness. This



SME precision arm and headshell showing some of the features mentioned in the text

yielding quality due to elasticity or springiness is measured in Compliance Units (C.U.). Static compliance is measure of yield produced by a fixed force and dynamic compliance represents yield with alternating force, which is often less than the former due to resistive behaviour of compliant substances. These figures should be quoted in relation to stylus pressure. For tracking stereo discs, vertical compliance, as well as compliance in the horizontal plane, is important. High compliance (or low stiffness) means better trackability, but demands a precision arm and low playing weight. Mechanically analogous to capacitance in an electrical circuit.

C.U.

Compliance Unit, which equals 10^{-6} cm/dyne, or the distance in millionths of a centimetre which the stylus will be displaced by a force of 1 dyne (roughly equal to a weight of 1 milligram).

Conical

Refers to cone-shaped stylus tip. The term spherical is also used in this connotation, as against elliptical or bi-radial.

Constant Amplitude

The disc recording characteristic wherein the groove displacement is directly proportional to the amplitude of the signal.

Constant Velocity

The disc recording characteristic wherein the groove displacement is inversely proportional to the signal frequency.

Correction

Compensation for response discrepancy. See *Equalization*.

C.p.s.

Cycles per second. The unit Hertz (Hz) is now the preferred symbol.

Crosstalk

In stereo cartridges the signals from left and right channels should be well isolated from each other, as any unwanted transfer will degrade the stereo image. This breakthrough of signal is measured as the difference in decibells (dBs) between the unwanted and wanted signal outputs. Unless otherwise quoted, it refers to a frequency of 1 kHz, where the figure is usually at its best, and it will deteriorate significantly at the highest frequencies. Also known as channel separation.

Damped

Electrical, mechanical or acoustic damping to reduce undesired resonances.

Damping

Energy dissipation by friction (in a mechanical

system) or resistance (in an electrical system) that reduces the amplitude of spurious oscillations or vibrations. Usually employed in connection with cartridges, pickup arms and speakers. Common damping materials include certain kinds of rubber, resins, silicone compounds, felts and wadding.

Decibel

Abbreviation dB. Logarithmic unit representing ratios and used for expressing widely differing quantities on a simple linear scale. dB number equals logarithm of a voltage ratio (multiplied by 20) and logarithm of a power ratio (multiplied by 10).

Decibel milliwatt

Abbreviation dBm. Power level referred to 1 mW into 600 ohms. (0 dB = 0.755V.)

Decoupling

In this context, refers to mechanical 'decoupling' by introducing compliance in pickups (and speakers), or between turntable motor board/pickup arm to overcome acoustic feedback.

De-emphasis

A form of equalization in record reproduction (or FM radio reception). Complementary to pre-emphasis in the recording process or transmission. Usually means reduction of high-frequency level in reproduction to correct corresponding boost in recording. Improves signal/noise ratio.

Dolby System

A sophisticated audio noise reduction process, which involves compression of low level signals before recording on to tape and expansion on replay. Extensively used in commercial recording. A simplified version, type B, now available for home tape applications, particularly cassette units. Work in hand on a type C circuit for attacking the problems of noise (including stamper and pressing flaws) in disc records.

Dynagroove

Trade name of recording/processing system developed by RCA Victor in America. Intended to compensate automatically for technical limitations in replay arising from pickup parameters and domestic reproduction preferences.

Dynamic Mass

The effective mass, or weight, of a moving element. Usually refers to the stylus assembly of pickups, arms and moving parts of speakers.

Dynamic Range

The ratio between the loudest and softest sounds a system, record or tape, will handle without exceeding a certain distortion level. In equipment, upper limit is set by overload point and lower limit by background noise.

Dyne

Unit of force equivalent approximately to 1 milligram weight.

Dyne/cm²

Dynes per square centimetre.

Electrostatic cartridge

An original type of pickup cartridge designed by Hirotake Kawakami of the Japanese Sony Corporation. The transducer is electrostatic with FET preamplifier. Power supply is 24V DC at 1 mA. Stylus movement is converted into pressure vibrations that impinge on the capacitor transducers (virtually tiny condenser microphones). Claimed frequency response is 10 Hz-25 kHz. Not yet on the market.

Elliptical, or Bi-radial

Refers to styli that sit across the groove to avoid 'bottoming'. The minor radius helps to resolve the minute waveforms at high frequencies and at the inner grooves. Intended to minimise tracing distortion. The most common radii are 0.0007 × 0.0003 in. (18 × 8 microns) but other dimensions over the range 0.0002 to 0.0009 in. are in use.

Equalization*

A circuit that boosts or decreases the intensity of the low, middle or high frequencies in the recording or replay amplifier, or both. This tailoring of the frequency response is designed to correct or compensate for any deficiencies in the system and to improve the signal/noise ratio.

Fine Groove

Refers to 45, 33½, 16 rpm or slower-speed microgroove discs. LP 33½ rpm records and the

45 rpm 7 in. discs have a groove width between 0.002 and 0.003 in. with 200 to 300 grooves to the inch. The 'land' between grooves is 0.0017 in. and the included angle is about 90° in all sizes. The maximum bottom radius is 0.001 in. (78s) and 0.00015 in. (LPs and 45s).

Free Field

A form of magnetic cartridge, so-named by Goldring, employing the induced magnet principle.

45/45 Cut

Refers to the groove of a stereo disc, in which each signal is recorded at 45° to the surface of the disc and, of course, at right angles to the other signal for the second channel.

g

Acceleration due to gravity. Figures (in tracking stereo grooves) are typically as high as 1000 g, and on occasion reach 3000 g.

Gram

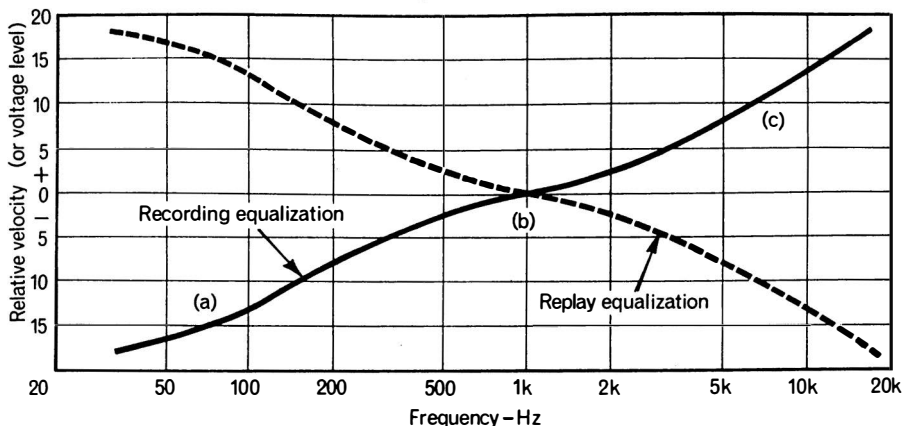
Approximately 1/28th of an ounce. Apart from indicating a gram weight (gm), it stands for gramophone and pickup (or Phono, in USA). Often used to label pickup sockets or inputs, and the pickup position on input selector switch.

Induced Magnet

A type of pickup transducer, which contains a fixed coil and a fixed magnet that induces its field into a tiny moving armature which is rocked by the stylus movement. Example: ADC series.

Inner Groove Distortion

Increased tracing distortion at small record radii due to reduced linear groove speed and accom-



RIAA equalisation curves. (a) constant amplitude, (b) constant velocity and (c) pre-emphasis

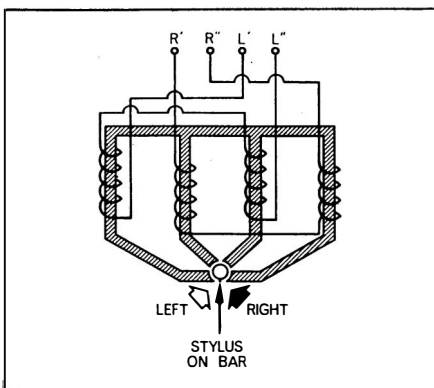
panying shorter recorded wavelengths. Particularly troublesome with high frequencies towards the centre of the disc.

Jewel

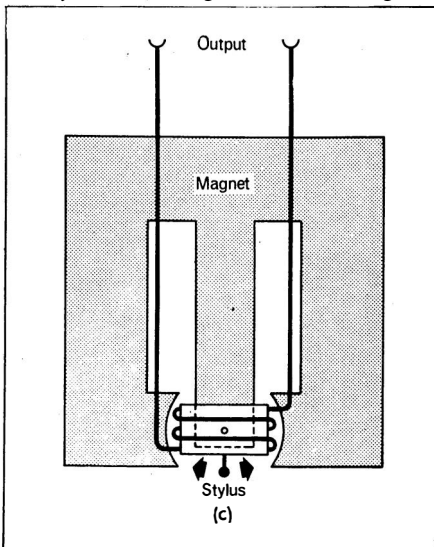
Outmoded term (although still used in USA) referring to the hard polished sapphire, ruby or diamond styli fitted to modern lightweight pickups, in contrast to the old soft steel, thorn or fibre needles of earlier days of record reproduction.

Magnetic Pickup*

Gramophone pickups employing electromagnetic transducers, such as the moving-iron, variable reluctance, moving-magnet, induced magnet and moving-coil types. Output voltage



Tannoy Vari-Twin magnetic stereo cartridge



Principle of moving coil pickup cartridge

is proportional to the rate of alternating stylus motion or velocity.

Mechanical Impedance

The opposition to change of position or velocity due to inertia (effective mass), stiffness, and mechanical resistance (friction), or any combination of these three factors.

Metric Equivalents

Record sizes: 12 in. = 30 cm, 10 in. = 25 cm and 7 in. = 17.5 cm. Stylus tip sizes: 0.2 mil = 5 μ, 0.5 mil = 13 μ, 0.7 mil = 18 μ and 1 mil = 25 μ.

Microgroove

See *Fine Groove*.

Micron

One-thousandth of a millimetre (μ). With reference to styli tip dimensions: 75 microns (0.003 in.) for 78 rpm coarse groove, 25 microns (0.001 in.) for LP grooves, and 13 microns (0.0005 in.) for stereo microgrooves.

Mil

One-thousandth of an inch, (equals 25 microns).

Monaural

One-eared, instead of two. Wrongly used for monophonic.

Mono

Monophony or monophonic. Single-channel sound systems as distinct from stereo and multi-channel systems.

Moving-coil pickup*

A type of pickup in which the stylus moves a small coil in a magnetic field (provided by a permanent magnet) to produce an audio voltage. Example: Ortofon SL15 series.

Moving-iron pickup*

A fixed coil/magnet assembly with a soft iron armature moved by the stylus vibrations which, in turn, vary the magnetic field. Example: B & O SP series.

Moving-magnet*

These contain a fixed coil assembly with a usually cylindrical magnet assembly that is rocked by the stylus movement. Examples: Shure, Elac, Pickering, Audio-Technica, etc.

Mu-metal

An alloy of iron/nickel with special properties that make it eminently suitable for magnetic screening of components.

mV/cm/sec

Abbreviation for millivolt per centimetre per second (method of expressing pickup sensitivity).

NAB (or NARTB)

National Association of Broadcasters (or National Association of Radio and Television

Broadcasters). Commonly refers to tape standards and a disc recording characteristic.

Offset Angle

The angle between the vibration axis of the pickup head or cartridge and an imaginary line from stylus to carrying arm pivot. In combination with overhang minimises lateral tracking error.

Overhang

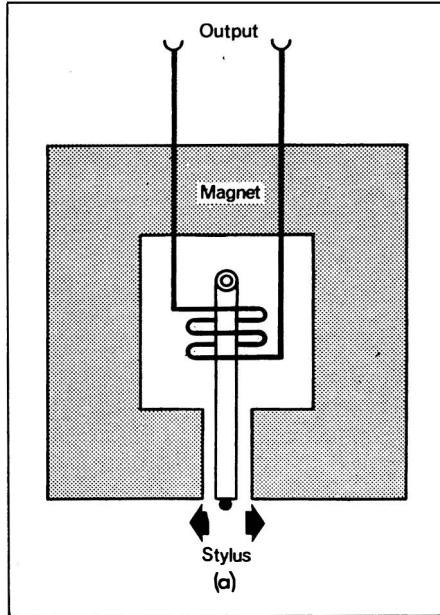
The critical extent to which the stylus overhangs the turntable centre spindle when a pivoted offset carrying arm is mounted for minimum tracking error.

Parallel Tracker

Type of pickup arm designed to produce movement of pickup cartridge exactly parallel to disc radius (not an arc as with a pivoted arm), with replay stylus always located on that radius. for zero lateral tracking error. See *Radial Tracker*.

Parastat

Trade name of the late C. E. Watt's device for cleaning both sides of an LP disc simultaneously and making the surfaces inert in static charges. A range of record cleaning and maintenance devices, such as the 'Manual Parastat', 'Disc Preener' and 'Dust Bug' is marketed by the Watt's company.



Basic moving iron configuration

Photo-Electric Pickup*

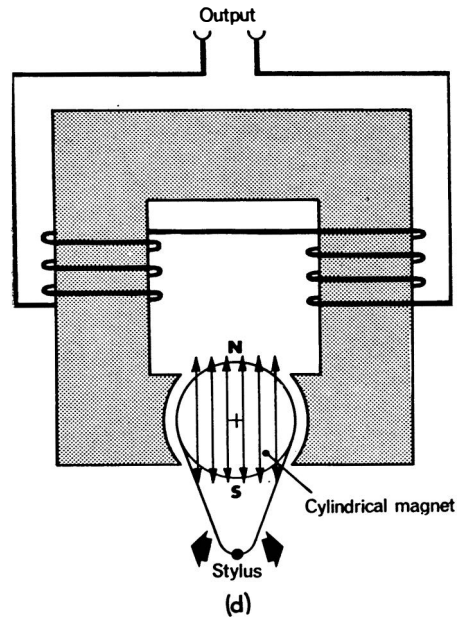
Type of cartridge using some form of light-ray modulation. A small lamp is focused on a pair of photo-diodes, and the stylus movement causes a mirror surface or diaphragm to change the intensity of light on the diodes, which modulates the current in the circuit. Moving mass is low, as no voltage generating element is coupled to the stylus.

Pickup

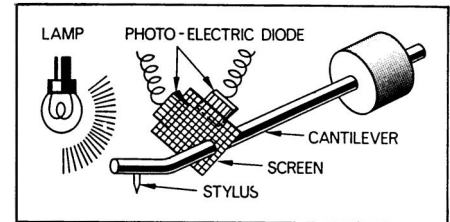
Transducer that converts vibrations of a pickup stylus into electrical signals for amplification before conversion into sound by the speaker. Modern equivalent of sound-box.

Pickup Adaptor

Small plug-in unit, sometimes a printed board, that automatically adjusts sensitivity and fre-



Moving magnet cartridge arrangement



Principle of photo-electric cartridge

quency response of input circuit to suit a specific pickup. Fitted to some amplifier/control units.

Pickup Arm

Mechanical assembly of arm, pivots, counterweights, bias compensating device. For carrying pickup head and cartridge across a disc surface.

Pickup Head

Part of a pickup assembly housing the transducer (cartridge) and situated at free end of the arm. Often removable (sometimes known as 'G' plug-in head) and usually in the form of a head shell (locked in place by turning a knurled ring) containing the cartridge.

Piezo-Electric Effect

Means pressure-electric, from the Greek *piezein*, to press. The property possessed by certain crystals, notably Rochelle salt, barium titanate and quartz, in which twisting or bending of the material produces an electrical output.

Pinch Effect

Caused by the difference in shape between the cutting stylus, which has a flat cutting face and produces a varying groove width, and the replay stylus tip (usually spherical). Results in slight vertical motion at twice the recorded lateral frequency, and contributes to tracing distortion. Occurs with both mono and stereo discs, though no corresponding vertical output components are produced if the cartridge is insensitive to vertical modulation.

Playback

Synonym for Replay.

Playing Weight

Downward force applied at pickup stylus. Usually quoted in grams. In conventional arms, the weight of the cartridge, head shell and the major length of the arm are opposed by a short extension of the arm to the rear and a relatively heavy counterbalance weight. Too low playing weight can be as deleterious to sound quality, and contribute almost as much to record wear, as excessively high weight.

Pole-pieces

End sections of a magnetic system (say, in pickup or speaker) across which a field is applied or induced.

Pre-emphasis

Emphasis or boosting of high-frequencies in recording or broadcast transmissions.

Pre-distortion

Modification of recorded waveforms on disc to compensate for tracing distortion introduced by replay stylus with a finite tip radius. See *Dynagroove*.

Pre-echo

Faint facsimile of following loud passage on disc due to a slight deformation of adjacent groove (perhaps caused during cutting of original lacquer master disc). Sometimes also caused by print-through on tape masters.

PU

Abbreviation for Pickup.

Pw

Abbreviation for playing weight.

Radial Tracker

A radial (or parallel or linear) tracking arm. Enables a pickup to move in a straight line across the radius of a disc in such a way that its vibration axis is always tangential (at right angles) to the mean line of the groove. This eliminates tracking error and corresponds to the tracking conditions of the original recording lathe. Over the years various designs of this type have been created, including the American Rabco, the Marantz, and a British model by A. Rangabe, not yet marketed.

Rake Angle

Angle that the pickup stylus shank makes to the disc surface, when viewed from the side. Must not be confused with vertical tracking angle.

Recording Characteristic*

In disc recording it is standard practice for the frequency spectrum of the signals applied to the cutter to be attenuated at the low-frequency end and emphasised at the upper frequency end. The relation between the lateral velocity of the cutter and frequency is called the recording characteristic. Any required response can then be obtained by inserting suitable frequency response shaping networks into the recording amplifier. A flat overall response (if required) can be obtained by the use of an appropriate inverse equalisation in replay. See *RIAA*.

Recording/Reproduction Correlators

Electronic devices that attempt to correct tracing distortion by modifying the recorded waveform before recording.

RIAA

Record Industry Association of America. The standard recording characteristic in Britain and most other countries for microgroove discs. Commonly refers to disc replay curve, which is the inverse of the recording characteristic. With 1 kHz as zero reference level, the RIAA curve for recording is -18.6 dB at 30 Hz, $+13.7$ dB at 10 kHz, rising to $+16.64$ dB at 14 kHz and $+19.6$ dB at 20 kHz.

Ribbon Pickup

A moving-coil type of transducer made with a

single strip of thin metallic foil or wire. Several models with excellent performance were designed many years ago but failed to survive commercially. They were usually fragile and, due to low output, prone to hum.

Roll-off

The frequency at which a filter, equaliser or tone control begins to attenuate. The rate of slope. In recording, it can be defined as the difference in level (in dBs) between stylus velocities at 1 kHz and 10 kHz. This term—as did *Turnover*, which see—originated in the design of replay circuits, but has carried over to the recording system.

Rumble

Spurious low frequency noise, generated by vibration of the turntable motor or the driving links, transmitted to the pickup cartridge, via the record, then reproduced through the system. Becomes more intrusive as the low-frequency response of the system improves. Decoupling the motor from turntable by belt drive often helps to reduce rumble.

Rumble filter

An electrical filter circuit designed to attenuate the low rumble frequencies.

Sensitivity

Usually the measure of signal level required at the input of amplifier, radio tuner, control unit, or transducer to produce a stated output. The lower the necessary input, the higher the sensitivity figure. Is also applied to pickup cartridges and microphones to indicate output voltage for a given input velocity or force.

Separation

The extent to which left and right channel stereo signals are isolated in pickup, amplifier, etc. Measured in dBs.

Side-Thrust

Unwanted lateral force on pickup arm. See *Anti-skating* and *Bias Compensation*.

S/N Ratio

Signal-to-noise ratio. The ratio of desired or reference signal voltage to unwanted noise and hum. Measured in dBs.

Slope

Steepness of sloping section on a frequency response curve. Usually stated in decibels per octave (dB/octave).

Skating Force

The inward bias on pickup arm caused by groove/stylus friction and offset geometry.

Stiffness

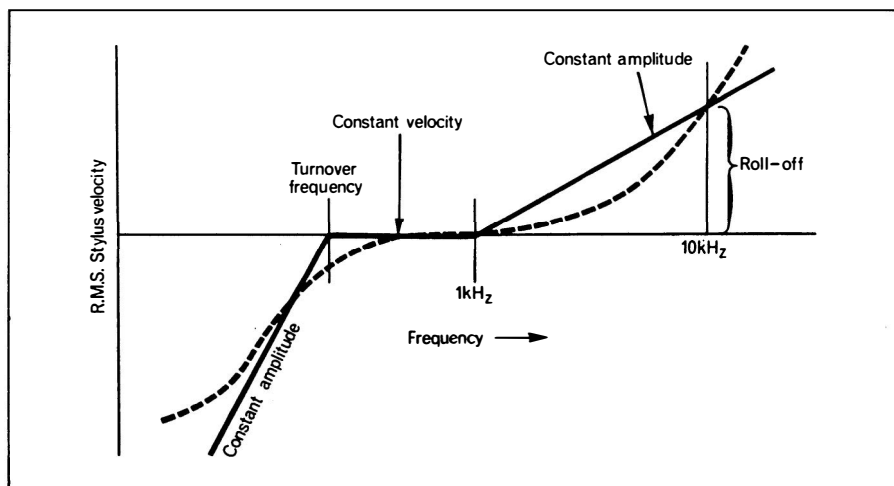
Opposition to motion due to rigidity of moving parts. Reciprocal of compliance.

Strain-gauge pickup

A type of transducer which, unlike magnetic and piezo-electric pickup elements, is not a generator but operates by modulating a DC current supplied from an external source. Distortion is low and signal/noise ratio good, but frequency response and crosstalk are usually inferior to the best magnetic units. One commercial example is the Miniconic U15-LS, known as a variable resistance or semi-conductor device.

Stylus

Modern equivalent of the earlier steel or non-



Ideal recording characteristic shown in solid line. Practical response curve shown dotted

ferrous needle. Consists of a sapphire or diamond tip precisely shaped to fit the groove contour.

Stylus Arm (or Bar)

Cantilever carrying pickup stylus.

Stylus Force

Downward force, or pressure, exerted on the stylus to keep it in the groove. The playing weight, measured in grams.

Sum-and-Difference*

Two outputs derived from a pair of stereo signals, one comprising the sum of left and right channels, and the other the difference. On stereo discs, these two quantities are represented by lateral and vertical modulation components respectively. Term also applies to a type of moving-iron cartridge that responds to lateral and vertical signals in this manner, for example, the Decca *ffss* design.

Swinger

A disc in which the spindle (centre) hole is not exactly concentric to the groove spiral, causing wobble or wow in the reproduction.

Temperature effects

Some 90% of all twin-channel cartridges used in inexpensive domestic record players and stereograms are crystal/ceramic, and the plastic materials used in these transducers have their output and compliance decreased with increasing temperature.

Tip Mass

Effective inertia at tip of stylus, as seen by record groove. Stated in milligrams (mgm). As yet, no agreed or completely reliable way of measuring this parameter.

Tone arm

Strictly, the coupling tube between the sound-box and horn of a mechanical (acoustic) gramophone. Used today (chiefly in USA) as a synonym for pickup carrying arm.

Topping

Pickup stylus reaching 'shoulders' or top edges of record groove due to longer than optimum tip radius, as seen from front or back.

Torsion

Twisting moment or force.

Tracing

The accuracy with which a pickup stylus tip follows the geometry of the recorded waveform.

Tracing Distortion

A form of harmonic distortion in disc reproduction, due to the difference in shape of the cutting and replay styli. This means that the pickup stylus cannot follow the groove modulations exactly—due to finite tip radius. Affected by a large number of variables, but can run to the order of 2 to 3%, at 1 kHz and 25 cm/sec modulation velocity.

Trackability

A criterion of performance of a pickup, introduced by Shure. Indicates the ability of a pickup cartridge to track recorded waveforms of high amplitude and velocity. The ability to track such modulations at a low playing weight signifies high trackability, that is, low mechanical impedance at stylus tip.

Tracking

Accuracy with which a stylus follows the dynamics of recorded waveforms.

Tracking Distortion

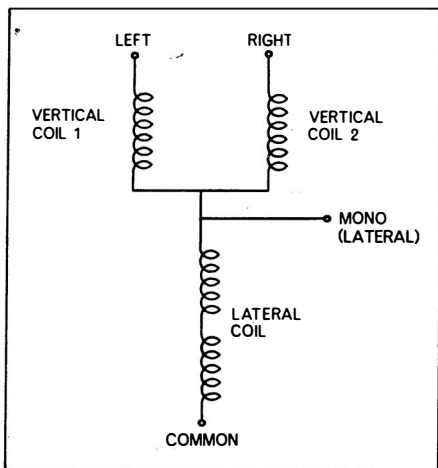
Inability of pickup stylus to follow recorded waveforms due to high mechanical impedance or low playing weight.

Tracking Error

Lateral tracking error is the departure from exact tangential alignment of the replay stylus with the record groove, inherent in the design of any pivoted carrying arm. The angle, measured in degrees, between the rocking axis of the pickup and a line tangent to the groove being played. Vertical tracking error applies to stereo pickups only and is the angular difference between path taken by stylus when deflected upwards and the effective recorded 'vertical' component on stereo discs. The latter is now standardised at 15° forward from true vertical.

Tracking Force (or Tracking Weight)

Downward force or pressure applied at pickup stylus to ensure correct tracking of groove waveforms. Quoted in grams. See *Playing Weight*.



Circuit for sum and difference cartridges

Transducer

Name given to any device for converting energy from one form to another. For example; mechanical (acoustic) to electrical, or vice versa, hence a term covering microphones, pickups, recording heads and speakers.

Translation Loss

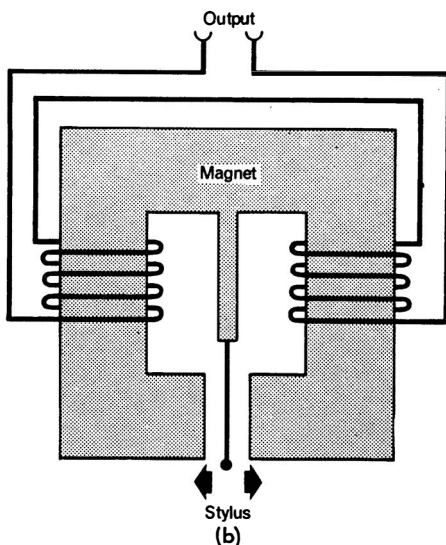
This is the difference between the reproduced levels at two different but equally modulated radii of a disc. That is, the difference between the replay losses in the two positions, where the replay loss refers to the difference between the recorded and reproduced level at the identical radius of a disc. Described by J. Walton as, basically, a playback loss at high frequencies, due to softness of record material.

Turnover

The frequency at which an audio system experiences a change in mode of operation, or a response curve alters its shape or slope. This crossover or turnover point is usually between 250 and 500 Hz or 700 to 1,000 Hz. The turnover from constant velocity recording to the constant amplitude characteristic is to conserve recording space. Term also refers to a type of pickup cartridge which can be twisted or turned over (or under in some examples) to play LP and standard 78 discs.

Unipivot

Pivoting system—in some types of pickup arm—in which all rotation is about a single point.



Variable Reluctance*

See *Magnetic Pickup*.

Velocity

Rate of change. Often refers to stylus motion generated by record groove, namely, its recorded velocity. Also applied to linear speed of record groove or tape.

Velocity pickup

Pickup cartridge with output voltage proportional to rate of alternating stylus motion—hence the term velocity. Usually means a magnetic type of transducer, and it must be used with correct equalisation for recording characteristic.

Vertical Tracking Angle

In stereo pickup cartridge, the stylus motion path in relation to true vertical, now generally standardised at 15° forward. Not to be confused with stylus rake angle.

Waveform

At audio frequencies the shape of a sound wave, as drawn on graph paper, shown on an oscilloscope screen, or impressed in the groove of a disc.

Weighted

Any modification to a characteristic, nominally flat, e.g. a response curve, of a measuring device, is giving it a weighted figure. The purpose is to relate it more closely to subjective data (e.g. loudness contours of the human ear) and assess its actual disturbance value. Without this correction, the response is called 'unweighted'.

Dimensions of Standard and Microgroove Records

Coarse groove	
Record speed, r.p.m.	78
Nominal size, in.	12
Diameter of outermost groove, in.	11½
Diameter of innermost groove, in.	3¾
Width across top of groove, in.	0.006-0.008
Groove spacing, in.	0.029-0.031
Pitch (grooves/in.)	70-120
Coarse groove	
Record speed, r.p.m.	78
Nominal size, in.	10
Diameter of outermost groove, in.	9½
Diameter of innermost groove, in.	3¾

*Increased to 350/in. for quiet passages at low amplitudes.

Reduced to 150/in. for fortissimo passages at high amplitudes.

Width across top of groove, in.	0-006-0-008
Groove spacing, in.	0-029-0-031
Pitch (grooves/in.)	70-120

Microgroove

Record speed, r.p.m.	33½
Nominal size, in.	12
Diameter of outermost groove, in.	7 11½
Diameter of innermost groove, in.	4¾
Width across top of groove, in.	0-002-0-003
Groove spacing, in.	0-009-0-011
Pitch (grooves/in.)	200-300*

Microgroove

Record speed, r.p.m.	33½
Nominal size, in.	10
Diameter of outermost groove, in.	9½
Diameter of innermost groove, in.	4¾
Width across top of groove, in.	0-002-0-003
Groove spacing, in.	0-009-0-011
Pitch (grooves/in.)	200-300*

Microgroove

Record speed, r.p.m.	45
Nominal size, in.	7
Diameter of outermost groove, in.	6⅝
Diameter of innermost groove, in.	4⅝
Width across top of groove, in.	0-002-0-003
Groove spacing, in.	0-009-0-011
Pitch (grooves/in.)	200-300*

Spindle-hole diameter, in. 0-285-0-289

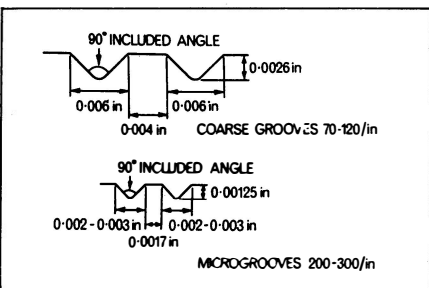
For 45 r.p.m. discs, optionally knock-out centre, in. 1-502-1-506

Eccentricity

Centre of spindle-hole not more than 0-005 in. from centre of groove spiral.

*Increased to 350/in. for quiet passages at low amplitudes.

Reduced to 150/in. for fortissimo passages at high amplitudes.



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Sonotone is one of the largest manufacturers
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association with advanced research and development
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Goldring Audio Equipment



Goldring-Lenco GL75 transcription unit

Built to instrument standards. Drive system is the unique Goldring-Lenco constant velocity 4-pole motor with conical shaft coupled to the underside of the turntable by a knife-edged idler (automatically disengaged by the on/off switch, which is fully click-suppressed and also operates a turntable brake).

Turntable is die-cast from non-ferrous material, weighs 9 lb and is dynamically balanced.

Speed continuously variable from 80-30 r.p.m. and from 18-15 r.p.m., with adjustable positive stops for the four standard playing speeds. There is only 0.2% change of speed for 10% mains voltage change.

Available in chassis form, or as the GL 75/P mounted on an attractive teak base for which a clear plastic dust cover is available as an optional extra. The transcription arm is lowered onto the record by a viscously damped lowering device.

Recommended List:

GL 75 £29.8.0 plus £7.0.2. P.T.
GL 75/P £36.5.6. plus £8.12.11 P.T.
Plinth 75 £6.17.6. plus £1.12.10 P.T.
Lid 75 £3.8.0. plus 16/3 P.T.

Goldring-Lenco GL69 transcription unit

The Goldring-Lenco GL 69/2 follows in the tradition of previous Goldring-Lenco Transcription Turntables in terms of quality and facilities. Its speeds can be continuously varied from 30 r.p.m. to 86 r.p.m. and there are pre-set click-in stops at 16 $\frac{2}{3}$, 33 $\frac{1}{3}$, 45 and 78 r.p.m. The mains on/off switch is fully suppressed, and the idler wheel is automatically disengaged from both turntable and drive as the unit is switched off. The GL 69/2 is fitted with the L 69 Arm which can be lowered onto the record by a viscously damped lowering device. A simple yet effective form of bias compensation is incorporated permitting even the highest quality stereo cartridges to be used. The GL 69/2 is available in chassis form or as the GL 69-2/P, mounted on a very attractive teak base for which a clear plastic dust cover is available as an optional extra.

Recommended List:

GL 69/2 £21.10.0 plus £5.2.6. P.T.
GL 69-2/P £27.7.6. plus £6.15.4. P.T.
Plinth 69 £6.17.6. plus £1.12.10. P.T.
Lid 69 £3.8.0. plus 16/3 P.T.



Goldring G99 transcription unit



For those who prefer to mount, separately, an arm of their own choice. Unique Goldring-Lenco continuously variable speed and vertical drive features, with less than 1% speed change for 13% mains voltage variation. 8-lb non-magnetic turntable and built-in neon-lit stroboscope. Switched by push-buttons coupled to idler disengagement mechanism. Adjustable click-in positions for the four standard playing speeds. 200/250 V A.C. 50 Hz. 15 VA. Dimensions: 14½ in. x 13¼ in.

Recommended List:

G 99 - £19.19.0. plus £4.15.0. P.T.

C 99 American Walnut cabinet illustrated has detached panel for arm mounting, and clear plastic dust cover. *Recommended List:* £8.19.6. plus £2.2.10. P.T.

Goldring-Lenco L75 transcription arm

(as fitted to the GL 75 Transcription Unit)



Single-hole fixing for arm and single hole fixing for rest, plus simple full height adjustments. An easy-to-fit high quality arm. Knife-edge bearings ensure virtually frictionless movement and the rear counter-balance is used to achieve both arm balance and freedom from lateral swing. Stylus pressure is adjustable in steps of 0.5 gram from 0.5 to 5 grams. Bias compensation is achieved by a small suspended weight positioned to suit stylus tip radius and playing weight. Ultra light interchangeable headshell, takes all standard

cartridges, to achieve accurate stylus positioning.

Recommended List: £10.2.6. plus £2.8.4. P.T.

Goldring-Lenco L69 transcription arm

New light pick-up arm has a removable plug-in shell for all standard fixing cartridges - mono and stereo. Height of arm and position of stylus in headshell can be adjusted to give optimum tracing. Stylus pressure adjustable by sliding counterweight.

Recommended List: £7.10.0. plus £1.15.9. P.T.

Goldring range of Free-Field cartridges

The Goldring 800 Series of True Transduction cartridges has been developed on the unique 'Free Field' principle which allows even the most delicate groove-stored signals to be accurately relayed and re-created with uncompromising precision.

800/H for inexpensive changers to track between 2½-3½ grams, has a high output of at least 8 mV.

800 for standard arms and changers where the requirements of high fidelity and robustness usually conflict.

800/E for transcription arms; a micro-elliptical diamond is fitted to a finer cantilever end damped against natural tube resonances, and is accurately terminated in a special conical hinge to give pin-point pivoting.

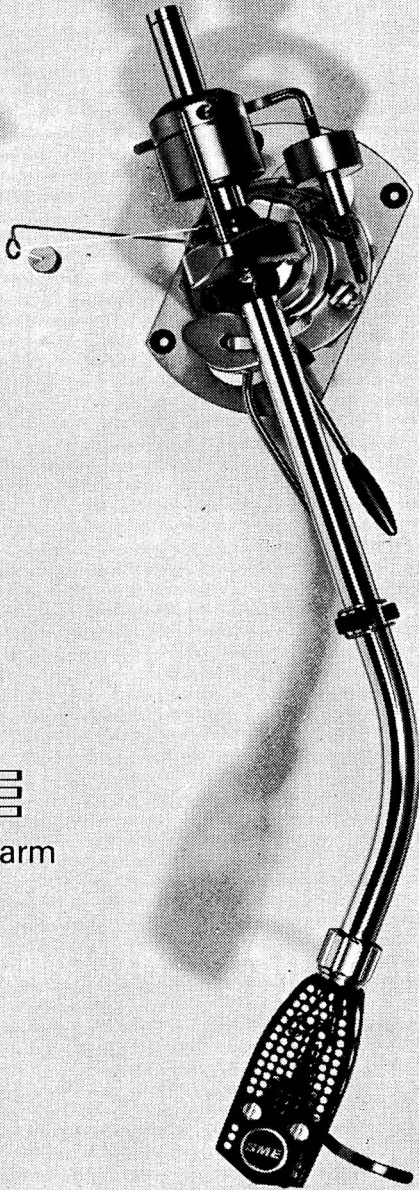
800 Super E is for those to whom perfection is barely good enough. Extraordinarily low mechanical impedance for ultimate tracking capabilities is achieved by a duopivoting arrangement, membrane controlled to avoid any longitudinal or torsional modes which could blemish its exceptionally smooth and extended response. Each cartridge has individual curve and calibration certificate.

850 A relatively inexpensive Free-Field stereo magnetic cartridge capable of bringing out the best performance that 'budget' hi-fi systems can provide. Easily removable plug-in stylus.

Recommended List: 800/H - £8.12.6. plus £2.1.3. P.T. 800 - £10.10.0. plus £2.10.0. P.T. 800/E - £15.4.6. plus £3.12.7. P.T. 800 Super E. £21.0.0. plus £5.0.0. P.T. 850 - £5.5.0. plus £1.5.0. P.T.

Goldring Manufacturing Co. (Great Britain) Ltd.
10 Bayford St. Hackney London E8 3SE Phone 01-985 1152





SME

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Directory of Pickups and Arms

In the abridged specifications of this directory, the following abbreviations are used for economy of space: **Pw**=recommended playing weight; **mg**=milligram; **gm**=gram; **Rec load**=recommended resistive load; **mV**=millivolt. In all cases where decibel limits for frequency response and frequency for stated separation are given by manufacturer, these are included. Output is usually referred to a recorded velocity of 1 cm/sec; this figure should be multiplied by five for the practical music output.

★ indicates model is illustrated.

ACOS

Cosmocord Ltd, Eleanor Cross Road, Waltham Cross, Herts.

Tel: Waltham Cross 27331. Telex: 24294.

GP91-1 SC★

Mono/stereo compatible crystal cartridge. Turnover dual stylus. Pw 3-6 gm. Tip mass 2.5 milligram (sapphire), 2.8 milligram (diamond). Dynamic compliance: vertical 2×10^{-6} cm/dyne, lateral 4×10^{-6} cm/dyne. FR 50 Hz-12 KHz. Output: 178 mV. Min load 1 megohm. Price: (sapphire/sapphire) £1 7s 6d (plus 6s 6d PT); (diamond/sapphire) £1 16s 1d (plus 8s 7d PT).

GP92-1 SC

Monó ceramic cartridge. Turnover stylus assembly. Stereo/LP 0.6/0.8 thou diamond or sapphire, 78 2.5 thou sapphire. Pw 4-10 gm. Tip mass 2.5 mg dynamic. Compliance: 2.5×10^{-6} FR 150 Hz-16 KHz ± 3 dB, 12 dB down at 30 Hz relative to 1 KHz. Output: 100 mV. Load impedance 1 megohm. Low temperature coefficient. Price: (sapphire/sapphire) £1 10s (plus 7s 2d PT); (diamond/sapphire) £2 (plus 9s 6d PT).

GP93★

Stereo crystal cartridge. Turnover dual stylus. Stylus 0.6/0.8 thou diamond or sapphire, 2.5 thou sapphire. Pw 4-8 gm. Tip mass 2.5 mg dynamic. Compliance: vertical 2.2×10^{-6} cm/dyne, lateral 2.2×10^{-6} cm/dyne. FR flat 250 Hz-18 KHz 3 dB down at 100 Hz relative to 1 KHz. Output: 250 mV. Rec load 1 megohm. Low temperature co-efficient. Price: (sapphire/

sapphire) £2 (plus 9s 6d PT); (diamond/sapphire) £2 10s (plus 11s 11d PT).

GP94★

Stereo ceramic cartridge. Turnover dual stylus. Stylus 0.6/0.8 thou diamond or sapphire, 2.5 thou sapphire. Pw 2-4 gm. Tip mass 2.5 mg dynamic. Compliance: lateral 5×10^{-6} cm/dyne, vertical 6×10^{-6} cm/dyne. FR flat 100 Hz-12 KHz, 7-8 dB down at 30 Hz relative to 1 KHz. Separation 20 dB at 1 KHz, 8 dB at 10 KHz, minimum. Output: 80 mV minimum. Load impedance: 1 megohm each channel. High capacity ceramic elements (1,000 pF). Low temperature co-efficient. Price: (sapphire/sapphire) £2 5s (plus 10s 9d PT); (diamond/sapphire) £2 15s (plus 13s 1d PT).

GP95

Specification and price as GP93. Stylus (LP) 0.5-0.6 thou; (stereo/LP) 0.6/0.8 thou.

GP96

Specification and price as GP94. Stylus (LP) 0.5-0.6 thou; (stereo/LP) 0.6/0.8 thou.

104★

Stereo ceramic cartridge. Two versions; turnover and single-sided. Stylus: 0.5/0.7 thou and 2.5/3 thou. Sapphire or diamond. Pw 3-4 gm. Tip mass 2-3 mg. Compliance: (static) lateral 20×10^{-6} , vertical 17×10^{-6} ; (dynamic) lateral 6×10^{-6} , vertical 5×10^{-6} . Separation: 20 dB at 1 KHz, 7 dB at 10 KHz. FR 70 Hz-15 KHz ± 5 dB. Output: 100 mV. Rec load minimum 1 megohm. Prices: (sapphire/sapphire) £3 3s (plus 15s PT); (diamond/sapphire) £3 13s (plus 17s 5d PT); (diamond/diamond) £3 19s 2d (plus 19s 4d PT).

AUDIO DEVELOPMENTS

U.K. distributors: B. H. Morris & Co (Radio) Ltd, 84-88 Nelson Street, Tower Hamlets, London, E1 2DY. Tel: 01-790 4824.

AD76K

Moving magnet stereo cartridge for stereo and LP only. FR 20 Hz-20 KHz. Sensitivity 5 mV at 1 KHz. Diamond stylus. Channel balance within 2 dB. Separation 20 dB. Compliance 10×10^{-6} cm/dyne. Tracking force 0.5 gm. Weight: 5 gm. Dimensions: $30 \times 10 \times 16$ mm with standard $\frac{1}{2}$ in centres. Price: £4 10s (including PT). Replacement stylus JS-P1 £1 18s 6d (including PT).

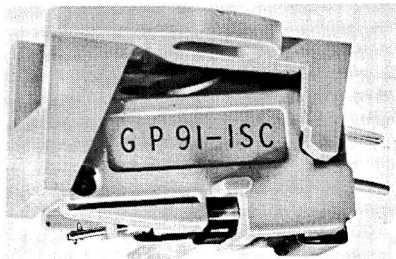
AD96K★

Moving magnet stereo cartridge with diamond stylus. FR 20 Hz-20 KHz. Sensitivity 5 mV at 1 KHz. Channel balance within 2 dB. Separation: 20 dB. Compliance: 12×10^{-6} cm/dyne. Pw 2 gm. Standard $\frac{1}{2}$ in centres. Price: £5 18s 6d (including PT).

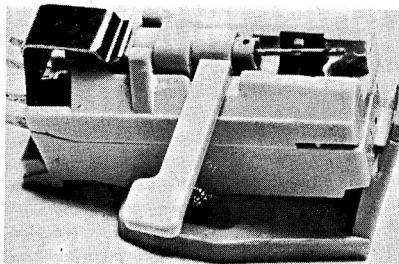
AD309K★

$11\frac{1}{2}$ in precision counterbalanced arm. Chrome

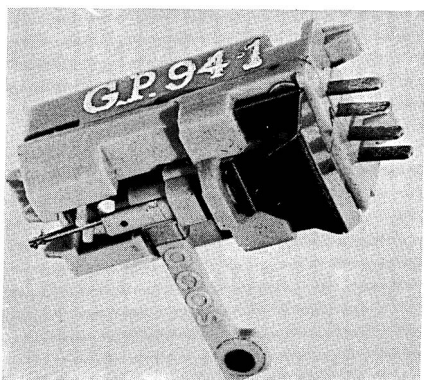
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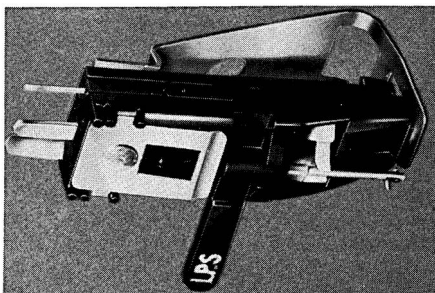
Acos GP91-ISC



Acos GP93 crystal stereo



Acos GP.94-1 cartridge



Acos 104

plated on brass with needle bearings and weight adjustment. Complete with arm rest and base. Supplied with AD76K cartridge. Price: £9 19s 6d (including PT).

AUDIO DYNAMICS CORPORATION

Sole U.K. agents: Hisonic Ltd, Tovil, Maidstone, Kent. Tel: Maidstone 57258

ADC 25

Stereo cartridge. Induced magnet. Sensitivity 4 mV at 5.5 cm/sec. Separation: 30 dB, 50 Hz-10 KHz. FR 10 Hz-24 KHz ± 2 dB. Vertical tracking angle 15°. Pw $\frac{1}{2}$ -1 $\frac{1}{2}$ gm. Cartridge weight: 8.3 gm. Stylus: 0.3 \times 0.7 or 0.3 \times 0.9 or 0.6 thou spherical. Compliance: 50×10^{-6} cm/dyne. Price: £81 12s (plus £18 19s PT).

ADC 26

Stereo cartridge. Induced magnet. Sensitivity 4 mV at 5.5 cm/sec. Separation: 30 dB, 50 Hz-10 KHz. FR 10 Hz-24 KHz ± 2 dB. Vertical tracking angle 15°. Pw $\frac{1}{2}$ -1 $\frac{1}{2}$ gm. Cartridge weight: 8.3 gm. Stylus: 0.3 \times 0.7 thou. Compliance: 50×10^{-6} cm/dyne. Price: £60 16s 2d (plus £14 2s 5d PT).

ADC 27

Stereo cartridge. Induced magnet. Sensitivity 4 mV at 5.5 cm/sec. Separation: 30 dB, 50 Hz-10 KHz. FR 10 Hz-22 KHz ± 2 dB. Vertical tracking angle 15°. Pw $\frac{1}{2}$ -1 $\frac{1}{2}$ gm. Cartridge weight: 8.3 gm. Stylus: 0.3 \times 0.7 thou. Compliance: 40×10^{-6} cm/dyne. Price: £57 19s 7d (plus £13 9s 2d PT).

ADC 990XE

Stereo cartridge. Induced magnet. Sensitivity 5 mV at 5.5 cm/sec. Separation: 20 dB, 50 Hz-10 KHz. FR 10 Hz-20 KHz ± 3 dB. Vertical tracking angle 15°. Pw 1-3 gm. Cartridge weight: 8.0 gm. Stylus: 0.3 \times 0.7 thou. Compliance: 25×10^{-6} cm/dyne. Price: £13 14s (plus £3 3s 7d PT).

ADC 660XE

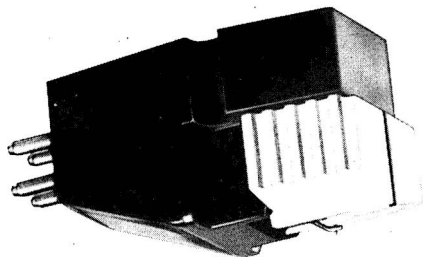
Stereo cartridge. Induced magnet. Sensitivity 5 mV at 5.5 cm/sec. Separation: 25 dB, 50 Hz-10 KHz. FR 10 Hz-20 KHz ± 2 dB. Vertical tracking angle 15°. Pw $\frac{3}{4}$ -2 $\frac{1}{2}$ gm. Cartridge weight: 8.0 gm. Stylus: 0.3 \times 0.7 thou. Compliance: 30×10^{-6} cm/dyne. Price: £18 5s (plus £4 4s 10d PT).

ADC 550XE

Stereo cartridge. Induced magnet. Sensitivity 5 mV at 5.5 cm/sec. Separation: 25 dB, 50 Hz-10 KHz. FR 10 Hz-20 KHz ± 2 dB. Vertical tracking angle 15°. Pw $\frac{3}{4}$ -2 $\frac{1}{2}$ gm. Cartridge weight: 8.0 gm. Stylus: 0.3 \times 0.7 thou. Compliance: 35×10^{-6} cm/dyne. Price: £16 10s (plus £3 16s 5d PT).

ADC 220XE

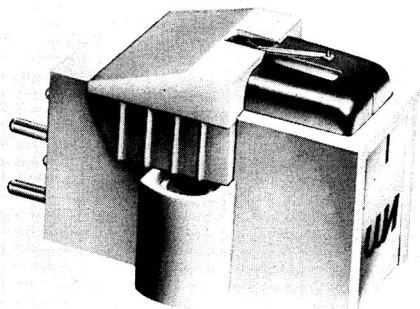
Stereo cartridge. Induced magnet. Sensitivity 6.0 mV at 5.5 cm/dyne. Separation: 20 dB,



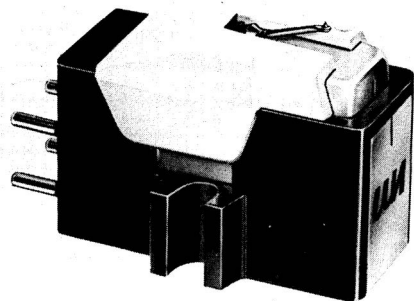
Audio Developments AD96K



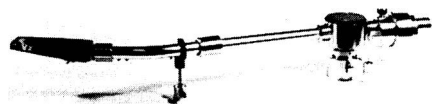
Audio Developments AD309K



Audio Technica AT-VM3



Audio Technica AT-VM8



Audio Technica AT1005 Mk II

50 Hz-10 KHz. FR 10 Hz-18 KHz \pm 2 dB. Vertical tracking angle 15°. Pw 1½-3 gm. Stylus: 0.3 \times 0.7 thou. Compliance: 20 \times 10⁻⁶ cm/dyne. Price: £8 19s 5d (plus £2 1s 7d PT).

ADC 220X

Stereo cartridge. Induced magnet. Sensitivity 6.0 mV at 5.5 cm/sec. Separation: 20 dB, 50 Hz-10 KHz. FR 10 Hz-18 KHz \pm 3 dB. Vertical tracking angle 15°. Pw 1½-3 gm. Cartridge weight: 8.0 gm. Stylus: 0.7 thou. Compliance: 20 \times 10⁻⁶ cm/dyne. Price: £7 10s (plus £1 14s 10d PT).

AUDIO-TECHNICA

Distributors: Shriro (U.K.) Ltd, Electronics Division, Lynwood House, 24-32 Kilburn High Road, London, N.W.6. Tel: 01-624 9102

AT-21

Stereo moving magnet cartridge. Duexciting principle. Tracking angle 15°. Pw ½-2 gm. Compliance: 30 \times 10⁻⁶ cm/dyne. Output: 4 mV at 1 KHz 5 cm/sec. Separation: 30 dB at 1 KHz. FR 10 Hz-25 KHz \pm 2 dB. Stylus: 0.5 or 0.7 thou diamond. Price £8 14s 8d (inc PT). Replacement stylus AT21-7D (grey) £5 19s 1d (inc PT).

AT-21X

Similar to AT-21 but with 0.3 \times 0.7 diamond stylus. Price: £15 9s 11d (inc PT). Replacement stylus for AT-21X £12 14s 9d.

AT-VM3 ★

Stereo V-magnet cartridge. FR 20 Hz-25 KHz \pm 2 dB. Channel separation: 30 dB at 1 KHz. Output: (1 KHz 5 cm/sec) 4 mV. Compliance: 26 \times 10⁻⁶ cm/dyne. Pw 1-2½ gm. Cartridge weight: 6½ gm. Stylus: 0.5 thou. Price: £13 5s (including PT).

AT-VM8 ★

Stereo V-magnet cartridge. FR 30 Hz-20 KHz \pm 2 dB. Channel separation: 30 dB at 1 KHz. Output: (1 KHz 5 cm/sec) 7 mV. Compliance: 26 \times 10⁻⁶ cm/dyne. Pw 1-2½ gm. Cartridge weight: 6½ gm. Stylus: 0.7 thou, 0.5 thou and elliptical stylus also available. Price: £10 17s 6d (including PT).

AT-66

Stereo moving magnet cartridge. Duexciting principle. Tracking angle 15°. Pw ½-2 gm. Compliance: 30 \times 10⁻⁶ cm/dyne. Output: 4 mV at 1 KHz 5 cm/sec. Separation: 25 dB at 1 KHz. FR 10 Hz-20 KHz \pm 2 dB. Stylus: 0.7 thou diamond. Price: £6 4s 8d (inc PT). Replacement stylus AT66-7D (grey) £3 9s 9d (inc PT).

Lower compliance version of AT-66 also available, compliance 20 \times 10⁻⁶ cm/dyne. Replacement stylus as for AT-66, 0.7, 0.5 or 2.5 thou.

AT-1005 Mk II ★

Tubular counter-balanced pickup arm. Length:

★ Indicates entry is illustrated

12¼in. Effective length: 9½in. Calibrated 0.3 gm. Tracking error: <1.5 degrees. Recommended cartridge weight: 5-24 gm. Price: £19 19s (including PT).

BANG & OLUFSEN U.K. LTD

Eastbrook Road, Gloucester, GL4 7DE.

Tel: Gloucester 21591

SP6, SP7, SP8, SP9 ★

Stereo cartridges. Moving iron. Pw 1.5-2 gm. Tip mass 1.5 mg. Compliance $12-15 \times 10^{-6}$ cm/dyne. FR 20 Hz-20 KHz ± 2.5 dB. Separation approx 20 dB at 1 KHz. Output: 7 mV per channel at 5 cm/sec. Rec load 47 K. Diamond 0.6 thou stylus. Fully shielded. Stylus protected against damage if arm dropped on record. SP6 for standard ½in fixing centres. SP7 plug-in fitting for B & O arms. SP8 and SP9 similar to SP6 and SP7 respectively but with elliptical 0.7×0.2 thou stylus and gold plated. Price: SP6 and SP7 £8 5s (including PT); SP8 and SP9 £13 10s (including PT).

SP10, SP12 ★

Stereo cartridges. Standard ½in fixing centres. Moving iron. Pw 1-1.5 gm. Compliance: 25×10^{-6} cm/dyne. FR 15 Hz-25 KHz ± 3 dB. Separation: >25 dB at 1 KHz. Output: 5 mV per channel (1 mV/cm/sec). Rec load 47K. Effective tip mass <1 mg. SP10: 0.6 thou diamond. SP12: 0.7×0.2 thou diamond (interchangeable). Price: SP10 £10 10s (including PT); SP12 £15 15s (including PT).

SP10A, SP12A

Plug-in versions of the SP10 and SP12, for use with Beogram 1800. Price: (SP10A) £10 10s (including PT); (SP12A) £15 15s (including PT).

SP14, SP14A

Identical to SP10 and SP10A respectively except for compliance which is 15×10^{-6} cm/dyne. Price to be announced.

ST/L ★

Pickup arm. Price: (with SP7 cartridge) £18 (including PT).

Pickup lift for ST/L arm

Gives hydraulically controlled lowering. Price: £4 5s (including PT).

GF2, GF3 Pre-amplifiers for above

See Pickup Accessories section.

BURNE-JONES & COMPANY LTD

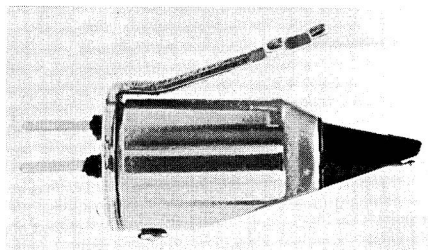
18 Brunswick Road, Sutton, Surrey.

B.J. Tan/II arm

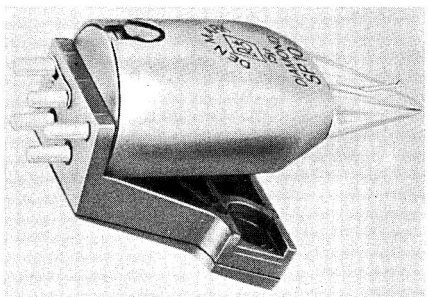
Designed to overcome tracking error. Total tracking error less than ½ degree. Height adjustable. Price: £2 2s.

B.J. Super 90 Mk II pickup arm

Two models. 12in and 16in. Price (including plug-in shell to carry standard cartridges) £8 8s.



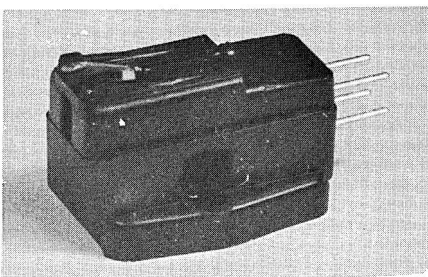
Bang & Olufsen SP6



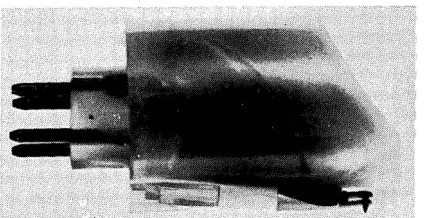
Bang & Olufsen SP10



Bang & Olufsen ST/L



Connoisseur SCUI



Decca Deram cartridge

CONNOISSEUR

A. R. Sugden & Co (Engineering) Ltd,
Market Street, Brighouse, Yorkshire.
Tel: Brighouse 2142. Cables: Connoisseur,
Brighouse

SCU1 ★

Stereo ceramic cartridge with $\frac{1}{2}$ in fixing centres. Stylus diamond 0.5-0.6 thou or 1 thou for mono. Pw 2.4 gm. Tip mass 1 mg. Compliance: lateral 12×10^{-6} cm/dyne; vertical 8×10^{-6} cm/dyne. Range: 25 Hz-18 KHz ± 3 dB. Separation (1 KHz) 25-30 dB; (10 KHz) 18 dB. Output with rec load of 100 K, 50 mV per channel, RIAA equalisation required. Output with 2 megohm load, 150 mV per channel, no equalisation required. Features: Four-terminal output, easily replaceable diamond stylus. Price: £4 14s 6d (plus £1 2s 3d PT).

SAU2

Pickup arm with gimbal mountings on ball bearings set at 45/45. Automatic bias compensator. Hydraulic lowering device. Decoupled counterbalance weight. Additional weight supplied to accommodate different cartridges. Single hole fixing. Height adjustable from 1in to 2in. Lightweight shell with $\frac{1}{2}$ in fixing centres. Five-pin plug connection to base of pickup. Low resistance self-cleaning contacts. New head shell allows backward-forward horizontal adjustment so that minimum tracking error is obtainable with all cartridges. Alignment protractor provided. Supplied with set of leads and separate precision balance with range 0.6 gm. Price: £11 (plus £2 1s 10d PT). Extension stem for use with high turntables: 7s.

COSMOCORD See Acos**DECCA**

Decca Special Products, Ingate Place,
Queenstown Road, London, S.W.8.
Tel: 01-622 6677

New Series Deram ceramic ★

Stereo/mono cartridge. White shell transcription quality. Pw 2.5 gm. Tip mass 0.6 mg. Compliance: 9×10^{-6} lateral, 5×10^{-6} vertical. FR 18 Hz-18 KHz ± 3 dB. Separation better than -20 dB at 1 KHz. Output: 35 mV per channel. Rec load impedance 2 megohms. Stylus 0.5-0.6 thou diamond. Price: £4 5s (plus £1 PT).

NOTE

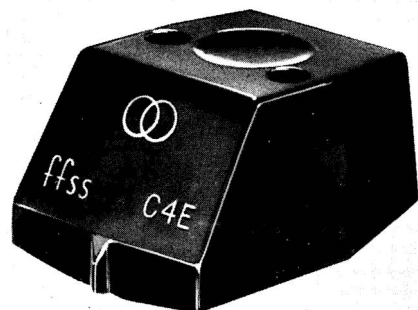
All Deram cartridges are of transcription quality, the black shell range intended primarily for cheaper auto-changers is discontinued.

Deram ceramic

Mono cartridge. Stylus 1 thou diamond. All other details as for stereo/mono cartridge. Price: £4 5s (plus £1 PT).



Decca H4E head



Decca C4E cartridge

Deram ceramic

Mono 78 cartridge. Stylus 3 thou sapphire. All other details as for stereo/mono Deram. Price: £2 11s (plus 12s PT).

ffss Mk II head

Variable reluctance stereo/mono head. FR 40 Hz-16 KHz. Separation -20 dB at 1 KHz, -15 dB at 50 Hz and 12 KHz. Output 1.2 mV/cm/sec per channel. Stylus 0.5 thou diamond. Pw 3.5 gm. Tip mass less than 1 mg. Compliance 10×10^{-6} lateral, 2×10^{-6} vertical. Rec load 50K. Price: £12 19s (plus £3 1s PT).

ffss Mk 4 head H4E ★

Variable reluctance stereo/mono head. FR 20 Hz-20 KHz (20 Hz-16 KHz ± 2 dB). Separation as for Mk II. Output 5 mV at 5 cm/sec per channel. Stylus 0.3 \times 0.65 thou elliptical diamond. Pw 1-2 $\frac{1}{2}$ gm. Compliance 30×10^{-6} lateral, 6×10^{-6} vertical. Rec load 50K. Output from each channel balanced within 1 dB. Price: £18 4s 3d (plus £4 5s 9d PT).

ffss Mk 4 cartridge C4E ★

Stereo/mono cartridge. FR 20 Hz-20 KHz (20 Hz-16 KHz ± 2 dB). Separation as for Mk II.

★ Indicates entry is illustrated

Output: 5 mV at 5 cm/sec per channel. Stylus 0.3×0.65 thou elliptical diamond. Pw $1.2\frac{1}{2}$ gm. Compliance 30×10^{-6} lateral, 6×10^{-6} vertical. Rec load 50K. Output from each channel balanced within 1 dB. Price: £18 4s 3d (plus £4 5s 9d PT).

ffss Mk 4 cartridge SC4E ★

Stereo/mono cartridge. FR 20 Hz-20 KHz ± 2 dB. Separation as for Mk III. Output: 5 mV at 5 cm/sec per channel. Stylus 0.3×0.65 thou elliptical diamond. Pw $1.2\frac{1}{2}$ gm. Compliance 30×10^{-6} lateral, 6×10^{-6} vertical. Rec load 50K. Output from each channel balanced within 1 dB. Price: £25 18s 1d (plus £6 1s 11d PT).

ffss Mk 4 cartridge 4RC ★

Stereo magnetic head. Diamond stylus $0.5/6$ thou. Pw 3.5 gm. Tip mass less than 1 milligram. Compliance: 15×10^{-6} cm/dyne lateral, 4×10^{-6} cm/dyne vertical. FR 30 Hz-20 KHz (30 Hz-16 KHz ± 3 dB). Separation: better than 20 dB. Output: 1.5 mV at 1 cm/sec at 1 KHz. Rec load 47K. Price: £13 15s 3d (plus £3 4s 9d PT).

ffss Mono 78

Variable reluctance 78 equivalent of Mk II stereo/mono head. Stylus 2.8 thou diamond. Price: £8 16s (plus £2 1s 6d PT).

ffss Mk 4 cartridge 78C

Mono magnetic cartridge. Diamond stylus 2.8 thou. Pw 3.5 gm. Tip mass less than 1 milligram. Compliance: 15×10^{-6} cm/dyne lateral. FR 30 Hz-16 KHz ± 3 dB. Output: 1.5 mV cm/sec. Rec load 47K. Price: £8 16s (plus £2 1s 6d PT).

ffss Mk I 'Super' ★

Transcription arm suitable for all ffss heads only. Price: £7 5s 8d (plus £1 14s 4d PT).

ffss 'International' Arm ★

Stereo pickup arm. Jewelled uni-pivot. Pw $\frac{1}{2}$ - $3\frac{1}{2}$ gm. Constantly variable magnetic bias compensation. Suspended on magnetic cushion. Provision for damping lateral and vertical resonances. Price: £21 9s (plus £5 1s PT).

NOTES

Decca maintains that head and arm should be designed as an entity for optimum results. For this reason Decca ffss arms and heads have an exclusive head fitting, which also ensures accurate alignment. All ffss heads will fit all ffss arms, but heads with elliptical stylus should be used only with 'Professional' arms, or arms reaching the 'Super' specification. Original Mk I arms not reaching 'Super' specification can be converted for £3 3s.

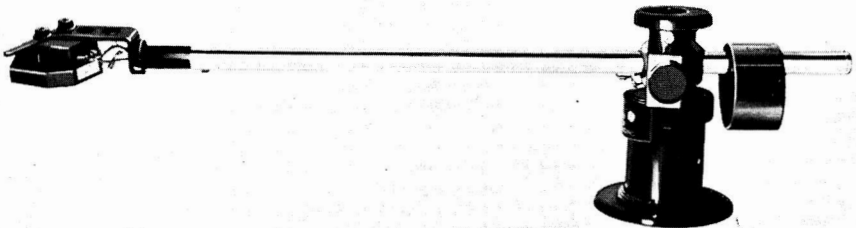
Deram heads are suitable for use with amplifiers having a sensitivity of 100 mV.

Diamond styli for all Deram pickup heads, including 78 heads, are £1 7s 6d each including PT. Replacement Deram elliptical styli are now available at £2 10s each inc. PT.

Decca ffss pickup heads can be inspected for a charge of 12s 6d. When the stylus is worn on a Decca ffss head it must be returned to the maker for replacement. The service offered is complete replacement of the head with a reconditioned



Decca Mk I Super arm



Decca International arm

head having a new stylus. Performance is guaranteed to be as new. Prices for this service are as follows: Mk III elliptical styli £7. Mk I and II spherical styli £5 10s. Mono LP and 78 styli £5. Mk 4 H4E and C4E elliptical styli £7 10s. Mk 4 SH4E and SC4E elliptical styli £10. Mk 4 78C spherical styli £5. All prices include PT.

Mk I *ffss* heads are no longer in production, but existing ones can be modified to Mk II specification for £2 4s 0d.

EAGLE PRODUCTS

Distributors: B. Adler & Sons (Radio) Ltd, Coptic Street, London, W.C.1.

Tel: 01-636 9606. Cables: Reldab, London

LC 05 ★

Stereo cartridge. Moving magnet. FR 30 Hz-18 KHz. Compliance: 9×10^{-6} cm/dyne. Separation: 20 dB at 1 KHz. Output: 6 mV per channel. Rec load 47K. Price: £4 (plus 19s 9d PT).

LC 07 ★

Stereo cartridge. Moving magnet. LP and stereo. FR 20 Hz-21 KHz. Compliance: 12×10^{-6} cm/dyne. Separation: 28 dB at 1 KHz. Output: 7 mV per channel. Rec load 47K. Price: £5 11s 9d (plus £1 7s 9d PT).

ELAC (Electroacoustic, West Germany)

U.K. Distributors: (magnetic and crystal cartridges) Unilet Products Ltd, Compton House, Malden Road, New Malden, Surrey. Tel: 01-942 9567.

All cartridges listed below are moving magnet types and have $\frac{1}{2}$ in fixing centres. There is no trade distribution, sales are made direct to consumers only. All prices quoted include PT.

STS 244-17

Stylus 0.7 thou diamond. Pw 1.5-3 gm. Compliance 18×10^{-6} cm/dyne. FR 20 Hz-20 KHz. Crosstalk damping 22 dB at 1 KHz. Output: 7.5 mV. Rec load 47K. Price: £8 11s 6d.

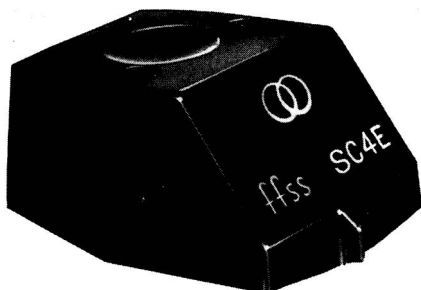
S.244-65

Sapphire stylus for 78rpm for 244 series cartridges. Price: £4 15s 9d.

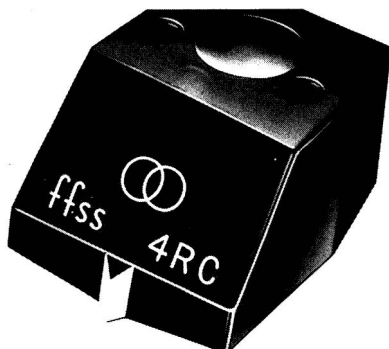
STS 344-17

Stylus 0.7 thou diamond. Pw 1-2 gm. Compliance 25×10^{-6} cm/dyne. FR 20 Hz-22 KHz. Crosstalk damping 24 dB at 1 KHz. Output: 5 mV. Rec load 47K. Price: £13 2s.

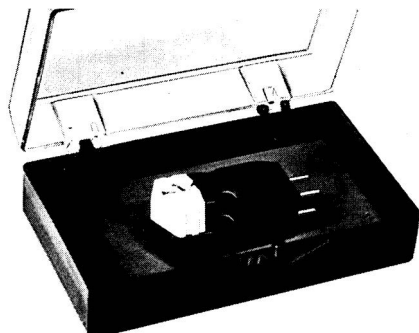
Crystal cartridges and replacement styli available. Trade terms offered. Full details and prices on request.



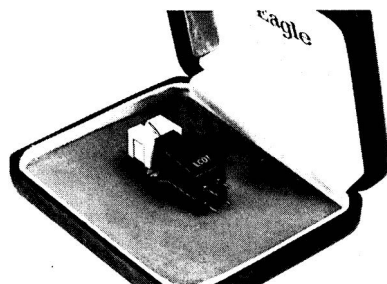
Decca SC4E Super cartridge



Decca 4RC cartridge



Eagle LC05



Eagle LC07

★ Indicates entry is illustrated

EUPHONICS

Distributors: Farnell-Tandberg Ltd,
81 Kirkstall Road, Leeds, 3. Tel: Leeds 35111

Miniconic

Semiconductor stereo cartridge. Crystalline silicon element treated so that changing pressures produced by stylus vary the resistance. FR 20 Hz-20 KHz ± 2 dB. Pw 0.5 gm. Tracks up to 40 KHz. Stylus 0.2 \times 0.7 elliptical diamond. Compliance 25×10^{-6} cm/dyne horizontal and vertical. Output dependent on setting of power supply unit and adjustable between 8 mV at 47K to 400 mV at 500K. Also supplies 100 mV at 600 ohms. Must have external power source which may be from a separate unit or derived from associated equipment. Price: U15-LS cartridge £25 6s (including PT); U15-P cartridge £14 16s 5d (including PT); TA15 pickup arm £21 15s (including PT).

Miniconic PS-15F Power Supply

Supplies 6 mA polarising current to each element at 14V DC. Inverts phase of one element to provide normal in-phase output signals. Matches impedance and levels to suit any type of pre-amplifier input. Price: £9.

EXPERT PICKUPS LTD

See entry in Pickup Accessories Section.

GOLDRING MANUFACTURING CO

(Great Britain) LTD

486-488 High Road, Leytonstone, London, E 11
Tel: 01-539 8343. Cables: Echovox, London

Goldring/Lenco L75 ★

Transcription pickup arm. Calibrated stylus pressure adjustment. Removable plug-in shell with adjustable stylus position. Anti-skating bias compensator. Price: £10 2s 6d (plus £2 8s 4d PT).

Goldring/Lenco L69

Pickup arm. Stereo. Low mass tubular arm. Removable plug-in shell with stylus position adjustment. Sliding counterweight stylus pressure adjustment, height adjustment. Price: £7 10s (plus £1 15s 9d PT).

CS90 ★

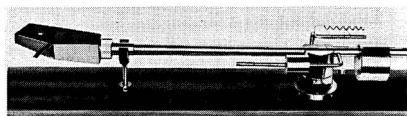
Stereo ceramic cartridge. Stylus 0.5 or 0.7 thou diamond. Pw 2 gm. Compliance 8×10^{-6} cm/dyne. FR 30 Hz-18 KHz. Separation: 25 dB at 1 KHz, 10 dB at 10 KHz. Output: 50 mV. Rec load 1-2 megohms. Price: £4 4s (plus £1 PT).

CS91E

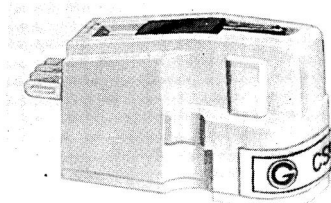
Stereo/LP ceramic cartridge. Stylus: elliptical diamond. Pw $1\frac{1}{2}$ -3 gm. Tip mass 1 mg. FR 20 Hz-20 KHz. Separation 25 dB. Output: 20 mV. Rec load 2 megohms. Price: £6 6s (plus £1 10s PT).

MX4L

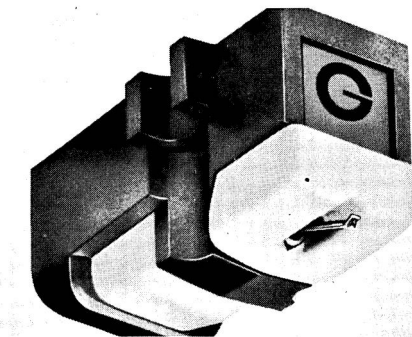
Turnover stereo compatible mono crystal car-



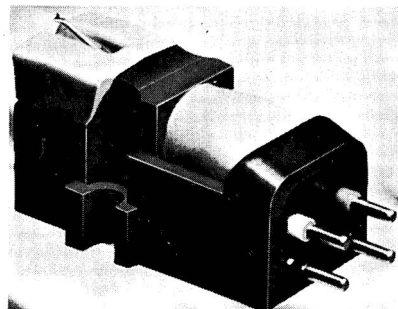
Goldring L75 pickup arm



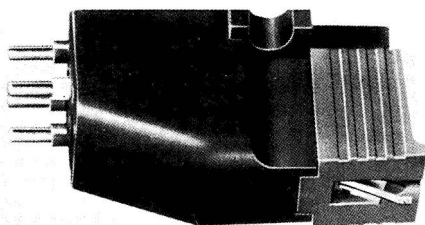
Goldring CS90 stereo ceramic cartridge



Goldring 800 cartridge



Goldring G800/E Super E cartridge



Goldring 850

tridge. Pw 3-5 gm. Stylus: sapphire 0.7 and 3 thou. Compliance 7×10^{-6} cm/dyne lateral, 5×10^{-6} cm/dyne vertical. FR 20 Hz-15 KHz. Output: 200 mV. Rec load 1 megohm. Price: £1 1s (plus 5s PT).

MX4L/D

As MX4L but with diamond stylus. Price: £1 17s 6d (plus 9s PT).

MX4M

Turnover stereo compatible mono crystal cartridge. Pw 4-6 gm. Stylus: sapphire 0.7 and 3 thou. Compliance 5×10^{-6} cm/dyne lateral, 3×10^{-6} cm/dyne vertical FR 20 Hz-15 KHz. Output: 400 mV. Rec load 1 megohm. Price: £1 1s (plus 5s PT).

MX4M/D

As MX4M but with diamond stylus. Price: £1 17s 6d (plus 9s PT).

'800' ★

Stereo magnetic cartridge. Stylus 0.5 thou diamond. Pw 1-3 gm. Tip mass less than 1 mg. Compliance 20×10^{-6} cm/dyne. FR 20 Hz-20 KHz ± 3 dB. Separation 20 dB at 1 KHz, 15 dB at 10 KHz. Output: 1 mV. Rec load 47K. Price: £10 10s (plus £2 10s PT).

G800E

Stereo magnetic cartridge. Stylus: 0.3 \times 0.8 diamond. Pw $\frac{3}{4}$ -1 $\frac{1}{2}$ gm. Tip mass: less than 1 mg. Compliance 30×10^{-6} cm/dyne lateral and vertical. FR 10 Hz-25 KHz. Separation: 25 dB at 1 KHz, 15 dB at 10 KHz. Output: 1 mV. Rec load 47K-100K. Price: £15 4s 6d (plus £3 12s 7d PT).

G800E Super E ★

Stereo magnetic cartridge. Single-sided with elliptical diamond, 0.3 \times 0.8 thou replaceable. Pw $\frac{1}{2}$ -1 $\frac{1}{4}$ gm. Tip mass less than 1 mg. Compliance 35×10^{-6} . FR 10 Hz-23 KHz. Channel separation 25 dB (1 KHz) and better than 15 dB (10 KHz). Output voltage 0.8 mV. Rec load 47K. Price: £21 (plus £5 PT).

Goldring G800/H

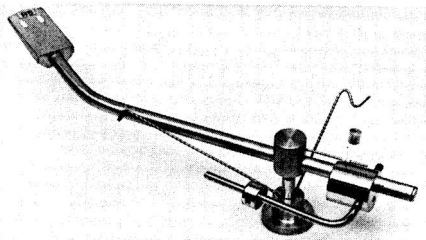
Magnetic stereo cartridge. Single-sided with 0.7 thou tip radius diamond. Replaceable. Pw 2 $\frac{1}{2}$ -3 $\frac{1}{2}$ gm. Tip mass 1.2 mg. Compliance 18×10^{-6} . FR 20 Hz-20 KHz. Separation 20 dB at 1 KHz, 10 dB at 10 KHz. Output: 1.6 mV. Rec load 47K. Price: £8 12s 6d (plus £2 1s 3d PT).

Goldring 850 ★

Magnetic stereo cartridge. Single-sided, $\frac{1}{2}$ in fixing centres. Stylus: 0.7 thou diamond, replaceable. Pw 2-3 $\frac{1}{2}$ gm. FR 20 Hz-18 KHz. Separation 20 dB at 1 KHz. Output: 1.6 mV. Rec load 47K-100K. Price: £5 5s (plus £1 5s PT).

G. F. C. HADCOCK

Audio Division, The Old Vicarage, Doveridge, Derby, DE6 5NN. Tel: Uttoxeter 2452.



GH Unipoise

GH Unipoise ★

Featuring a new bearing assembly offering friction of less than 6 mg at the pivot. Finely engineered tubular aluminium arm with slotted headshell. Accepts all lightweight cartridges down to 0.5 gm. Standard $\frac{1}{2}$ in fixing centres. Easy operation due to simplicity of unipivot design. Bias compensation assembly included. Easily adjusted calibrated weight 0.3 gm. GH Unilift lowering device available separately (see pickup accessories section). Size: Length 12 $\frac{1}{2}$ in, height 2.4 in, pivot to stylus tip 9 in, pivot to centre of turntable 8 $\frac{3}{8}$ in. Offset angle 23°. Rear overhang 3 in. Price: £13 12s (plus £3 4s PT).

HENELEC ELECTRONIC PRODUCTS

Henry's Radio Ltd, 303, 309, 354, 356 Edgware Road, London, W.2. Tel: 01-723 1008

Henelec 940

Magnetic stereo cartridge. Sensitivity: 5 mV at 5 cm/sec at 1 KHz. FR: 20 Hz-20 KHz. Channel balance: within 2 dB. Channel separation: 20 dB. Compliance: 10×10^{-6} cm/dyne. Pw 1 $\frac{1}{2}$ -2 $\frac{1}{2}$ gm. Cartridge weight: 5 gm. Size: 1 $\frac{1}{4}$ \times $\frac{5}{8}$ \times $\frac{3}{4}$ in approx. Price: £4 10s (including PT).

MICRO-SEIKI

Distributors: B. H. Morris & Co (Radio) Ltd, 84-88 Nelson Street, London, E.1 2DY. Tel: 01-790 4824.

MA-77 MK-11 (SR)

Static balance S-shape arm. Total length 13 $\frac{3}{16}$ in, effective length 9 $\frac{3}{8}$ in. Split revolving counterweight with spare sub-weight for 2-18 gm cartridges. Direct-reading scale ring for playing weight adjustment 0-6 gm. Spring anti-skate device with adjustable cancel force (0-0.33 gm) to eliminate bias. Oil-damped arm lifter. Price to be announced.

MA-77 (SR)

As above but without anti-skate device and arm lifter. Price to be announced.

MA-100

Dynamic balance arm. Total length 15 $\frac{1}{2}$ in, effec-

★ Indicates entry is illustrated

tive length 11½ in. Stylus pressure adjustment in 0.1 gm steps. Versatile setting mechanism combines oil-damped lifter, arm rest and arm guide. Anti-skate device with special cam and variable bias gauge. Revolving counterweight adjuster and two sub-weights for 3-23 gm cartridges. Unique arm height adjustment. De luxe base. Price to be announced.

MA-101

Static balance S-shape arm. Total length 15in, effective length 10½ in. Split revolving counterweight for 5-24 gm cartridges. Direct-reading scale ring. Spring anti-skate device with special cam and variable bias force (0-6 gm). Oil-damped arm lifter. De luxe base with Teflon 'stopper,' three lateral adjustment screws and temporary rest to protect bearings. Price to be announced.

MC-4100

Moving-coil stereo cartridge. Suffix /E indicates 0.3 × 0.8 thou stylus; /5 has 0.5 thou round diamond stylus. FR (-0.5, +2.5 dB): 20 Hz-20 KHz. Separation: 33 dB. Compliance: 25 × 10⁻⁶ cm/dyne. Tracking force: 1.5 gm. Output: 0.1 mV (3.45 cm/sec). Price to be announced.

VF-3100

Variable flux stereo cartridge. /E-11 elliptical, /5-11 round stylus. FR: as above. Sep: 30 dB. Compliance: 20 × 10⁻⁶ cm/dyne. Tracking force: 2 gm. Output: 3 mV. Price to be announced.

M-2100

Super Micro Trace stereo cartridge. /E elliptical, /5 round stylus. FR: 10 Hz-30 KHz (25 KHz for /5). Sep: 30 dB. Compliance: 28 × 10⁻⁶ cm/dyne. Tracking force: 1.5 gm. Output: 4 mV. Price to be announced.

VF-3100/5

Variable flux stereo cartridge. FR: 5 Hz-30 KHz. Sep: 30 dB. Compliance: 20 × 10⁻⁶ cm/dyne. Tracking force: 2 gm. Output: 4 mV. Price to be announced.

M-2100/6

Micro Trace stereo cartridge. 0.6 thou round stylus. FR: 10 Hz-28 KHz. Sep: 28 dB. Compliance: 23 × 10⁻⁶ cm/dyne. Tracking force: 2 gm. Output: 6 mV. Price to be announced.

VF-3100/7

Variable flux stereo cartridge can be used with auto changers. 0.7 thou round stylus. FR: 20 Hz-25 KHz. Sep: 25 dB. Compliance: 15 × 10⁻⁶ cm/dyne. Tracking force: 3 gm. Output: 5 mV. Price to be announced.

M-2100/7

Micro Trace stereo cartridge can be used with auto changers. 0.7 thou stylus. FR: 20 Hz-20 KHz. Sep: 25 dB. Compliance: 18 × 10⁻⁶ cm/dyne. Tracking force: 2.5 gm. Output: 8 mV. Price to be announced.

KEITH MONKS (Audio) LTD

5 Fleet Road, Fleet, Aldershot, Hants.
Tel: Fleet 7316

Laboratory 9 ★

9in pickup arm designed for low-mass ultra-high compliant cartridges tracking at very low stylus pressures. Damped unipivot arm with no lead-out wires. Bias correction and lifting device incorporated. Lathe base all fully adjustable by finger locking levers. Price: £25 (plus £6 2s 6d PT).

NEAT CORPORATION

Distributors: Howland-West Ltd, 2 Park End, South Hill Park, London, N.W.3
Tel: 01-794 6666 and 6033

G30 ★

Transcription arm and shell. Wired for mono or stereo. Easy mounting. Accommodates all standard cartridges. Adjustable tracking weight. Supplied with aluminium head shell, pickup rest, pressure gauge and plug-in leads with phono plugs. Vertical balance by miniature ball bearings, horizontal balance by jewelled pivots. Decoupled balance weight at rear of arm provides coarse adjustment of playing weight, rider weight at side of arm provides fine adjustment. Screw collar permits height adjustment. Pivot to stylus 9¾ in. Arm length 13in. Leads 56in. Height (adjustable) 1¾-3¼ in. Mounting hole ½ in dia. Cartridge fixing ¼ in centres. Price: £9 10s 6d (plus £2 4s 1d PT).

Lift

Optional oil lift for G30 arm. Price: £3 (plus 13s 11d PT).

G30B

Same as G30 but with bias adjuster. Price: £11 6s (plus £2 12s 5d PT).

V60MH ★

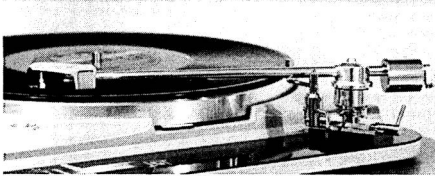
Stereo cartridge. Magnetic. Sensitivity 3.5 mV 1 KHz at 5 cm/sec. Separation 30 dB 1 KHz. FR 20 Hz-20 KHz. Rec load 30-100K. Rec playing weight 1-3 gm. Compliance 15 × 10⁻⁵ cm/dyne. Stylus, diamond, spherical. Price: £7 (plus £1 12s 6d PT).

V60MHE

Stereo cartridge. Magnetic. Sensitivity 3.5 mV 1 KHz at 5 cm/sec. Separation 30 dB 1 KHz. FR 15 Hz-20 KHz. Rec load 30-1000K. Rec playing weight 1-3 gm. Compliance 15 × 10⁻⁵ cm/dyne. Stylus, diamond, elliptical. Price: £9 10s (plus £2 4s 1d PT).

V70 ★

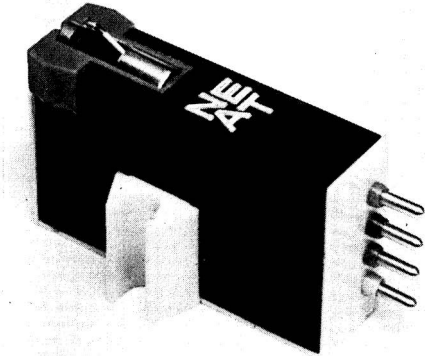
Magnetic stereo cartridge. Stylus 0.5 thou diamond. Pw 1¼-3 gm. Separation 30 dB at 1 KHz. Rec load 50K. Output: 5 mV at 100 Hz 5 cm/sec. Price: £4 5s (plus 19s 8d PT).



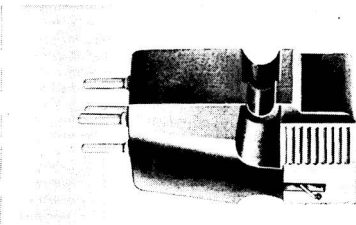
Keith Monks Laboratory 9



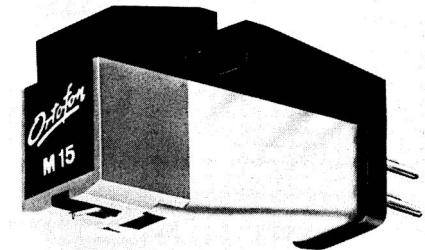
Neat G30



Neat V60MH



Neat V70



Ortofon M15

V70E

Stereo magnetic cartridge. Elliptical diamond 0.2 x 0.7 thou. Pw 1.5-3 gm. Compliance 5 x 10⁻⁶. FR 18 Hz-22 KHz. Channel separation 30 dB at 1 KHz. Output voltage: 5 mV. Load impedance: 50K. Price: £6 6s (plus £1 9s 3d PT).

ORBIT

Distributors: Highgate Acoustics, 184-188 Great Portland Street, London, W.1
Tel: 01-636 2901

NM22

Magnetic stereo cartridge with diamond stylus. FR 20 Hz-20 KHz. Channel separation 20 dB at 1 KHz. Output: 5 mV. Load: 50K-100K. Playing weight: 2-3 gm. Price: £5 5s (including PT). Replacement diamond stylus: £2 11s 8d (plus 11s 4d PT),

ORTOFON

Distributed in the UK by Metrosound (Sales) Co Ltd, Cartersfield Road, Waltham Abbey, Essex.
Tel: Waltham Cross 31933.

Type C (without shell)

Moving coil head. Diamond stylus. Output voltage LP 0.3 mV. Range 20 Hz-20 KHz linear. Pw 3 gm. Load impedance 2 ohms (transformer required). Price: £13 5s (plus £3 2s 4d PT).

Type CE

As type C but with elliptical stylus. Price: £18 5s (plus £4 5s 11d PT).

Transformer

For use with above pickups. Price: £3 5s.

M15 ★

Moving magnet cartridge. Replaceable styli (elliptical or conical). Output at 1 KHz 0.9 mV/cm/sec ±1 dB per channel. Load 47K. FR 20 Hz-20 KHz ±2 dB. 30 dB sep at 1 KHz. Tracking angle 15°. Tip mass 0.4 mg. Stylus pressure: min 3/4 gm, recommended 1 1/2 gm. Price: (M15E elliptical) £24 (plus £5 12s 11d PT); (M15 spherical) £19 (plus £4 9s 5d PT).

MF15

As M15 above except stylus pressure: min 1 gm, rec 2 gm. Price: (MF15E elliptical) £20 (plus £4 14s 1d PT); (MF15 spherical) £15 (plus £3 10s 7d PT).

Replacement styli

For M15 and MF15. Price: (M15E grey) £13 (plus £3 1s 2d PT); (M15 blue) £8 (plus £1 17s 8d PT); (MF15E red) £10 (plus £2 7s PT); (MF15 black) £6 (plus £1 8s 3d PT).

Shells

Type M metal shells for 15 Series cartridges. Price: £1 5s (plus 5s 10d PT).

★ Indicates entry is illustrated

SL15/E ★

Moving coil stereo cartridge. Pw 1-2 gm. Tip mass 0.9 mg. Compliance 25×10^{-6} cm/dyne. FR 10 Hz-40 KHz. Separation 20-30 dB. Output 0.04 mV/cm/sec (loaded). Output impedance 2 ohms. Matching transformer required for most amplifiers (see transformer below). Stylus diameter 0.6×0.3 thou. Tracking angle 15° . Price: £24 (plus £5 12s 11d PT).

SL15

Similar specification to SL15/E but with spherical 0.6 thou diamond stylus. Price: £18 5s (plus £4 15s 11d PT).

Transformer module

Primary impedance 2 ohms. Secondary impedance 15K. Load 10K to 50K without change in frequency response. FR 20 Hz-40 KHz. Price: £7.

Shells

Type G shells for SPU and C Series cartridges. Price: £1 (plus 4s 8d PT).

SMG/212 ★

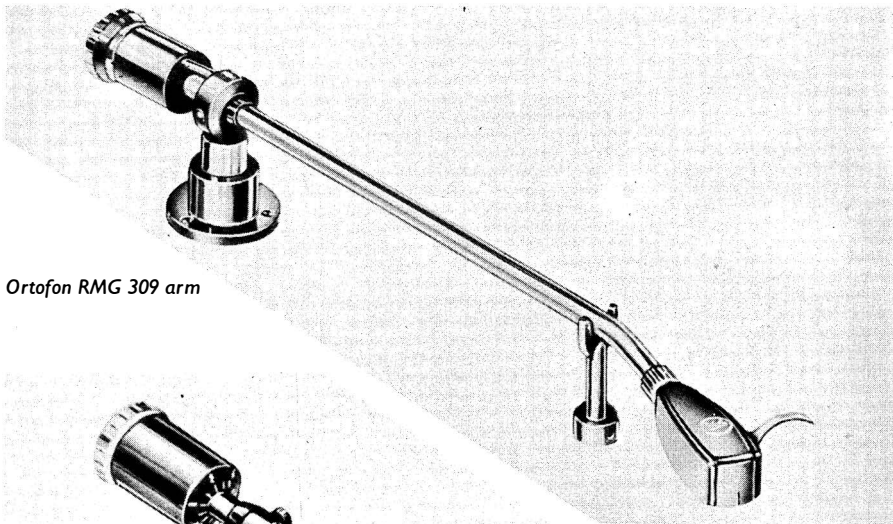
12in pickup arm for stereo and mono cartridges. Playing weight adjustable from 0-12 gm. Price: £11 (plus £2 11s 10d PT).

RMG/309 ★

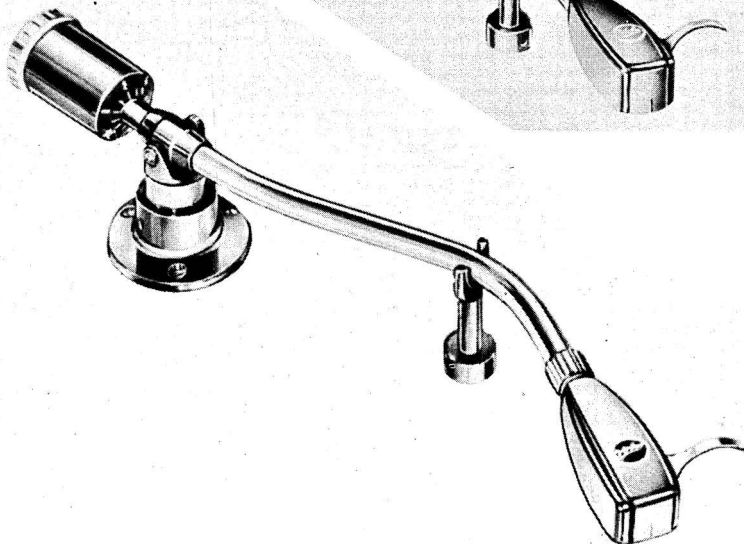
16in pickup arm. Details as for SMG/212. Price: £21 (plus £4 18s 10d PT).

RS212

Similar to RMG arm but with the addition of automatic anti-skating device. Length of arm 11.8in. Centre of arm base to turntable centre $8\frac{3}{8}$ in. Height adjustable $1\frac{3}{8}$ - $2\frac{3}{8}$ in. Arm base 2in dia. Centre of base to stylus tip 9in. Off-set angle 22.7° . Stylus pressure adjustable 0.4-5 gm. Suit-



Ortofon RMG 309 arm



Ortofon SMG 212 arm and shell

able for cartridges weighing 7-19 gm. Hi-Jack cueing device built in. Ratio between stylus pressure and anti-skating force is factory adjusted to suit Ortofon cartridge with elliptical stylus. Ratio adjustment screw provided to alter for other cartridges. Price: £25 (plus £5 17s 7d PT).

PHILIPS ELECTRICAL LTD

Century House, Shaftesbury Avenue, London, W.C.2. Tel: 01-437 7777

GP200 ★

Plug-in stereo ceramic turnover head. Stylus: diamond 0.7 thou, 78 sapphire 3 thou. Pw 3-6 gm. Compliance lateral 2.5×10^{-6} , vertical 1.3×10^{-6} . FR 50 Hz-18 KHz ± 3 dB. Output voltage 65 mV. Rec load $\frac{1}{4}$ -1 M. Price: £3 16s (including PT).

GP410

Plug-in stereo magneto dynamic head. 45/LP only. Stylus 0.6 thou. Pw 2.4 gm. Effective tip mass: 1 mg. Compliance lateral 10×10^{-6} , vertical 8×10^{-6} . FR 30 Hz-18 KHz ± 3 dB. Channel separation > 20 dB at 1 KHz, > 12 dB at 10 KHz. Output voltage: 1 mV. Rec load 68K. Price: £11 7s 6d (plus £2 13s 7d PT).

GP411

Stereo magneto dynamic cartridge. 45/LP only. Standard $\frac{1}{2}$ in mounting centres. Stylus 0.6 thou diamond. Pw 2.4 gm. Effective tip mass 1 mg. Compliance lateral 10×10^{-6} , vertical 8×10^{-6} . FR 30 Hz-18 KHz ± 3 dB. Channel separation > 20 dB at 1 KHz, > 12 dB at 10 KHz. Output: 1 mV. Rec load 68K. Price: £13 15s (including PT).

GP412 ★

Stereo magneto dynamic cartridge. 45/LP only. Standard $\frac{1}{2}$ in mounting centres. Stylus: 0.3×0.7 thou bi-radial diamond. Pw 0.75-1.5 gm. Effective tip mass < 0.75 mg. Compliance lateral > 20 nominal 25; vertical > 15 nominal 20. FR 20 Hz-20 KHz ± 2 dB. Channel separation > 25 dB at 1 KHz, > 16 dB at 10 KHz. Output: 0.8 mV. Rec load 47K. Price: £31 11s 5d (plus £7 8s 7d PT).

PICKERING

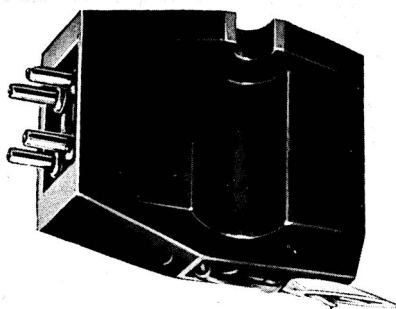
Distributors: Highgate Acoustics, 184-188 Great Portland Street, London, W.1 Tel: 01-636 2901

XV-15 DCF Series

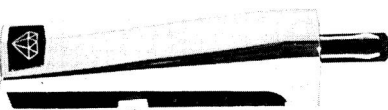
With Dustamatic. Stereo magnetic cartridges all with 35 dB channel separation. Series comprises the following:

750E

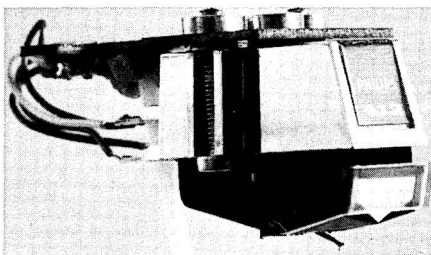
Output 4.4 mV. FR 10 Hz-25 KHz. Pw $\frac{1}{2}$ -1 gm.



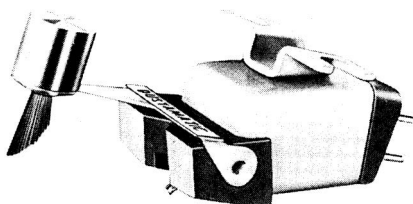
Ortofon SL 15/E



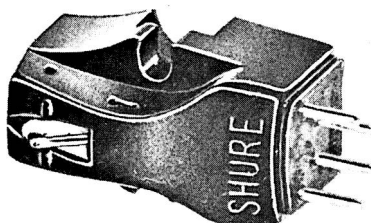
Philips GP200



Philips GP412



Pickering V-15 Series



Shure M3D-M cartridge

★ Indicates entry is illustrated

Stylus 0.2 × 0.9 thou. Price: £32 3s 6d (plus £6 16s 6d PT).

400E

Output 4.5 mV. FR 10 Hz-25 KHz. Pw $\frac{3}{4}$ -1½ gm. Stylus 0.3 × 0.9 thou. Price: £20 12s 6d (plus £4 7s 6d PT).

140E

Output 8 mV. FR 10 Hz-20 KHz. Pw 3-5 gm. Stylus 0.4 × 0.9 thou. Price: £17 6s 6d (plus £3 13s 6d PT).

350

Output 6 mV. FR 10 Hz-25 KHz. Pw 1-3 gm. Stylus 0.7 thou spherical. Price: £16 1s 9d (plus £3 8s 8d PT).

150

Output 8 mV. FR 10 Hz-25 KHz. Pw 2-5 gm. Stylus 0.7 thou. Price: £14 8s 9d (plus £3 1s 3d PT).

100

Output 8 mV. FR 10 Hz-20 KHz. Pw 3-7 gm. Stylus 0.7 thou. Price: £13 (plus £2 15s PT).

V-15/3 Dustamatic Series ★

With patented 'floating' stylus. This series comprises the following:

AME-3

Output 5.5 mV. Separation 32 dB. FR 10 Hz-25 KHz. Pw $\frac{3}{4}$ -1½ gm. Stylus 0.3 × 0.9 thou. Price: £17 5s 6d (plus £3 13s 6d PT).

ACE-3

Output 7.5 mV. Separation 26 dB. FR 10 Hz-20 KHz. Pw 3-5 gm. Stylus 0.4 × 0.9 thou. Price: £12 7s 6d (plus £2 12s 6d PT).

AM-3

Output 6.5 mV. Separation 32 dB. FR 10 Hz-23 KHz. Pw 1-3 gm. Stylus 0.7 thou spherical. Price: £13 (plus £2 15s PT).

AT-3

Output 7.5 mV. Separation 32 dB. FR 10 Hz-23 KHz. Pw 2-5 gm. Stylus 0.7 thou. Price: £10 18s 9d (plus £2 6s 3d PT).

AC-3

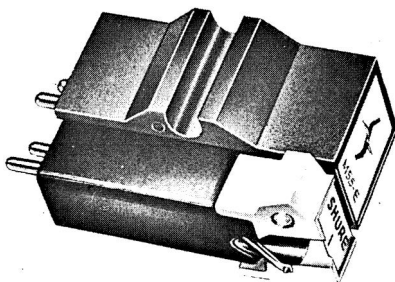
Output 7.5 mV. Separation 26 dB. FR 10 Hz-20 KHz. Pw 3-7 gm. Stylus 0.7 thou. Price: £9 18s (plus £2 2s PT).

SHURE ELECTRONICS LTD

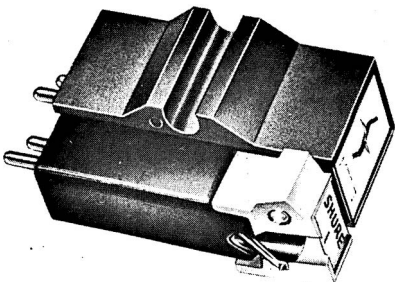
84 Blackfriars Road, London, S.E.1
Tel: 01-928 3424

M3D-M ★

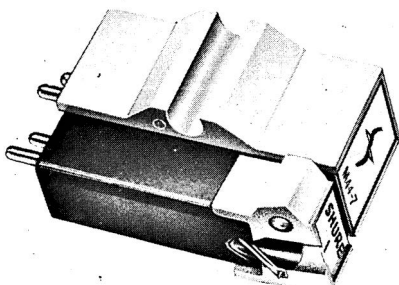
Stereo Dynetic cartridge. Moving magnet. $\frac{1}{2}$ in fixing centres. Stylus 0.7 thou diamond. Pw 3-6 gm. Compliance 4×10^{-6} cm/dyne. FR 20 Hz-15 KHz. Separation 20 dB at 1 KHz. Output: 1 mV. Load impedance 47K. Price: £6 (plus £1 8s 3d PT).



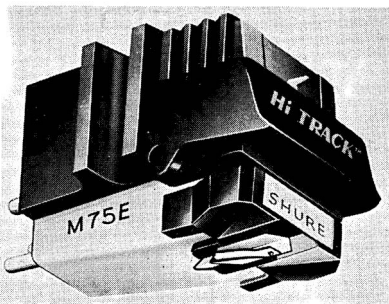
Shure M44-5 cartridge



Shure M44-7 cartridge



Shure M55E cartridge



Shure M75E

M31E

Stereo Dynetic cartridge. Moving magnet. $\frac{1}{2}$ in fixing centres. Elliptical stylus. Pw 1-2 gm. Recommended for the use with transcription automatic changers. Price: £9 15s (plus £2 5s 11d PT).

M32E

Stereo Dynetic cartridge. Moving magnet. $\frac{1}{2}$ in fixing centres. Elliptical stylus. Pw $2\frac{1}{2}$ -5 gm. Recommended for use with automatic turntables. Price: £9 (plus £2 2s 4d PT).

M32-3

Moving magnet cartridge for 78rpm records only. For collectors who wish to own a separate cartridge for this purpose. Price: £8 5s (plus £1 18s 10d PT).

M44C

Stereo Dynetic cartridge. Moving magnet. $\frac{1}{2}$ in fixing centres. Stylus 0.7 thou diamond (1 thou and 3 thou styli available). Pw 3-5 gm. Compliance 7.5×10^{-6} cm/dyne. FR 20 Hz-20 KHz. Separation 25 dB at 1 KHz. Output: 1.8 mV. Load impedance 47K. Price: £8 5s (plus £1 18s 10d PT).

M44E ★

Stereo Dynetic cartridge. Moving magnet. $\frac{1}{2}$ in fixing centres. Stylus 0.7×0.4 thou bi-radial diamond (3 thou styli available). Pw $1\frac{3}{4}$ -4 gm. Compliance 15×10^{-6} cm/dyne. FR 20 Hz-20 KHz. Separation >25 dB at 1 KHz. Output: 1.8 mV. Rec load 47K. Price: £9 15s (plus £2 5s 11d PT).

M44-5 ★

Stereo Dynetic cartridge. Moving magnet. $\frac{1}{2}$ in fixing centres. Stylus 0.5 thou diamond (1 thou and 3 thou styli available). Pw $\frac{3}{4}$ - $1\frac{1}{2}$ gm. Compliance 25×10^{-6} cm/dyne. FR 20 Hz-20 KHz. Separation 25 dB at 1 KHz. Output: 1.4 mV. Load impedance 47K. Price: £9 (plus £2 2s 4d PT).

M44-7 ★

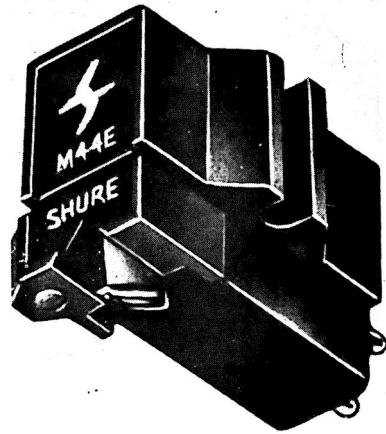
Stereo Dynetic cartridge. Moving magnet. $\frac{1}{2}$ in fixing centres. Stylus 0.7 thou diamond (1 thou and 3 thou styli available). Pw $1\frac{1}{2}$ -3 gm. Compliance 20×10^{-6} cm/dyne. FR 20 Hz-20 KHz. Separation 25 dB at 1 KHz. Output: 2.2 mV. Load impedance 47K. Price: £8 5s (plus £1 18s 10d PT).

M55E ★

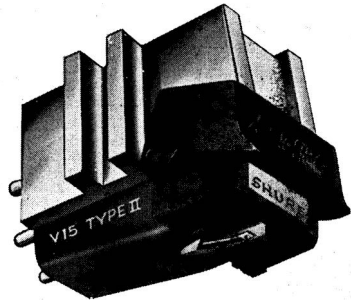
Stereo Dynetic cartridge. Moving magnet. $\frac{1}{2}$ in fixing centres. Stylus 0.7×0.2 thou elliptical diamond (3 thou styli available). Pw $\frac{3}{4}$ -2 gm. Compliance 25×10^{-6} cm/dyne. Output: 1.3 mV. Load imp 47K. Price: £10 10s (plus £2 9s 5d PT).

M75E Type 2 ★

Stereo Dynetic cartridge. Moving magnet. $\frac{1}{2}$ in fixing centres. Stylus 0.7×0.2 thou bi-radial diamond (3 thou styli available). Pw $\frac{3}{4}$ - $1\frac{1}{2}$ gm.



Shure M44-E



Shure V15-II

Trackability (see note at end) at 1 gm in SME 3009 arm: 400 Hz 20 cm/sec, 1 KHz 28 cm/sec, 10 KHz 18 cm/sec. FR 20 Hz-20 KHz. Separation at 1 KHz >25 dB. Output: 1 mV. Rec load 47K per channel. Price: £17 5s (plus £4 1s 2d PT).

M75-6 Type 2

Stereo Dynetic cartridge. 15 degree angle. Moving magnet. $\frac{1}{2}$ in fixing centres. Stylus 0.6 thou conical diamond (3 thou styli available). Pw $1\frac{1}{2}$ -3 gm. Trackability (see note at end) at 2 gm in SME 3009 arm: 400 Hz 28 cm/sec, 1 KHz 35 cm/sec, 10 KHz 20 cm/sec. FR 20 Hz-20 KHz. Separation >25 dB at 1 KHz. Output: 1 mV. Rec load 47K per channel. Price: £13 10s (plus £3 3s 6d PT).

M75E-D19 Type 2

Cartridge supplied ready-mounted for use with Dual models 1019, 1009SK, 1010S and 1016. Gard-a-matic retractile safety suspension. Price: £18 15s (plus £4 8s 3d PT).

★ Indicates entry is illustrated

M75E-95G Type 2

Cartridge supplied ready-mounted and wired in slide-in carrier for use with Garrard SL95 turntable. Gard-a-matic retractile suspension. Price: £18 15s (plus £4 8s 3d PT).

M75G Type 2

Stereo Dynetic cartridge. 15 degree angle. Moving magnet $\frac{1}{2}$ in fixing centres. Stylus 0.6 thou conical diamond (3 thou stylus available). Pw $\frac{3}{4}$ -1 $\frac{1}{2}$ gm. Trackability (see note at end) at 1 gm in SME 3009 arm: 400 Hz 20 cm/sec, 1 KHz 28 cm/sec, 10 KHz 18 cm/sec. FR 20 Hz-20 KHz. Separation >25 dB at 1 KHz. Output: 1 mV. Rec load 47K per channel. Price: £14 15s (plus £3 7s 1d PT).

M75EJ Type 2

Stereo Dynetic cartridge. Stylus 0.7×0.4 thou bi-radial diamond. Pw 1 $\frac{1}{2}$ -3 gm. Trackability at 2 gm in SME 3009 arm 400 Hz 28 cm/sec, 1 KHz 35 cm/sec, 10 KHz 20 cm/sec. Price: £15 15s (plus £3 14s 1d PT).

V15-11 (improved) ★

Stereo Dynetic cartridge. 15 degree angle. Moving magnet. $\frac{1}{2}$ in fixing centres. Stylus 0.7×0.2

thou bi-radial diamond (3 thou stylus available). Pw $\frac{3}{4}$ -1 $\frac{1}{2}$ gm. Trackability (see note at end) at 1 gm in SME 3009 arm: 400 Hz 28 cm/sec, 1 KHz 35 cm/sec, 5 KHz 30 cm/sec, 10 KHz 22 cm/sec. FR 20 Hz-25 KHz. Separation >25 dB at 1 KHz, >17 dB at 500 Hz-10 KHz. Output: 0.7 mV. Rec load 47K. Price: £33 (plus £7 15s 3d PT).

NOTE

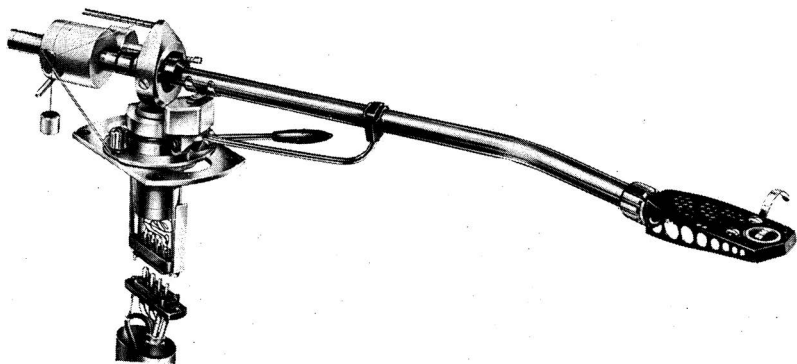
Trackability is a term introduced by Shure to give a measure of the total performance of a cartridge. It takes into account the mechanical design parameters of tip mass, inertia, compliances throughout the system, tracking pressure, recorded velocity, etc. Explanatory leaflet available on request.

S.M.E. LTD

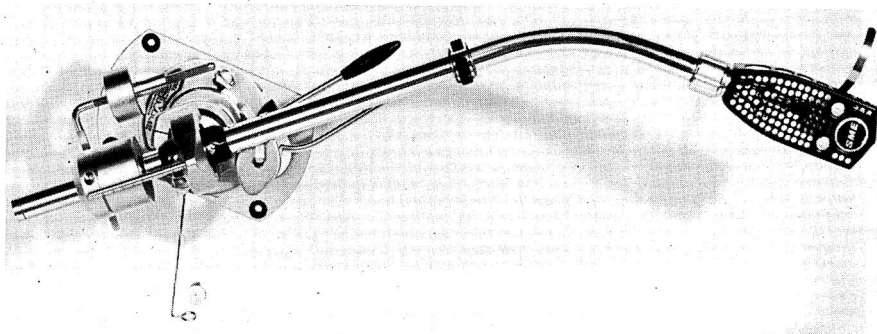
Steving, Sussex BN4 3LN. Tel: Steving 2228

Model 3009 ★

(9in). Series II precision pickup arm. Extremely low vertical and lateral friction. Side-thrust compensation. Hydraulically damped lowering control. Tracking force applied precisely, with-



SME Series 2 precision pickup arm and shell



SME Series 2

out the need for a gauge. Rapidly adjustable for a wide range of cartridges and heads. Price (with S.2 ultra lightweight shell): £25 3s 3d (plus £6 3s PT).

Model 3012

(12in). Series II precision pickup arm. Details as above. Price (with S.2 ultra lightweight shell): £26 16s 3d (plus £6 11s PT).

S.2 ultra lightweight shell

Weighs only 6 gm with mounting hardware. Price: £2 (plus 9s 9d PT).

SONOTONE

Brush Clevite Co Ltd, Thornhill,
Southampton, Hants. SO9 1QX

Tel: Southampton 45166

2T

Monaural ceramic cartridge with turnover stylus. Stylus sapphire 2.5 thou (78), 0.7 thou (LP). Pw 8-10 gm. Compliance 1×10^{-6} cm/dyne. Output: 180 mV/cm/sec at 1 KHz. Capacitance 650 pF. Serviceable under all climatic conditions and compatible for 33 $\frac{1}{3}$, 45 and 78rpm records. Price: £1 5s (plus 5s 10d PT).

8TA

Stereo ceramic cartridge with turnover stylus. Sapphire, 2.5 thou (78), 0.7 thou (LP). Pw 4-6 gm. Compliance 1.4×10^{-6} cm/dyne. Separation 25 dB at 1 KHz. Output: 90 mV/cm/sec at 1 KHz. Capacitance 650 pF. Price: £1 15s (plus 8s 3d PT).

8TAD

Similar specification to 8TA but with diamond stylus. Price: £2 10s (plus 11s 9d PT).

9TA

Stereo turnover ceramic cartridge. Sapphire stylus. Pw 2-4 gm. Tip mass 3.5 mg. Compliance 5.3×10^{-6} cm/dyne. FR 30 Hz-15 KHz ± 3 dB. Separation 27 dB. Output voltage: 80-120 mV. Load imp 2 megohm. Price: £2 10s (plus 11s 9d PT).

9TAD

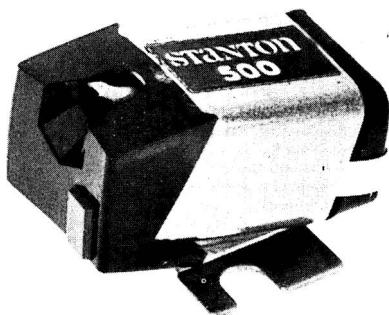
Similar specification to 9TA but with diamond stylus. Price: £3 5s (plus 15s 4d PT).

9TAHC

Stereo turnover ceramic cartridge. Choice of both sapphire styli or sapphire 78/diamond stereo LP. FR 20 Hz-20 KHz ± 3 dB from 1 KHz. Rec load 2M. Sensitivity 55-85 mV/cm/sec at 1 KHz. Lateral compliance 8.5×10^{-6} cm/dyne. Separation 25 dB at 1 KHz. Pw 1-3 gm. Tip mass 2.5 mg. Capacitance 800 pF. Price: with sapphire stylus £2 10s (plus 11s 9d PT); with diamond stylus £3 5s (plus 15s 4d PT).

2109

Mono Rochelle cartridge. Output at 1 KHz 700 mV/cm/sec. Capacitance 800 pF. Compliance



Stanton 500A

1.5×10^{-6} cm/dyne. Tracking +12 dB at 5 gm. FR 100 Hz-8 KHz ± 3 dB. Rec stylus force 6-8 gm. Price: £1 7s 6d (plus 6s 6d PT).

2509

Stereo Rochelle cartridge. Output at 1 KHz: 340 mV. Capacitance 1000 pF. Channel difference less than 3 dB. Separation at 1 KHz better than 12 dB. Pw 7 gm. FR 50 Hz-8 KHz ± 3 dB. Price: £1 19s (plus 9s 7d PT).

2539

Stereo Rochelle cartridge. Output at 1 KHz 550 mV/cm/sec. Capacitance 800 pF. Channel difference less than 3 dB. Separation at 1 KHz better than 12 dB. Tracking +9 dB at 9 gm. FR 100 Hz-8 KHz. Rec stylus force 8-10 gm. Price: £1 19s (plus 9s 7d PT).

3509

Stereo ceramic cartridge. Output at 1 KHz: 140 mV/cm/sec. Channel difference less than 3 dB. Separation at 1 KHz: better than 15 dB, typically 20 dB. Capacitance 600 pF. Tracking +12 dB, typically +15 at 5 gm. FR 100 Hz-8 KHz ± 3 dB. Rec stylus force 5-7 gm. Price: £2 5s (plus 11s PT).

SONY (U.K.) LTD

Ascot Road, Bedford, Feltham, Middx.
Tel: Ashford 50021

Sony VC-8E

Stereo moving coil cartridge. Stylus 0.2 \times 0.8 thou diamond. Pw 0.5-2 gm. Lateral and vertical compliance 10×10^{-6} cm/dyne. FR 10 Hz-25 KHz. Separation 30 dB at 1 KHz, 20 dB at 10 KHz. Output: 4 mV ± 2 dB. Rec load approx 40 ohms at 10 Hz-25 KHz. Price: £24 10s 5d (plus £6 6s 7d PT).

STANTON

Distributors: Metrosound Audio Products Ltd,

★ Indicates entry is illustrated

Cartersfield Road, Waltham Abbey, Essex
Tel: Waltham Cross 31933

500A ★

Magnetic stereo cartridge with diamond stylus. FR 20 Hz-10 KHz ± 1 dB, 10 Hz-20 KHz ± 2 dB. Channel separation 35 dB. Output: 0.8 mV. Load: 47K. Playing weight: 2.5 gm. Tip radius 0.7 thou. Weight of cartridge 5 gm. Price: £10 (plus £2 7s PT).

500AA

Magnetic stereo cartridge with diamond stylus. Details as for 500A. Tip radius 0.5 thou. Playing weight: $\frac{3}{4}$ -3 gm. Price: £12 (plus £2 15s 6d PT).

500E

Magnetic stereo cartridge with elliptical diamond stylus, 0.4 \times 0.9 thou. Playing weight: 2.5 gm. Price: £15 (plus £3 10s 7d PT).

TANNOY PRODUCTS LTD

West Norwood, London, S.E.27
Tel: 01-670 1131. Cables: Tannoy, London

Variluctance ★

Turnover cartridge. Output voltages: LP: 10-12 mV; 78 18-20 mV. Range 20 Hz-16 KHz ± 2 dB. Pw 5-6 gm (less with professional arms). Load imp 50K ohms. Price (with 2 diamonds): £12 (plus £3 3s 6d PT); (with 1 diamond and 1 sapphire): £9 10s (plus £2 10s 4d PT); (with 2 sapphires): £7 (plus £1 17s 1d PT). Compatible

styli available £3 (plus 15s 11d PT). Lightweight stereo/mono styli assembly. Price: £3 (plus 15s 11d PT).

Single stylus version of Variluctance for LP also available. Price (with diamond): £6 15s (plus £1 10s 4d PT).

TRANSCRIPTORS LTD

2 Theobald Street, Boreham Wood, Herts.
Tel: 01-953 0771

Transcripitor fluid arm ★

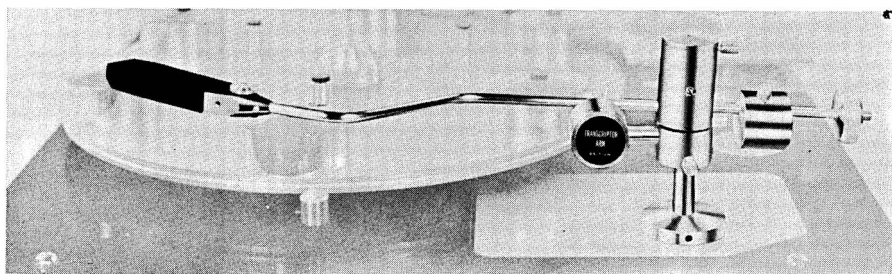
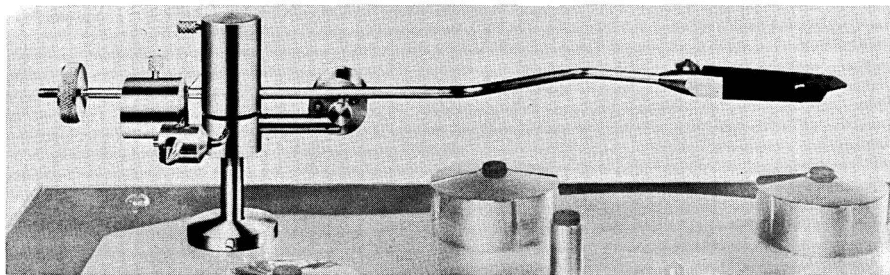
Stereo or mono low-mass arm with fluid Unipivot mount. Modular counter-weight system with fine balance adjustment. Suitable for all cartridges with compliance of 15×10^{-6} cm/dyne or above, tracking at not more than 2.5 gm. Hydraulic lowering device with manual override control. Incorporates precise cueing system. Single hole fixing. Integrated leads. Plug-in head shell. Roller-action adjustable bias compensation. British made. Price: £18 (plus £4 6s PT).

TTC

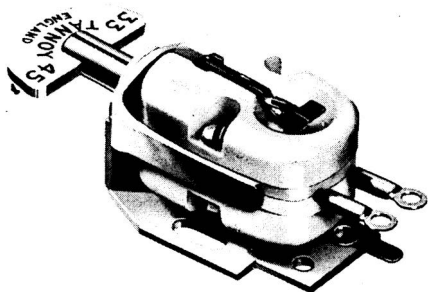
Distributors: E. R. Factors Ltd,
378 Harrow Road, Paddington, London, W.9
Tel: 01-286 9530 and 0361

J2203

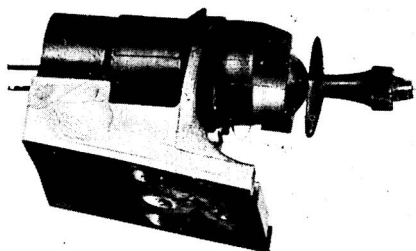
Moving magnet stereo cartridge. FR: 20 Hz-20 KHz. Output: 5 mV at 1 KHz. Compliance: 10×10^{-6} cm/dyne. Pw: 5 gm. Price: £5 5s.



Transcripitors Fluid Arm



Tannoy Variluctance cartridge



Walton M.1 cartridge

WALTON

Distributor: Lennard Developments Ltd,
497 Green Lanes, London, N.13
Tel: 01-886 3723

M.1 ★

High quality stereo-compatible cartridge for record players and radiograms. Mono cartridge incorporating 'decoupled stylus' system which plays all types of record without distortion-producing groove damage. Crystal unit. Turn-over type. Stylus: (diamond) 0.5/6 thou; (sapphire) 0.6/7 thou. Pw 5 gm. Tip mass 1.6 mg. Vertical and horizontal compliances: 2.5×10^{-6} cm/dyne, 4.0×10^{-6} cm/dyne. FR 40 Hz-12 KHz. Output: 250 mV. Rec load 1 megohm or greater. Price: £3 5s (including PT).

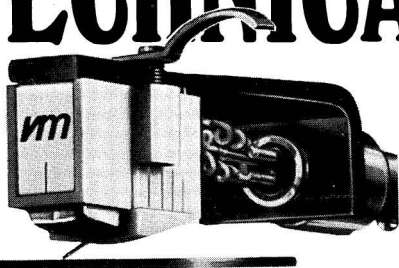
WORDEN AUDIO DEVELOPMENTS LTD

54 Chepstow Road, London, W.2
Tel: 01-229 4996

Worden articulated arm Mk III

Radially operative single arm with articulated head piece. Tracking correct to $\pm \frac{1}{4}^\circ$. Vertical and lateral friction less than 50 mg. Adjustable counter-balance weight. Height adjustment. Detachable head-shell accepts all standard $\frac{1}{2}$ in centre fixing cartridges. No resonances above 10 Hz. Extra head shells available. Built-in lowering and lifting device. Price: to be announced.

AUDIO-TECHNICA



the
outstanding
stereo
cartridge

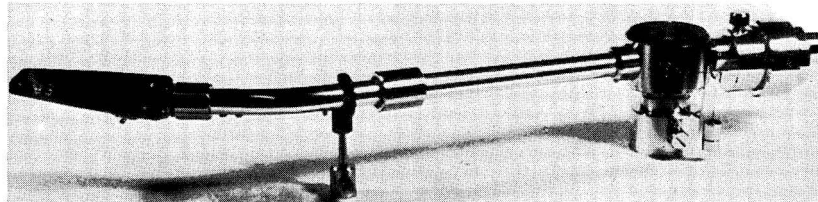
SPECIFICATIONS	AT-VM3 V-Magnet	AT-VM8 V-Magnet
Type		
Frequency Response ± 2 dB Hz.	20-25,000	30-20,000
Channel Separation at 1kHz.	30dB	30dB
Output Voltage at 1kHz 5cm/sec.	4mV	7mV
Impedance at 1kHz	4,800 ohms	
Compliance cm/dyne	26×10^{-6}	26×10^{-6}
Tracking force	1-2.5 grams	1-2.5 grams
Weight	6.5 grams	6.5 grams
Rec. Retail price	.5 £13.10.9	.7 £9.19.11

Introducing the new AT-VM3 and AT-VM8 Moving Magnet Stereo Cartridges

In seeking to achieve even finer sound reproduction our product development laboratories have conceived these two fine new cartridges. Their unique design provides excellent frequency response and extremely low cross talk, and their light mass and high compliance maintain perfect tracking even at low stylus pressure. Repeated tests with both carefully calibrated instruments and actual hearing using the cartridges with the very best high fidelity equipment, all bear out the superiority of these cartridges. Their clean and precise stereophonic reproduction provide authentic living presence, creating a world of audio realism.

.5 and elliptical
styli also available

Also AT-66 £6.4.8. AT-21 & 21-5 £8.14.4 AT-21X Diamond Elliptical £15.9.11



AT-1005 mk11 pick-up arm

To achieve pure unadulterated sound reproduction your first aim is to ensure perfect contact with the record playing surface and to this end, extensive research and development has gone into the development of this new aesthetically designed AUDIO-TECHNICA Tone Arm.

Specifications:

Balancing: Satic. Overall length: 320mm. Effective length: 240mm. Overhang: 15mm. Calibrated: 0-3 grams. Tracking error: less than $1\frac{1}{2}^\circ$. Rec. Cartridge weight: 5 to 24 grams. Price: £19.19.0



AUDIO-TECHNICA

Manufacturers: AUDIO TECHNICA CORPORATION—JAPAN

Distributors SHIRO (UK) LTD, *Electronics Division*, LYNWOOD HOUSE
24-32 KILBURN HIGH RD, LONDON, N.W.6. Telephone: 01-624 9102

Pickup Accessories

★ Indicates entry is illustrated

ADASTRA ELECTRONICS LTD

167 Finchley Road, Swiss Cottage, London,
N.W.3. Tel: 01-624 8164/5

Imp-Verta ★

Matches low impedance PU cartridges, microphones and tape heads into high impedance amplifier inputs. Solid state printed circuit device using silicon transistor. Automatically switched internal 9V battery. Negligible drain. Conversion factor approximately 20 (depending on load). Virtually no hum or signal loss. Metal case, black crackle finish. Size: $5 \times 1\frac{1}{2} \times 1\frac{1}{2}$ in. Price: £3 10s.

ARENA

Distributors: Highgate Acoustics,
184-188 Great Portland Street, London, W1.
Tel: 01-636 2901

Arena FS.1 preamplifier

Preamplifier F.1 combined with 240V AC mains power pack. Suitable for use with any stereo amplifier. Two matched silicon transistors in each channel. Matches magnetic pickup into amplifier having crystal or ceramic input only. Price: £7 7s.

BIB

Multicore Solders Ltd, Bib Division,
Maylands Avenue, Hemel Hempstead, Herts.
Tel: Hemel Hempstead 3636

Stylus and turntable cleaning kit ★

Includes: cleaning cloth, non-inflammable anti-static cleaning fluid and small nylon brush applicator. Brush can be fastened to board by small suction pad. Price: 5s 6d (plus 1s 4d PT).

Anti-static cleaner

Non-inflammable anti-static fluid with cleaning cloth. Does not smear or scratch. Suitable for instrument panels, plastic, chrome, glass and exteriors of electronic equipment. Price: 4s 6d.

Record covers

12in. Shaped containers made from clear plastic sheet. Protects records from dirt and prevents

wear. One required for each record. Price: pack of five 2s 2d.

Record sleeve protectors

Made from strong clear plastic to fit over record sleeve and keep like new. Price: pack of five 2s (plus 6d PT).

Record wallet ★

7in size. Holds 10 7in records in their sleeves. Handy record tidy and carrying case. Price: 4s 2d (plus 1s 2d PT).

BLACK KNIGHT 'RUMBLECURE'

Bank Top, Currier-Lane, Ashton-under-Lyne,
Lancs. Tel: 061-330 2836

Rumblecure

Kits of units and individual items designed to isolate pickup arms, motor units, tape recorders, speaker enclosures and other pieces of equipment from mechanical vibration. Various patented accessories available. Full details and prices on request.

BURNE-JONES & CO LTD

18 Brunswick Road, Sutton, Surrey.

Alignment protractor ★

For measuring the tracking accuracy of all pickup assemblies. Made in plastic ivory. Price: 10s.

B. & W. ELECTRONICS

Bowers & Wilkins Electronics Ltd,
Littlehampton Road, Worthing, Sussex.
Tel: Worthing 66830

SE/A

A special equaliser for the Shure V15/11 and similar cartridges designed for use with SME Series II pickup arms.

CLENDISC (Mail Order) LTD

7 Trinity Court, Gray's Inn Road,
London, WC1. Tel: 01-837 9088

Clendisc

An anti-static cleaner and preservative for records, photographic and optical lenses, copying machines, tape heads and computers. 4 fl oz bottles. Price: 4s 1d.

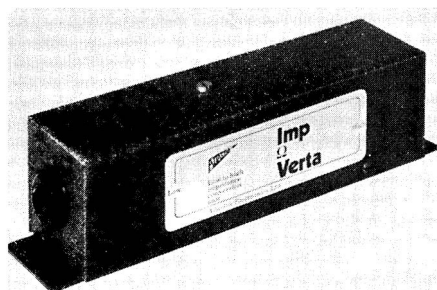
Clendisc Cleaning Pad ★

Pad impregnated with Clendisc fluid which assists in the removal of dust and dirt and also neutralises any electrostatic charges present. Price: 3s 4d, including tax.

COLTON & CO (Lapidaries) LTD

The Crescent, Wimbledon, London, SW19.
Tel: 01-946 9401

★ Indicates entry is illustrated



Adastra Imp-Verta



Bib stylus and turntable cleaning kit



Bib record wallet—Size B

Antistaticloth ★

A soft cloth impregnated with an anti-static material, for cleaning records. Price: 2s 6d.

Colton

E.P. record centre adaptors (45rpm). Small plastic centre pieces which enable E.P. records to be used again on slim spindle changers after the large centre piece has been removed. Price: 3s per packet of one dozen (plus 9d PT).

Varilift Mk II ★

Fluid damped pickup lift and lowering device, lever operated. Replaces the previous button operated hydraulic device, and is basically smaller, neater and utilises an offset fixing bracket permitting it to be fixed directly under pickup in the most effective position. Price: £3 (plus 14s 1d PT).

Precision level ★

Circular bubble-type spirit level in white plastic case $1\frac{3}{8}$ in diameter, $\frac{1}{2}$ in high. Three fixing holes provided or it may be fixed with adhesive. Ensures accurate levelling in all directions. Price: 6s 9d.

Antistatimat ★

All-rubber 12in turntable mat. Accurately balanced and moulded with guard edge recess. Introduction of certain materials into the rubber renders it conductive to static charges on micro-groove records. When a record is placed on the mat static charges are dispersed freeing the record from induced noises without use of sprays, etc. Price: 10s 6d (plus 2s 6d PT).

Plastisleeves

Made from 200-gauge polythene and designed to protect micro-groove records from dust and damp. Supplied in packets of 12. Prices: 7in round bottom 2s 4d, 12in round bottom 5s.

Plasticovers

Made from 200-gauge polythene and designed to protect record sleeves against rubbing and scratching. Supplied in packets of 12. Price: 7in square bottom 1s 3d, 12in square bottom 3s 1d.

Times-Fifty ★

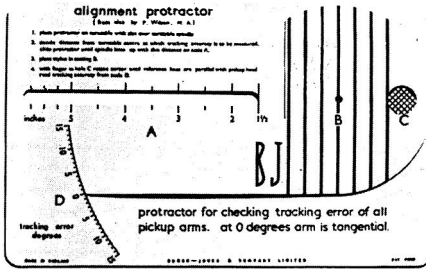
Miniature pocket microscope with stylus locating slot and adjustable focus. Gives clear picture of stylus tip at X50 magnification. $4\frac{1}{2}$ in long and fitted with pen clip. Price: 17s 6d.

Magnalift ★

Centre lift off device. Fixes beside pickup and automatically lifts arm off record at end of playing cycle. Finished in black wrinkle and satin chrome. Latest version is smaller and lower than earlier models. Can be used with players having close-fitting clear plastic cover. Price: £2 10s 8d (plus 11s 11d PT).

Variscale ★

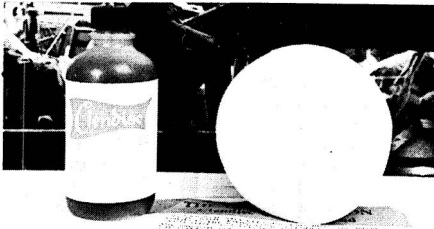
Tracking force indicator. Simple and accurate stylus balance measuring from $\frac{1}{2}$ to 6 gm. Finish:



B-J alignment protractor



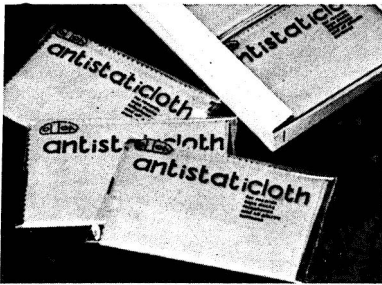
Colton Precision level



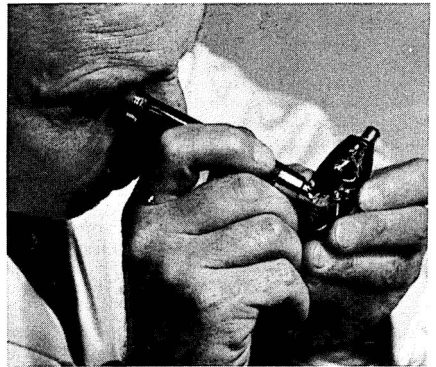
Clendisc cleaner and pad



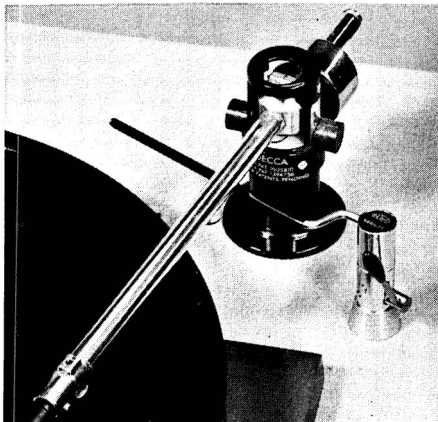
Colton Antistatimat



Colton antistaticcloth



Colton Times-Fifty stylus viewer



Colton Varilift



Colton Magnalift

★ Indicates entry is illustrated



Colton Variscale



Colton Stylus timer



Colton Antistatic fluid

black wrinkle and satin chrome. Price: 16s 11d (plus 3s 11d PT).

Precise ★

Manually operated pickup lifting device. Simple precisemovement. Single-hole mounting. Finish: satin chrome. Price: £1 8s 3d (plus 6s 8d PT).

Superactive

New formula anti-static fluid. For cleaning and neutralising static in records and other plastic surfaces. Can be applied with sponge or cloth, leaves no sticky deposit. Suitable for recharging anti-static devices. Supplied in dispenser with dropper nozzle. Price: ($\frac{1}{2}$ oz) 2s 6d, (1 oz) 4s 6d.

Stylus Life Timer ★

This unique device measures only $2 \times 2\frac{3}{4} \times \frac{3}{8}$ in. The magnetically actuated precision mechanism registers in playing hours on a scale 0-400. At 400 hours it can be reset to 0. Finish: black with silver dial. Price: £1 19s (plus 9s 2d PT).

Gripex

Anti-slip dressing. A spirit suspended solution supplied in 1 fl oz bottles with brush. Applied thinly to drive surface of belts or friction wheels, it dries in 10-15 minutes. Price: 5s per bottle.

Coltonian record racks

Heavy gauge steel wire welded at all joints. Available plated or plastic coated, gilt, copper, black, red, grey or blue and fitted plastic feet. Price: from 6s 9d (plus 1s 7d PT).

Record carrying cases

Three basic sizes: 12in \times 50, 12in \times 25 and 7in \times 50. Finish: padded PVC in red, blue, black and brown. Prices: from £1 7s 10d (plus 6s 7d PT).

CONNOISSEUR

A. R. Sugden & Co (Engineers) Ltd,
Market Street, Brighouse, Yorkshire.
Tel: Brighouse 2142. Cables: Connoisseur,
Brighouse.

Connoisseur Stylus Balance ★

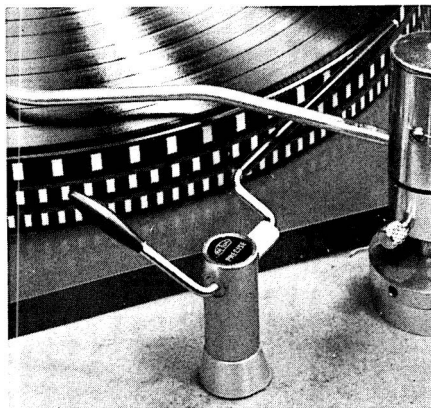
Precision stylus balance with sliding weight adjustment. Scale calibrated 0-6 gm. Simple operation giving accurate stylus pressure settings. Price: 17s 6d (plus 4s 2d PT).

DECCA

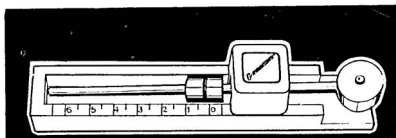
Decca Special Products, Ingate Place,
Queenstown Road, London, SW8.
Tel: 01-622 6677

Magnetic bias compensator

Neat, simple, unobtrusive device using magnetism precisely to neutralise the forces which draw a pickup towards the centre of the turntable. Type A for Mk I and Mk I "Super" ffs arms, and for Deram ARI arm. Price: £1 0s 2d (plus 4s 10d PT).



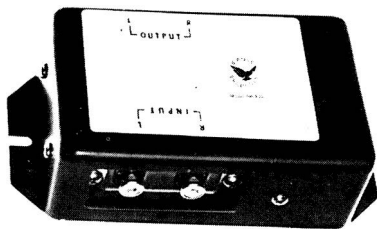
Colton Precise lift



Connoisseur stylus balance



Decca Microlift



Eagle PRE 402 pickup preamp

Centre locator

Fits on *ffss* arm like *ffss* head. Pickup arm is correctly positioned when the locator moulding fits the turntable centre spindle. Price: 5s 3d (plus 1s 3d PT).

Decca Microlift ★

A device for raising and lowering a manual pickup arm at any point on the record for minimising risk of damage either to record or stylus through handshake. Easy to fit to most types of back-pivoted pickup. It does not hinder record handling by over-lapping the turntable. Price: £1 8s 4d (plus 6s 8d PT).

Decalift

Motorised lifting and lowering device which can be controlled at the turntable and/or remotely. Requires 6-3V AC. Transformer optional extra. Price: £6 17s 7d (plus £1 12s 5d PT).

EAGLE PRODUCTS

Distributors: B. Adler & Sons (Radio) Ltd, Coptic Street, London, WC1.
Tel: 01-636 9606/7.

PRE 402 ★

Mains powered stereo pickup preamplifier for magnetic cartridges including Eagle LC 05 and LC 07. Provided with dual phono sockets. Price: £4 19s 6d.

EXPERT PICKUPS LTD

Station House, Harpenden, Herts.
Tel: Harpenden 62421

Expert moving coil pickups serviced
Full details on request.

Replacement stylus service

For detachable cantilever systems using client's own stylus assembly. Radius to choice; from 0.5 thou (stereo) to 4 thou (78 oversize). Ellipticals where suitable. Radius checked using X 500 magnification.

Grade A transcription diamond styli

Finest quality, highly polished, giving minimum background noise and optimum results. Spherical or elliptical tip.

Grade B

Commercial standard, 0.5 thou to 2.5 thou only. Oversize sapphires and diamonds (Grade A only) for Pathe and Edison reproducers formed and fitted. Expert Pickup diamonds are manufactured only to customers' specifications. Special quotations and prospectus on request.

GOLDRING MANUFACTURING CO (Great Britain) LTD

486/488 High Road, Leytonstone, London, E11.
Tel: 01-539 8343. Cables: Echovox, London.

★ Indicates entry is illustrated

Lenco STB.2

Stylus pressure balance. A simple and accurate device, not relying on springs. Price: 13s 9d (plus 3s 4d PT).

Lencoclean

Record cleaning device mounted on turntable. Tracks in front of the pickup, dispensing a narrow band of special fluid. Leaves no deposit on record, cleans the groove and cools the point contact. Keeps stylus point clean. Price: £2 8s 3d (plus 11s 6d PT).

Lencoclean refill 19s 9d.

Goldring/Lenco VV7

Stereo preamplifier for magnetic cartridges. Input: 1 mV 47K. Noise level: -60 dB. Output: 100 mV RMS. Mains: 200-240V 50 Hz. Size: $4\frac{3}{4} \times 2 \times 1\frac{1}{2}$ in. Price: £8 10s (plus £2 0s 6d PT).

GRUNDIG (Great Britain) LTD

Newlands Park, Sydenham, London, SE26.
Tel: 01-778 2211

MV3

Transistorised stereo preamplifier for magnetic cartridges. Designed to convert radios and amplifiers designed for crystal PU only. Corrected to CCIR standards of 3180, 318 and 75 μ secs. Operates from external supplies of 27-40V DC, or 200-240V DC. Amplification factor: 38 dB. Separation: 46 dB from 30 Hz-16 KHz. Maximum input: 50 mV at 1 KHz. Consumption: 2.5-11 mA. Size: $3\frac{1}{2} \times 1\frac{1}{4} \times 2\frac{3}{4}$ in. Price: £5 15s.

G. F. C. HADCOCK

Audio Division, The Old Vicarage, Doveridge, Derby DE6 5NN. Tel: Uttoxeter 2452

GH Uni-lift ★

Raising and lowering device suitable for use with all pickup arms. Two-hole fixing for stability. Ensures accurate lowering and easy cueing. Allen key provided for height adjustment of horizontal arm. Finish: chromium plated brass. Price: £1 19s 3d (plus 9s 3d PT).

HOWLAND-WEST LTD

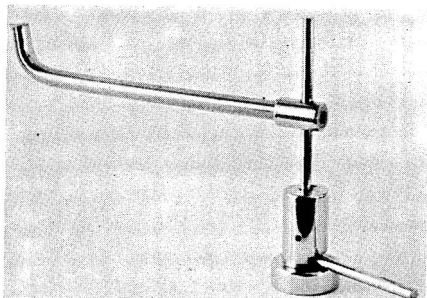
2 Park End, South Hill Park, London, NW3.
Tel: 01-794 6666/6033

Howland-West Alignment Protractor

Made in laminated Perspex. Provides facilities for checking: (1) vertical tracking angle, (2) lateral tracking angle and (3) channel balance and separation. Price: 10s 6d.

LENNARD DEVELOPMENTS LTD

497 Green Lanes, London, N13.
Tel: 01-886 3723



Hadcock GH Uni-lift

Play-fair Stylus Timer

Manually operated device which indicates when stylus is due for replacement. Self-adhesive to attach to motor board if desired. Swiss mechanism. Neat plastic case with instructions. Two models: one for sapphires, one for diamonds. Price (either model): 16s 3d (plus 3s 6d PT).

Play-fair Cleaning Pad

Anti-static. Price: 2s.

Play-fair Stylus Cleaners

Cleaning fluid with separate brush. In presentation case. Price: 6s.

Play-fair Antistatic Cleaning Fluid

30cc polythene bottle. Price: 4s 6d.

Play-fair Discoda

Record sleeve indexing device for quick identification of records. Price: 3 for 2s 6d, 12 for 8s. (Bulk prices on application).

Micro-Diamond replacement styli

Comprehensive range. Also retipping service. Price: on application.

M.A.C. LTD

Ripley, Surrey.

AAU-3

Audio adaptor unit for connecting three pickups to a common amplifier input, also suitable for microphones, tuners, tapes, etc. Two phono inputs at rear alternately switched to front DIN sockets for feeding other equipment. Fitted with 24in leads with phono plugs, or with DIN plug (AAU-3Q). Provision for fitting attenuator or load resistors internally. Dimensions: $3 \times 3 \times 3$ in. Finish: jaguar silver. Price: £4 10s.

METROSOUND

Metrosound Audio Products Ltd,
Cartersfield Road, Waltham Abbey, Essex.
Tel: Waltham Abbey 31933.

M.2 Record Cleaning Sponge

Special soft texture for cleaning of records.
Price: 2s 6d (plus 7d PT).

M.3 Record Care Kit

Comprising bottle of Metro-Spray spirit-based anti-static record cleaning fluid; special texture sponge applicator with moulded handle; and soft stylus cleaning brush. Price: 6s (plus 9d PT).

M.10 Metro-Mat ★

Ribbed rubber full transcription size anti-static turntable mat, complete with separate stroboscope. Price: 10s 6d (plus 2s 6d PT).

M.11 Hi-Fi Stylus Cleaning Kit ★

Bottle of specially developed mild solvent fluid. Moulded plastic retaining clip on bottle for soft nylon cleaning brush. Price: 6s (plus 1s 5d PT).

M.21 Metro Scale Stylus Balance

Works on knife edge balance principle. Supplied with eight plastic weights enabling checking from ¼ gm to 4½ gm. Price: 6s (plus 1s 5d PT).

M.23 Spirit level ★

Plastic spirit level for use on turntables, etc. Price: 6s.

M.24 Lubricating Kit ★

Suitable for transcription turntables and mechanical moving parts. Comprises small bottle each of R.O.B. and R.O.G. oil and container of Starfax. Price: 6s.

M.26 Ioniser

High fidelity record cleaner. Permanently anti-static, humid soft velvet enclosed in plastic moulding. Price: 7s.

M.27 Anti-static cleaning cloths

Permanently impregnated anti-static record cleaning cloth. Price: 2s 6d.

M.28 High Fidelity Maintenance Kit

Designed for optimum maintenance of transcription record players and discs. Contents: ioniser, hi-fi cleaning kit. Metro Scale stylus balance, lubricating kit, and spirit level. Price: £1 10s (plus 2s 9d PT).

M.31 Thorens anti-skating device

For use with T.P.13 pickup arm as supplied with Thorens T.D.150A and T.D.150AB transcription turntables. Price: £1 5s (plus 6s 7d PT).

MICRO-SEIKI

Distributors: B. H. Morris & Co (Radio) Ltd, 84-88 Nelson Street, London, E1.
Tel: 01-790 4824

Micro Shock Absorber, MSB-1

Mounting device for record decks and speakers for eliminating microphonic howling. Consists of small round 'foot' providing air-damped suspension together with height adjustment (for levelling turntables). Price to be announced.



Metro-sound metro-mat



Metro-sound stylus cleaning kit

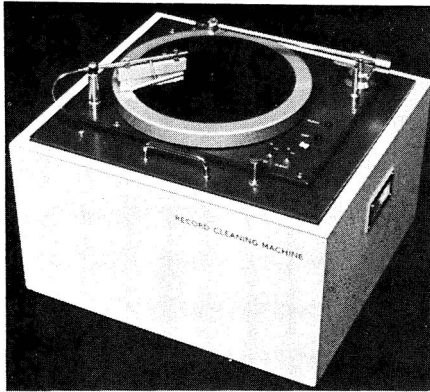


Metro-sound spirit level

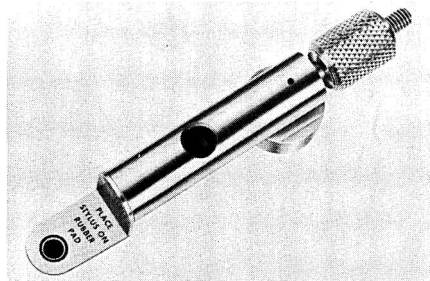
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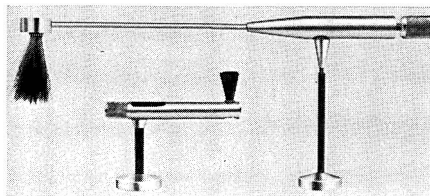
Metro-sound lubrication kit



Keith Monks Record Cleaning Machine



Transcriptors stylus scales



Transcriptors sweep arm and stylus brush

KEITH MONKS (Audio) LTD

5 Fleet Road, Fleet, near Aldershot, Hants.

Tel: Fleet 7316.

Professional Record Cleaning Machine ★

Used by broadcasting companies, sound studios, record retailers and gramophone libraries.

Special washing, scrubbing and suction action leaves record clean and dry. Retail price: £213 6s 8d.

PLAYFAIR

See Lennard Developments.

TRANSCRIPTORS LTD

2 Theobald Street, Boreham Wood, Herts.

Tel: 01-953 0771.

Transcriptors Stylus Scale ★

Precision scales in polished aluminium with jewelled pivot. Sensitive to less than 0.01 gm. Accuracy better than 0.02 gm. Measures 0.5 gm in increments of 0.05 gm. Bubble read-out. Supplied with reference calibration check weights. British made. Price: £3 (plus 14s PT).

Transcriptors Sweep Arm ★

Record cleaning device for permanent fixing. Height adjustable over 3½ in. Tracks at ¼-½ gm. Balance cursor. Integrated parking device. Precision unipivot construction. Polished aluminium. British made. Price: £3 (plus 14s PT).

Transcriptors Stylus Brush ★

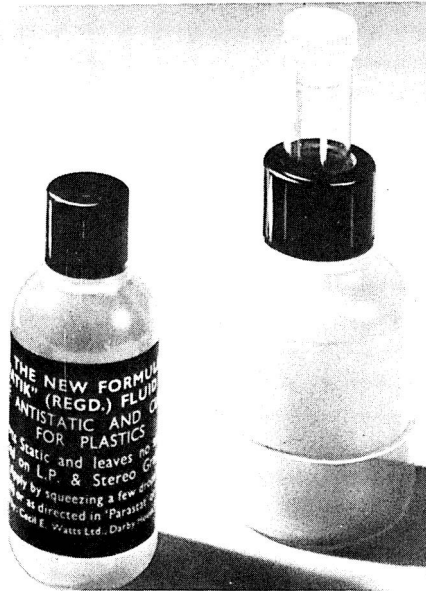
For permanent installation. Comprises squirrel hair brush for cleaning stylus. Adjustable for height. Single hole fixing. Polished aluminium construction. British made. Price: £1 17s (plus 9s PT).

WAL

Sole distributor: A. C. Farnell Ltd, Consumer Division, Farnell House, 81 Kirkstall Road, Leeds LS3 1HR. Tel: Leeds 35111

Universal WAL Gain stereo pre-amplifier unit

For amateur tape, cine and professional sound recording. RIAA equalisation for magnetic cartridges. Flat response pre-amp for low impedance microphones. Equalised inputs for magnetic pickups for transfer to sound on film. Equalised CCIR built-in correction, for tape heads, 2 or 4 track. Monitoring pre-amp for use direct from tape head to enable one track to be synchronised with another. Transfer from tape deck mechanism to tape recorder. Track-to-track transfer equalised to CCIR for transferring information on 4-track tape recording equipment. Mixer for low impedance microphones, gramophone or tape, RIAA, CCIR, or



Watts Humid Mop and new formula fluid



Watts Manual Parastat with Humid Mop



Watts Manual Parastat



Watts Disc Preener

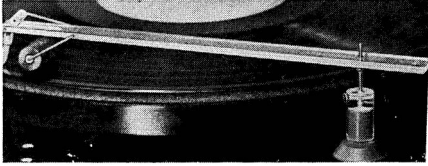


Watts Hi-Fi Parastat



Watts stylus cleaner

★ Indicates entry is illustrated



Watts "Dust Bug"

flat response. Headphone monitoring facilities. Psn 220-245V. Price: £10 19s 6d.

CECIL E. WATTS LTD

Darby House, Sunbury-on-Thames, Middx.
Tel: Sunbury 3252

Watts Dust Bug ★

Claimed to be the most efficient method of removing static and dust from records as they are played. Instantly fitted, suitable for all types of records. Record quality is improved, surface noise and wear reduced. Price: 18s 9d (plus 4s 5d PT).

Watts Disc Preener ★

For record maintenance where anti-static agents are not desirable (where stylus force is less than 2 gm). Price: 6s 9d.

Watts Manual Parastat with Humid Mop ★

Manual model Parastat record cleaning machine. For cleaning and applying anti-static agents to LP records. Complete with humid mop for cleaning bristles and velvet pads. Price: £2 12s 6d.

Watts Manual Parastat ★

Available separately (without Humid Mop). Price: £2 7s 6d.

Watts Humid Mop ★

Available separately. Price: 5s.

Hi-Fi Parastat Model Mk 4 ★

Gramophone record maintenance and stylus cleaning kit. Designed for use on records in new condition which are played with pickups requiring very low tracking pressures. Price: £2 2s 6d (plus 1s 3d PT).

Watts Stylus Cleaner ★

As included with Hi-Fi Parastat kit. Price: 5s (plus 1s 3d PT).

Watts Spares and Replacements

Dust bug nylon bristle and plush pad. Price: 1s 9d.

New Formula Dispenser. Price: ($\frac{1}{2}$ oz) 2s 6d; (1 oz) 4s 6d.

Preener Wicks. Price: (packet of four) 2s.

Manual Parastat Brush. Price: 12s 6d.

Parastat Nylon Velvet Pad Covers. Price: 2s.

Parastat White PVC Sponge. Price: 1s.

Humid Mop (sponge and four wicks). Price: 3s.

Hi-Fi Parastat Distilled Water Dispenser. Price: 4s.

Hi-Fi Parastat pad cover and ribbons. Price: 1s 9d.

WILSON STEREO LIBRARY LTD

104-106 Norwood High Street, London, SE27.
Tel: 01-670 6394

W.S.L. Blank Disc

Highly polished blank vinyl disc for adjusting side thrust and alignment. Indicates the amount of side thrust to be corrected. Mirror-like surface reflects underside of cartridge and stylus and assists in accurate alignment. Supplied with instructions for correcting side thrust. Price: 13s 6d postage and packaging included.

W.S.L. Side Thrust Corrector

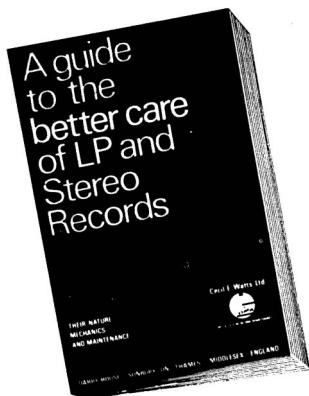
Pulley device which may be fitted to any pickup to correct side thrust. Should be used in conjunction with W.S.L. Blank Disc for precise elimination of side thrust. Price: 8s (including PT).



TAKE CARE OF YOUR RECORDS

*Use the world's best cleaning
and maintenance devices.*

**WATTS EQUIPMENT CARES FOR YOUR
RECORDS IN ALL CONDITIONS OF USE**



Only the user knows the local conditions in which his records will be played. A study of the Booklet "A GUIDE TO THE BETTER CARE OF YOUR L.P. & STEREO RECORDS" will, it is hoped supply the necessary information to enable him to choose the appropriate device to suit his particular requirements.

SEND IMMEDIATELY 2/6 POST FREE

**CECIL E. WATTS LIMITED
DARBY HOUSE · SUNBURY ON THAMES · MIDDLESEX**

HI-FI AT MODERN ELECTRICS

offers

**AMPLIFIERS
LOUDSPEAKERS
PICK-UPS/MOTORS
TAPE RECORDERS
TUNERS**

**APPROVED
STOCKISTS
FOR**

**QUAD,
LEAK,
ETC.**

all the advantages you are entitled to expect from dealing with a firm which has specialised in selling the best in hi-fi for more than 25 years. Anyone can offer apparent attractive discounts and avoid the responsibilities of advice, service and manufacturers' guarantees as far as the customer is concerned; we see things differently at Modern Electrics. Of course we carry large stocks of equipment carrying world-famous names and reputations and we will supply you with a choice of excellent items in amplifiers, speakers, pick-ups and motors as well as radios and tape recorders. With our own servicing department and considerable technical experience you are more likely to get satisfaction from dealing with us for whatever you want, be it for a stylus or a sophisticated assembly including video tape recorder. It's easy to get to Modern Electrics—and, we hope, well worth it for you.

Members of the Hi Fi Dealers Association

**MODERN ELECTRICS, (RETAIL)
LTD.**

120 SHAFTESBURY AVENUE, LONDON, W1V 7DJ

Hours 9-6 daily
Sats. 9-1 p.m.

The good hi-fi shop directly
opposite the Columbia Cinema

Telephone: 01-437 9692/3
Cables: MODCHAREX, LONDON

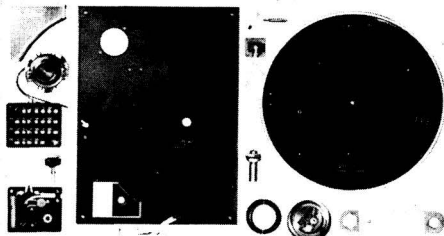
Connoisseur *Precision in Sound*

THE BIG 4-FOR THE ENTHUSIAST

B.D.2. COMBINED TURNTABLE & PICK-UP QUALITY PERFORMANCE AT A REALISTIC PRICE

Featuring:

- ★ Belt drive turntable with S.A.U.2 arm operated by hydraulic lift and with lowering device and new headshell with lateral adjustment.
- ★ $33\frac{1}{3}$ and 45 rpm
- ★ Virtually silent
- ★ Anti-vibration springs
- ★ Available as chassis only or in teak plinth



TURNTABLE KIT

Something new from Connoisseur—a Kit of the world famous B.D.1 Turntable. Construction is simplicity itself—the only tools required being a small screwdriver and a pair of pliers apart from the special spanner which is included. No soldering is required.

The B.D.1 Turntable operates at $33\frac{1}{3}$ and 45 rpm incorporating a flexible belt drive system, virtually eliminating vibrating and transmission noise and giving a performance that will meet the requirements of the discerning enthusiast.

S.A.U.2 PICK-UP ARM

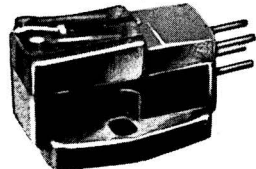
This is one of today's most advanced pick-up arms and features:

- ★ New head shell—with lateral adjustment.
- ★ Auto-bias compensator
- ★ Precision balance
- ★ Hydraulic lowering device



S.C.U.1 STEREO CARTRIDGE

This is the cartridge for the person who really cares about his equipment.



Fullst details of all Connoisseur Equipment on request to:

A. R. SUGDEN & CO. (ENGINEERS) LTD.

Market Street, Brighouse, HD6 1DX, Yorkshire.

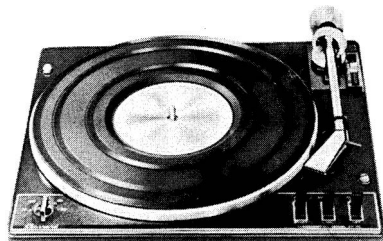
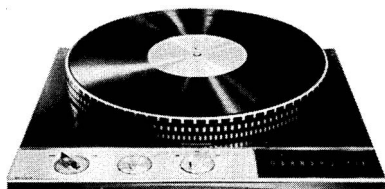
Tel. 2142

Sound sense that's a Garrard turntable

You're looking at three of the finest turntable units available. Any one of these Garrard models will bring you closer than ever before to your ideal in sound reproduction—and at the price you want.

Garrard 401

With its heavily-shielded 4-pole induction motor, precise speed control, non-magnetic diecast turntable, built-in stroboscopic light and elegant styling, the 401 is the ultimate in transcription turntables. It meets the most exacting requirements of radio, television and recording studios throughout the world and of hi-fi enthusiasts everywhere. Each unit is supplied with its own individual test report.

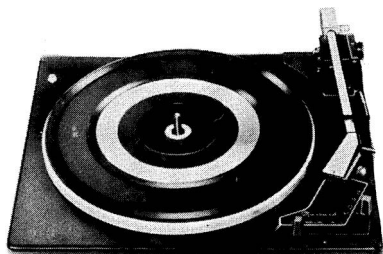


Garrard AP76

A transcription quality three-speed (78, 45 and 33 $\frac{1}{3}$) single record playing unit which features automatic play of single records when required. The tubular pick-up arm, fitted with a slide-in cartridge carrier is counter balanced by decoupled weight, and incorporates a bias compensator (calibrated for spherical and elliptical styli) and fine stylus force adjustment. Other features include non-magnetic turntable, fluid-damped cue and pause facility and tab controls. Optional extras: Wood base and rigid clear plastic cover.

Garrard SP25 MK III

The successor to the SP25 MK II, probably the most popular single record playing unit in the moderate price range. Features include non-magnetic turntable, calibrated fine stylus force adjustment, bias compensator, viscous damped cue and pause facility, decoupled weight counter balanced pickup arm with slide-in cartridge carrier. Plays single records automatically when required. Optional extras: Wood base and rigid plastic cover.



Garrard Engineering Limited
Newcastle Street, Swindon, Wiltshire. Tel: Swindon 5381

Garrard

a PLESSEY quality product



G469

Directory of Motor Units

★ Indicates entry is illustrated

ACOUSTIC RESEARCH

Bell & Howell Ltd, Audio Products Division, Alperton House, Bridgewater Road, Wembley, Middlesex. Tel: 01-902 8812

AR Turntable ★

Turntable complete with pickup arm, walnut plinth, transparent cover and stylus pressure gauge. Speeds: $33\frac{1}{3}$, 45rpm. Wow: $<0.1\%$ combined wow and flutter measured to NAB standards. Rumble: at least 35 dB below 1 cm/sec measured to NAB standards. Speed accuracy: $\pm 0.3\%$. Turntable: 12in non-magnetic. Belt drive. Miniature synchronous motor. Plug-in cartridge shell. Adjustable playing weight. Internal adjustable viscous damping. Performance guaranteed to exceed NAB broadcast equipment standard for three years from date of purchase. Price: £61 1s 6d (plus £16 7s 6d PT).

BANG AND OLUFSEN U.K. LTD

Eastbrook Road, Gloucester GL4 7DE.
Tel: Gloucester 21591

Beogram 1000 ★

Plinth mounted motor unit with arm and SP14A magnetic cartridge. Speeds: 78, 45 and $33\frac{1}{3}$ rpm with 12% vernier adjustment. Wow: $\pm 0.2\%$ peak. Rumble >32 dB below 10 cm/sec PU output. Belt drive. B and O ST/L 15° arm with microlift. Anti-static mat with strobe disc. Anti-microphonic suspension. Built-in 45rpm disc insert. Power supply and socket for GF3 preamp. Price (teak): £45 (including PT); (rosewood) £46 (including PT). GF3 preamplifier to slot into socket under Beogram 1000. Price: £7 (no PT).

Beogram 1800

Plinth mounted motor unit with arm, cartridge and plexiglass cover. Speeds: $33\frac{1}{3}$, 45rpm. $\pm 5\%$ fine speed control. Wow: 0.2% peak. Rumble: -55 dB to DIN B curve (below reference voltage from cartridge at 10 cm/sec). Turntable: 11in diameter, $3\frac{1}{4}$ lb, aluminium. Belt drive. Two-pole induction motor. Mains: 110/120V, 220/240V AC. Adjustable counterbalance. Direct rotary dial for playing weight adjustment. Inclined plane bias compensation. Semi-auto-

matic operation. Automatic set-down on selected 12in, 10in or 7in records. Automatic lift-off at end of record and motor switch-off. Provision for automatic set-down on particular track of record. Centreless 45rpm record insert. Price: (teak) £63 10s (including PT); (rosewood) £64 10s (including PT).

B.S.R. See McDonald.

CONNOISSEUR

A. R. Sugden & Co (Engineers) Ltd,
Market Street, Brighouse, Yorkshire.
Tel: Brighouse 2142. Cables: Connoisseur,
Brighouse.

'Craftsman' two speed transcription motor ★

Operates at $33\frac{1}{3}$ and 45rpm fixed speeds. Full 12in turntable of non-ferrous material. All bearings are adjustable throughout the life of the unit. Synchronous motor. Price: £15 15s (plus £3 17s 10d PT).

'Craftsman' three speed transcription turntable ★

Requires minimum mounting space. Heavy non-ferrous 12in turntable. $33\frac{1}{3}$, 45 and 78rpm. 4% variation on all speeds. Neon lit stroboscope fitted. Dynamically and electrically balanced synchronous motor. All bearings are adjustable. Price: £21 (plus £5 3s 9d PT).

BD1 ★

Two-speed motor unit supplied as motor only or plinth mounted with any Connoisseur arm. Two fixed speeds, $33\frac{1}{3}$ and 45rpm. Wow $<0.1\%$. Flutter $<0.1\%$. Rumble: -50 dB measured at RIAA characteristics ref 7 cm/sec at 1 KHz. No change in speed for 20% variation in supply voltage. $10\frac{1}{2}$ in non-ferrous lathe-turned turntable. Precision ground belt drive. Unique drive arrangement eliminates transmission noise. Simple manual speed change. Low hum field. Slim line construction. Only $1\frac{1}{2}$ in required below mounting platform. Mains: 100-120V and 200-240V, 50 or 60 Hz. Price: £12 1s 6d (plus £2 16s 10d PT). Price of assemblies on application.

BD2 ★

Integrated transcription unit. Includes a BD1 motor unit (mounted on a larger platform) and a type SAU2 pickup arm. Hydraulic arm lift operated from front. Anti-vibration springs. Supplied either chassis only or plinth mounted. Perspex cover optional. Size: $12\frac{1}{4} \times 14 \times 4\frac{1}{2}$ in (2in below and $2\frac{3}{4}$ in above the platform. Price: (chassis only) £23 (plus £5 8s 3d PT).

DECCA

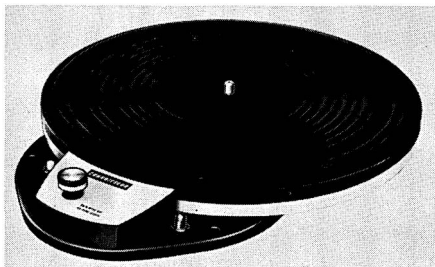
Decca Special Products, Ingate Place,
Queenstown Road, London, SW8.
Tel: 01-622 6677



Acoustic Research Turntable



Bang & Olufsen 1000



Connoisseur Craftsman II



Connoisseur Craftsman III

Studio turntable ★

Combination of Decca Mk 4 *ffs*s cartridge and Garrard AP75 three-speed single record playing unit. Speeds 33 $\frac{1}{3}$, 45 and 78rpm. Automatic motor switch off and return of pickup at end of record. Cue and pause facility, calibrated pickup arm bias compensation, calibrated stylus weight adjustment. Price: £32 6s (plus £7 12s PT).

Decadec de luxe ★

Motor unit with Deram transcription head and arm including all fittings for cabinet mounting. Speeds: 16 $\frac{2}{3}$, 33 $\frac{1}{3}$, 45, 78rpm with no fine adjustment. 10 $\frac{1}{2}$ in non-magnetic turntable. Pulley drive. Garrard motor. Automatic motor switch off and return of pickup at end of record. Built-in anti-rumble filter. Lifting and lowering device and bias compensation. Price: £15 15s 8d (plus £3 14s 4d PT).

DUAL

Dual Electronics Ltd, Paramount Industrial Estate, Mill Road, Stokenchurch, Bucks.
Tel: Radnage 3467/8

1209 ★

Transcription turntable with automatic changing facilities. Speeds: 78, 45, 33 $\frac{1}{3}$ rpm. Four-pole high torque synchronous motor. Turntable: 4lb, 10 $\frac{5}{8}$ in dia. Metal (tubular) PU arm with low mass. Cueing facilities and pitch control. Continuously variable tracking weight adjustment. Full details on request. Price: £34 10s (plus £8 2s 4d PT); (with Shure M75E Mk 2) £46 14s 6d (plus £10 19s 10d PT); CK6 base £7 18s 1d (plus £1 17s 3d PT); CH5 cover £5 17s 8d (plus £1 7s 8d PT).

1219 ★

Professional transcription turntable with automatic play facility. Speeds: 78, 45, 33 $\frac{1}{3}$ rpm. Synchronous continuous pole motor. Turntable: 6.9 lb, 12in dia. PU arm on gimbal suspension. Cueing facilities, anti-skating device, pitch control (6% range on speed) and continuously variable tracking weight adjustment. Full specification on request. Price: (with Shure M91 cartridge) £58 1s (plus £13 13s 2d PT); CK20 base £9 16s 6d (plus £2 6s 2d PT); CH5 cover £5 17s 8d (plus £1 7s 8d PT).

DULCI

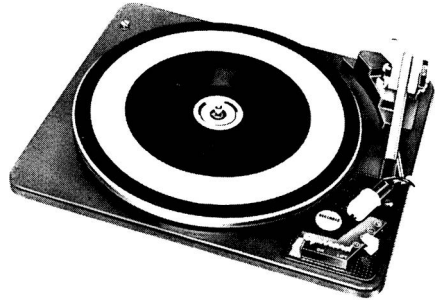
Lee Products (Great Britain) Ltd,
10-18 Clifton Street, London, EC2.
Tel: 01-247 6711

PD3 ★

Teak veneered wood cabinet fitted with Garrard 2025TC autochanger unit. Smoke grey plastic lid constructed so that when open it does not project behind back of cabinet, enabling unit to be placed flush against wall. Complete with leads



Connoisseur BD1



Deccadec de luxe



Connoisseur BD1 on plinth



Dual 1209



Connoisseur BD2



Dual 1219



Decca Studio



Dulci PD3

★ Indicates entry is illustrated

and audio plugs to suit Dulci amplifiers. Mains: 100-130V; 200-250V 50 Hz. Size: $7 \times 14 \times 15$ in. Cartridge: GP93/1 or GC532-T. Price: £18 12s 5d (plus £4 7s 7d PT).

PD7

Similar construction to PD3. Fitted with Garrard SP25 single play unit. Price: £24 5s 9d (plus £5 14s 3d PT).

PD9

Similar construction to PD3. Fitted with Garrard AP75 single play unit. Price: £32 7s 8d (plus £7 12s 4d PT).

DYNATRON RADIO LTD

St Peters Road, Furze Platt, Maidenhead, Berks. Tel: Maidenhead 23331

Dynatron P.72 Teak ★

Plinth unit comprising Garrard SL72B auto-change mechanism with Goldring G800H cartridge. Four speeds. Fitted with mains lead and plug, also audio lead and DIN plug. Price: £39 13s 4d (plus £9 6s 8d PT).

Dynatron P.100 Teak ★

Plinth unit comprising Goldring-Lenco GL75 mechanism with Goldring G800H cartridge. Four speeds, fully variable. Fitted with mains lead and plug, also audio lead and DIN plug. Price: £45 18s 10d (plus £10 16s 2d PT).

ELAC

Electroacoustic Gmbh. Kiel, West Germany. Distributors: (Motor units) Unilet Products Ltd, Compton House, Malden Road, New Malden, Surrey. Tel: 01-942 9567

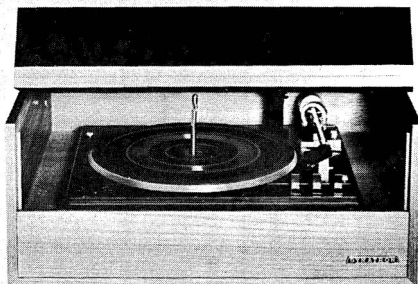
Complete range of motor units. Specifications and prices of motor units available on application.

EMT WILHELM FRANZ KG

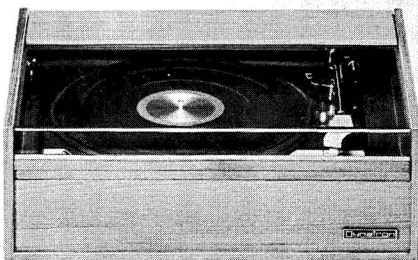
Sole UK agents: F. W. O. Bauch Ltd, 49 Theobald Street, Boreham Wood, Herts. Tel: 01-953 0091

EMT 930st ★

Professional transcription turntable fitted with pickup arm and equaliser amplifier, chassis construction. Speeds: $33\frac{1}{3}$, 45 and 78rpm with fine speed control. W and F max: 0.075%. Rumble: referred to a peak velocity $V = 10$ cm/s at 1 KHz 58 dB (weighted) (0 dB = 0.775V). Speed constancy: max $\pm 0.15\%$. Turntable: 13in dia heavy cast non-magnetic with light perspex auxiliary turntable on top. Drive: pulley. Motor: EMT manufacture with artificially aged shaft. Pickup arm: S-shaped Ortofon Type RMA 229. Features: stroboscope, quick start, remote start, pickup illumination, scratch filter and equalisation control on deck,



Dynatron P72



Dynatron P100 teak



EMT 930st



Garrard 401 motor unit

headphone sockets, pickup lowering device. Price on application.

GARRARD ENGINEERING LTD

Swindon, Wiltshire, England.

Tel: Swindon 5381. Cables: Garrard, Swindon

Model 401 ★

Transcription motor. Three speeds: 33 $\frac{1}{3}$, 45, 78rpm. Adjustable by eddy current brake. 6 lb machined aluminium turntable with gear-cut illuminated strobe markings on rim. Statically balanced. Die-cast aluminium unit plate. Completely screened spring-mounted shaded-pole motor. Styled by Eric Marshall and finished in metallic charcoal with chrome relief. W. and F. less than 0.05% RMS. Rumble almost non-existent. Mains: 110-125V and 220-250V, 50 or 60 Hz according to pulley fitted. Size: 13 $\frac{3}{8}$ in wide, 14 $\frac{5}{8}$ in front to rear, 2 $\frac{1}{2}$ in above and 3 $\frac{1}{8}$ in below lower edge of unit plate. Price: £25 9s 8d (plus £6 4s 7d PT).

SP25 Mk II ★

High quality single record playing unit. Die-cast non-magnetic turntable. Four speed. Magnetically screened motor. Cueing device to raise or lower pickup arm where required. Counter-balanced tubular aluminium arm. Plug-in head. Integral calibrated stylus pressure adjustment. Bias compensator. Automatic trip and return. Wired for stereo and mono. Mains: 100-130V, 200-250V, 50 or 60 Hz according to pulley. Size: 15 $\frac{1}{8}$ in wide, 12 $\frac{1}{2}$ in front to rear, 2 $\frac{3}{4}$ in above, 2 $\frac{3}{4}$ in below lower edge of unit plate. Plus clearances. Price: £12 10s 2d (plus £3 1s 2d PT).

WB1

Wood base for SP25 Mk II. Price: £3 1s 11d (plus 15s 2d PT).

SPC1

Rigid transparent plastic dust cover for WB1. Price: £3 (plus 14s 8d PT).

WB5

Wood base for SP25 Mk II. Price: £4 11s 5d (plus £1 2s 4d PT).

SPC Mk II

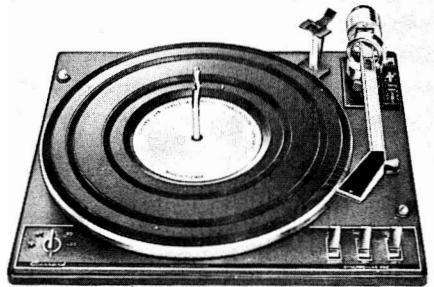
Rigid transparent plastic cover for WB5. Allows SP25 Mk II to be played with cover in position. Price: £3 11s 3d (plus 17s 5d PT).

SL95B ★

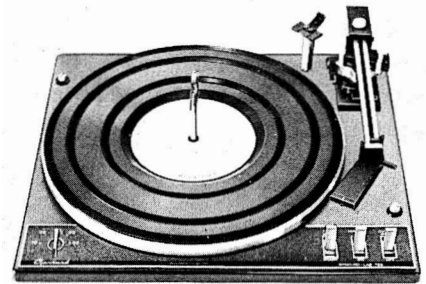
Transcription turntable with autochange facility and automatic single record play. Combined record size and speed selector. 11 $\frac{1}{2}$ in aluminium turntable. Weight-counterbalanced wood and aluminium pickup arm with gimbal type pivots. Calibrated fine stylus force adjustment. Calibrated bias compensator. Slide-in cartridge carrier accepts most makes and types. Cue and pause facility. Wired for mono and stereo. Synchro-Lab constant speed motor. Size (includ-



Garrard SP25 Mk II turntable unit



Garrard SL95B



Garrard SL75B



Garrard AP75 turntable unit

★ Indicates entry is illustrated

ing rear and side overhang of pickup arm): $15\frac{5}{16}$ in wide, $14\frac{1}{8}$ in front to rear, $4\frac{1}{8}$ in above, $2\frac{1}{8}$ in below lower edge of unit plate. Plus clearances. Price: £36 10s 6d (plus £8 18s 7d PT).

WB4 Mk II

Wood base for SL95B. Price: £4 11s 5d (plus £1 2s 4d PT).

SPC4 Mk II

Rigid transparent plastic dust cover for SL95B. Price: £3 11s 3d (plus 17s 5d PT).

SL75B ★

Transcription turntable with autochange facility and automatic single record play. Combined record size and speed selector. $11\frac{1}{2}$ in diameter aluminium turntable. Diecast aluminium pickup arm. Counterbalanced. Calibrated fine stylus force adjustment. Calibrated bias compensator. Slide-in cartridge carrier accepts most makes and types. Cue and pause facility. Wired for stereo and mono. Synchro-Lab constant speed motor. Size (including rear and side overhang of pickup arm): $15\frac{5}{16}$ in wide, $14\frac{1}{16}$ in front to rear, $4\frac{1}{8}$ in above, $2\frac{1}{8}$ in below lower edge of unit plate. Plus clearances. Price: £28 12s 5d (plus £6 19s 11d PT).

WB4 Mk II

Wood base for SL75B. Price: £4 11s 5d (plus £1 2s 4d PT).

SPC4 Mk II

Rigid transparent plastic cover for SL75B. Price: £3 11s 3d (plus 17s 5d PT).

SL72B

Transcription turntable with autochange facility and automatic single record play. Combined record size and speed selector. Non-magnetic turntable. Aluminium pickup arm is weight counterbalanced, fitted with slide-in cartridge carrier and features gimbal type pivots. Calibrated stylus force adjustment. Calibrated bias compensator. Cue and pause facility. Wired for stereo and mono. Size (including rear and side overhang of pickup arm): $14\frac{5}{16}$ in wide, $12\frac{1}{16}$ in front to rear, $4\frac{1}{16}$ in above and $2\frac{1}{8}$ in below lower edge of unit plate, plus clearances. Price: £24 3s 9d (plus £5 18s 3d PT).

WB4 Mk II

Wood base for SL72B. Price: £4 11s 5d (plus £1 2s 4d PT).

SPC4 Mk II

Rigid plastic cover for SL72B. Price: £3 11s 3d (plus 17s 5d PT).

AP75 ★

Single record playing unit. Manual or automatic play of single records. Combined record size and speed selector. $10\frac{1}{2}$ in diameter aluminium turntable. Aluminium pickup arm. Counterbalanced. Calibrated fine stylus force adjust-



Goldring GL75/P



Goldring G99

ment. Calibrated bias compensator. Slide-in cartridge carrier accepts most makes and types. Cue and pause facility. Wired for stereo and mono. Four-pole induction motor. Size (including rear and side overhang of pickup arm): $15\frac{5}{16}$ in wide, $14\frac{1}{16}$ in front to rear, $2\frac{3}{8}$ in above, $2\frac{1}{8}$ in below edge of unit plate. Plus clearances. Price: £19 2s 6d (plus £4 13s 6d PT).

WB4 Mk II

Teak finish wood base for AP75. Price: £4 11s 5d (plus £1 2s 4d PT).

GOLDRING MANUFACTURING CO (Great Britain) LTD

486/488 High Road, Leytonstone, London, E11.
Tel: 01-539 8343/5

Goldring-Lenco GL75 ★

Integrated turntable and pickup arm. Four speeds, infinitely variable. Wow <0.2%. Flutter <0.2%. Speed change less than 1% for 13% voltage change. 12 in diameter diecast zinc turntable, 8 lb. Vertical pulley drive. Four-pole 15W induction motor. L75 pickup arm. Counterbalance weight adjustment, knife-edge bearing, plug-in shell. Hydraulic lowering device. Price:

£29 8s (plus £7 0s 2d PT). Available on plinth as GL75/P. Price: £36 5s 6d (plus £8 12s 11d PT).

Goldring G99 ★

Transcription motor only. Infinitely variable speeds 30-80rpm. Wow 0.1%. Speed remains constant with 13% voltage change. Turntable 12in die-cast zinc. Vertical idler wheel with provision for disengagement. Four-pole motor. Built-in illuminated strobe. Pushbutton on-off. Price: £19 19s (plus £4 15s PT).

Goldring-Lenco GL69

Integrated turntable unit complete with pickup arm. Available also mounted on plinth as GL69/P. Infinitely variable speed adjustment with click-in positions for $16\frac{2}{3}$, $33\frac{1}{3}$, 45 and 78 rpm. Wow and flutter: 0.12%. Speed constancy: 0.3% for a 10% change in voltage. Turntable: 12in pressed steel, weight 3 lb. Drive: vertical pulley, running on conical motor spindle. Motor: induction 15VA. Pickup arm: L69, sliding counter-weight stylus pressure adjustment, knife-edge bearings, lightweight pickup headshell with adjustment for stylus position. Price: £20 5s (plus £4 16s 6d PT). Price of GL69/P £27 2s 6d (plus £6 9s 3d PT). Plastic dust cover £3 8s (plus 16s 3d PT).

GOODMANS

Goodmans Loudspeakers Ltd, Axiom Works, Lancelot Road, Wembley, Middlesex. Tel: 01-902 1200. Cables: Goodaxiom, Wembley.

Goodmans 3025

Single play record turntable with pickup head and stylus. Speeds: $16\frac{2}{3}$, $33\frac{1}{3}$, 45 and 78rpm. Weight counterbalanced and bias compensated pickup arm. Calibrated fine stylus force adjustment. Cue and pause control. Switch click suppressor fitted. Automatic trip and return. Motor: 4-pole induction. Turntable: 10½in dia. Pickup arm: tubular aluminium with plug-in cartridge shell. Psn 110-130V and 200-250V, 50 or 60 Hz. Cabinet finish: teak. Dimensions: $7\frac{1}{8} \times 16\frac{3}{8} \times 14\frac{1}{2}$ in. Price: £29 16s 9d (plus £7 18s PT).

JAPAN PHONO MOTOR CO LTD

Distributors: Howland-West Ltd, 2 Park End, South Hill Park, London, NW3. Tel: 01-794 6666 and 6033

JP T-425 ★

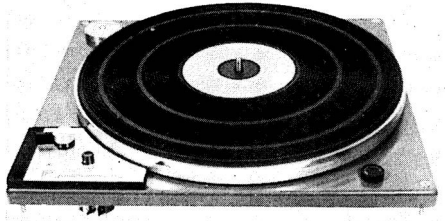
Turntable only. Speeds: $33\frac{1}{3}$ and 45rpm. W. and F: 0.05%. Rumble: -47 dB. Double turntable, alloy $6\frac{1}{4}$ lb, 12in dia. Belt drive. Motor: 8-pole 32 coil synch. Price: £41 (plus £9 10s 5d PT).

JP T-500 ★

Turntable only. Speeds: $33\frac{1}{3}$ and 45rpm, fine speed control. W and F: less than 0.1%.



Japan Phono T-425



Japan Phono T-500



Leak Truspeed

Rumble: -42 dB. Turntable: 12in alloy, $3\frac{1}{4}$ lb. Belt drive. Motor: 4-pole synch. On-off pilot light. Price: £30 (plus £6 19s 4d PT).

H. J. LEAK & CO LTD

57-59 Brunel Road, East Acton, London, W3. Tel: 01-749 1641. Cables: Sinusoidal, Ealux, London

Truspeed ★

Transcription turntable. Two speed, $33\frac{1}{3}/45$ rpm. Low speed (250rpm) synchronous 12-pole hysteresis motor. 100/130V or 200/250V AC. <1.15% wow. <0.02% flutter. Neoprene drive belt decouples the turntable and pickup from motor vibrations reducing rumble level below audibility. Isolated pickup platform and balanced turntable mounting plate reduce the effects of acoustic feedback and shock excitation. PU raising and lowering device. Bias compensation. Adjustable counterweight. $\frac{1}{2}$ in cartridge fixing centres. Mu-metal shielded 15° magnetic cartridge. Effective tip mass <1 mg. Elliptical diamond stylus. Output: 5 mV/5 cm/sec. FR: resonance free 20 Hz-20 KHz. Channel separation >25 dB at 1 KHz. Teak plinth. Perspex cover. Price: with plinth £65 13s 3d

★ Indicates entry is illustrated

(incl. PT); less plinth £61 11s 6d (incl. PT); Perspex cover £3 9s (incl. PT).

McDONALD

B.S.R. Ltd, Monarch Works, Cradley Heath, Warley, Worcs. Tel: Cradley Heath 69272.

MP60 ★

Four-speed single player. Wow: 0.2% RMS (0.4% peak). Flutter: 0.06%. Rumble: -35 dB to DIN 45-500 spec. Speed constant down to 16% reduction in mains volts. 11in diecast turntable. Pulley drive. Four-pole motor. Double ball-race mounted pickup arm. Plug-in head. Counterbalanced. Bias compensator. Tracking control. Viscous damped cue control. Anti-skate device. Muting switch. Price: £12 6s 5d (plus £2 13s 7d PT).

510 ★

Automatic four-speed changer. Wow: 0.2%. Flutter: 0.06%. Rumble: -29 dB ref 1 KHz recorded laterally at 1.2 cm/sec. Speed constant down to 16% reduction in mains volts. 11in pressed steel turntable. Pulley drive. Synchronous motor. Counterbalanced arm. Plug-in head. Double ball-race mounting. Viscous damped cue control. Anti-skate device. Muting switch. Swing-away record control arm to facilitate single play. Price: £13 2s 5d (plus £2 17s 1d PT).

610 ★

Automatic four-speed changer. Wow: 0.2% RMS (0.4% peak). Flutter: 0.06%. Rumble: -29 dB ref 1 KHz recorded laterally at 1.2 cm/sec. Speed constant down to 16% reduction in mains voltage. 11in diecast turntable. Pulley drive. Synchronous motor. Double ballrace pickup mounting. Anti-skate device. Counterbalanced. Plug-in head. Viscous damped cue control. Muting switch. Price: £15 11s 9d (plus £3 7s 9d PT).

All McDonald record units are also available on plinth with clear plastic cover and ready wired. Details on request.

MICRO-SEIKI

Distributors: B. H. Morris & Co (Radio) Ltd, 84-88 Nelson Street, London, E1 2DY. Tel: 01-790 4824.

MR-111

Turntable, arm and cartridge. Speeds: 33 $\frac{1}{3}$, 45rpm. Belt drive from four-pole synchronous motor. Auto stop. Static balance type tubular arm with anti-skate device. Oil-damped lifter. Direct-reading stylus pressure adjuster. Revolving type counterweight. Accepts 4-8 gm cartridges. Micro Trace cartridge M-2100/7 with 8 mV output. Weight: 10 lb. Dimensions: 15 $\frac{1}{4}$ × 12 $\frac{1}{8}$ × 5 $\frac{3}{8}$ in. Price to be announced.



McDonald MP60



McDonald 510



McDonald 610

MR-211

Turntable, arm and cartridge. Silver-finish turntable board on oil-finished walnut plinth. Speeds: 33 $\frac{1}{3}$, 45rpm. Belt drive from heavy-duty four-pole hysteresis motor. Static balance type S-shape arm with spring-type anti-skate device with adjustable bias cancel force. Micro Trace cartridge tracks at $\frac{3}{4}$ -4 gm. Weight: 16 lb. Dimensions: 17 $\frac{5}{8}$ × 13 $\frac{1}{4}$ × 6 $\frac{3}{8}$ in. Price to be announced.

MR-411

Turntable, arm and cartridge for stereo. Speeds: 33 $\frac{1}{3}$, 45rpm. Dark green turntable board on oil-finished walnut plinth ($\frac{3}{4}$ in wood) together with smoke brown dust cover. Belt drive MB-400S turntable, static balance S-shape arm type MA-77 MkIIS takes 2-18 gm cartridges. Super Micro Trace cartridge M-2100/e ($\frac{1}{2}$ -1 $\frac{1}{2}$ gm). Weight: 20 lb. Dimensions: 18 $\frac{1}{2}$ × 15 × 7 $\frac{5}{8}$ in. Price to be announced.

PHILIPS ELECTRICAL LTD

Century House, Shaftesbury Avenue, London, WC2. Tel: 01-437 7777.

GA105

Player complete with arm, plinth and with Perspex cover. Speeds: $33\frac{1}{3}$, 45 and 78rpm. W and F: $<0.25\%$. Rumble: <-52 dB (DIN 'B'). Turntable: $8\frac{3}{8}$ in. Drive: via rubber idler wheel. Tubular aluminium arm, direct-reading playing-weight adjustment, damped pickup lowering device and auto switch-off for all sizes of record including 4in. Mains: 110-127V, 220-240V AC. Price: £16 0s 9d (plus £3 19s 3d PT).

GA146 ★

Autochanger with arm, head, plinth and lid. Speeds: $16\frac{2}{3}$, $33\frac{1}{3}$, 45 and 78rpm. W and F: $<0.15\%$ (DIN). Rumble: <-35 dB (DIN 'A'). Turntable: $10\frac{1}{2}$ in steel with diecast rim. Drive: pulley. Motor: 6W asynchronous. Arm supplied fitted with GP200 pickup. Viscosity damped pickup lowering for manual operation. Price: £24 0s 8d (plus £5 18s 10d PT).

GA202 ★

Transcription unit with arm, pickup, plinth (teak veneered) and lid. Speeds: $33\frac{1}{3}$, 45 and 78rpm with individual fine control $\pm 2\%$. W and F $<0.13\%$ (DIN). Rumble <-60 dB (DIN 'B'). Electronic control maintains speed over normal mains voltage variations. Long term drift better than $\pm 0.2\%$. Turntable: $11\frac{1}{4}$ in steel, $2\frac{1}{2}$ lb. Electronic control obviates need for large fly-wheel. Drive: two-stage belt drive. DC motor with transistor regulator circuit. Pickup arm: lightweight tubular, gimballed, decoupled counterweight, stylus pressure and side thrust adjustment. Standard $\frac{1}{2}$ in head shell. Full electronic control for start, stop and speed control. Light beam operated autostop. Supplied complete with GP411 magneto-dynamic cartridge. Viscous damped pickup manipulator (cueing device). Price: £51 6s 5d (plus £12 13s 7d PT).

GA217 ★

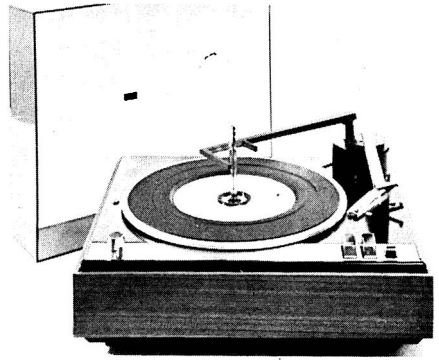
Two-speed single record player with arm, head, plinth and lid. Speeds: $33\frac{1}{3}$ and 45rpm. W and F $<0.2\%$. Rumble <-55 dB (DIN). Speed constancy dependent on supply frequency. Turntable: $10\frac{1}{2}$ in steel. Drive belt. Motor: 1.7W synchronous. Lightweight tubular arm, gimballed, decoupled counterweight, stylus pressure adjustment. Fixed side thrust compensation. GP200 pickup supplied. Viscosity damped pickup lowering device. Price: £25 13s 9d (plus £6 7s PT).

PIONEER

Distributors: Shiro (UK) Ltd,
Electronics Division, Lynwood House,
24-32 Kilburn High Road, London, NW6.
Tel: 01-624 9102.

PL-41

Transcription belt-drive turntable with 4-pole



Philips GA146



Philips GA202



Philips GA217



Pioneer PL11

★ Indicates entry is illustrated

hysteresis synchronous motor. 12½in aluminium alloy, 45/33½rpm speed deck. W and F less than 0.08%. To order only.

PL-11 ★

Transcription 2-speed (33½/45rpm) turntable. 4-pole synchronous motor. W and F less than 0.12%. Sound to noise ratio more than 40 dB. Arm tracking error $\pm 1.5^\circ$. Pw 2.5 gm. Output: 5 mV. Walnut base, hinged cover. Price: £48 17s 7d (including PT).

PL-30 ★

Transcription belt drive 2-speed (33½/45rpm) turntable. 4-pole synchronous motor. W and F less than 0.1%. Sound to noise ratio more than 43 dB. Tracking error ± 1 deg. Pw 2.5 gm. Auto arm return. Walnut base, hinged cover. Price: £85 16s 5d (including PT).

RADON

Radon Industrial Electronics Co Ltd,
Orme Road, Worthing, Sussex.
Tel: Worthing 34904.

RP60

Record deck in plinth cabinet with lift off lid. Designed for use with Radon System 60 amplifier. Motor unit: Garrard SP25. Contemporary styled cabinet in teak/leather cloth finish. Size: 7 × 16 × 14in. Price: £22 4s 6d (plus £5 5s 6d PT).

P100

Lowline cabinet in teak with black inset and transparent plastic cover designed for use with Radon System 500 amplifier. Motor unit: Garrard SP25 Mk II or Garrard SL65B. Lift-off lid. Cartridge: Goldring G800H. Size: (excluding lid) 3 × 14 × 15in. Price: (P100/SP25 Mk II) £28 10s (plus £6 13s PT); (P100/SL65) £30 10s (plus £7 8s PT).

SANSUI

Sole UK importer: Brush Clevite Co Ltd,
Thornhill, Southampton SO9 1QX.

Tel: Southampton 45166.

Distributors for Scotland, North and Midlands: Audio Distributors Ltd,
Oldington Trading Estate, Stourbury Road,
Kidderminster, Worcs.
Tel: Kidderminster 3293.

SR4040 ★

Plinth mounted motor and pickup arm with dust cover. Speeds: 45 and 33½rpm. Wow and flutter < 0.08%. Rumble -46 dB. Two-piece turntable, 8in inner, 12in outer. Zinc alloy turntable, 5½ lb. Belt drive. Four-pole motor, capacitor start. Static balanced tubular arm. Tracking error < 0.1%. Anti-static mat. Hydraulic cueing device. Magnetic cartridge available. Price: £80 0s 6d (plus £19 11s 3d PT);



Pioneer PL30



Sansui SR 4040



Sansui SR3030 on plinth



Sanyo TP78S

(without cartridge) £68 11s 1d (plus £15 4s 8d PT); (cartridge) £11 3s 4d (plus £2 9s 8d PT).

SR3030 ★

Turntable, arm, cartridge, with cover and plinth. Speeds: $33\frac{1}{3}$ and 45rpm. W and F less than 0.09%. Turntable: 12½in, 4 lb, aluminium alloy. Belt drive. Motor: 4-pole hysteresis synchronous capacitor starting. Static balanced tubular arm. Oiled damped arm lifter. Anti-static mat. Price to be announced.

SANYO

Sanyo Marubeni (UK) Ltd, Sanyo House, Bushey Mill Lane, Watford, Herts.
Tel: Watford 25354/6.

TP-78 ★

Turntable with PU and arm on base with tinted Perspex cover. 2-speed, 4-pole motor. Wow and flutter less than 0.3%. Static balance arm with counterbalance weight and lateral balance. Cueing system. Magnetic cartridge MG 15 5 mV. FR 20 Hz-20 KHz. Tracking 0.2 gm. Price: £44 14s 2d (plus £11 0s 10d PT).

SONY (UK) LTD

Ascot Road, Bedford, Feltham, Middx.
Tel: Ashford 50021.

TTS-3000 ★

Turntable and motor unit only. Speeds: $33\frac{1}{3}$ and 45rpm. Fine speed control $\pm 5\%$. W and F $< 0.05\%$ RMS. Signal/noise ratio over 60 dB. Speed constancy: 0.05%. 12in diameter die-cast aluminium turntable. Weight: 3 lb 5 oz. Belt drive. Servo-controlled DC motor. Illuminated strobe. Built-in spirit level indicator. Price: £65 3s 3d (plus £16 4s 9d PT).

PS1800

Turntable and motor unit on plinth. Size: $19\frac{3}{8} \times 16\frac{1}{4} \times 7\frac{1}{8}$ in. Fine speed control. 12in diameter turntable. Speeds: $33\frac{1}{3}$ and 45. Other details similar to TTS-3000. Price: £96 3s 6d (plus £23 16s 6d PT).

THORENS

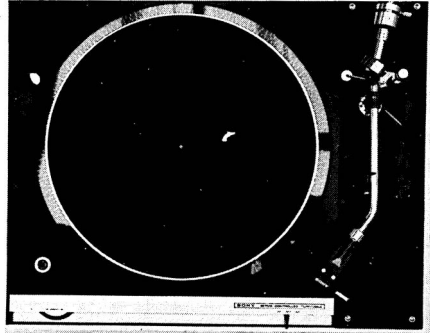
Metrosound (Sales) Co Ltd, Carters Road, Waltham Abbey, Essex.
Tel: Waltham Cross 31933.

TD150A Mk II

Transcription turntable with integrated pickup arm. Two speeds, $33\frac{1}{3}$ and 45rpm. New lowering device, controlled from front panel, and anti-skating device, fitted. Patented plug-in shell with adjustable vertical tracking angle. Stylus pressure adjustable $\frac{1}{2}$ -4 gm. Rumble -65 dB DIN. Price: £34 10s (plus £9 2s 7d PT).

TD150AB Mk II ★

Details as for TD150A Mk II, but plinth mounted. Price: £37 10s (plus £4 18s 7d PT).



Sony turntable TTS 3000



Thorens TD150AB/II



Thorens TD125 & plinth

TD125 ★

Transcription turntable. Three speeds: $33\frac{1}{3}$, 45 and $16\frac{2}{3}$ rpm. With $\pm 2\%$ electronic speed control. Low speed synchronous motor, belt driven. Motor is transistor governed. Neon-lit strobe. 12in non-ferrous turntable. W and F 0.09%. Plinth and cover available, also mounting frame if cabinet mounted. Price: £60 (plus £15 18s 7d PT).

Teak plinths

Suitable for TD124 and TD125 units. Price: £5 10s (plus £1 9s 2d PT).

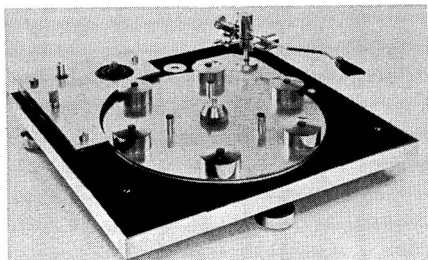
Perspex covers

Suitable for TD124 and TD125 units. Price: £4 (plus £1 1s 2d PT).

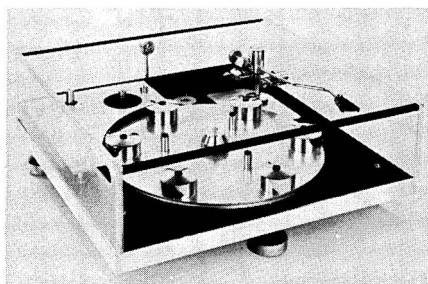
Teak plinth (special).

Suitable for TD124 fitted with S.M.E. 3012 arm. Price: £6 10s (plus £1 14s 5d PT).

★ Indicates entry is illustrated



Transcriptors Reference turntable



Transcriptors Reference turntable with cover

Perspex cover (special).

Suitable for TD124 fitted with S.M.E. 3012 arm.
Price: £5 10s (plus £1 9s 2d PT).

TD125A

Specification as for TD125 but complete with TP25 pickup arm. Price: £90 (plus £23 16s 5d PT).

TOSHIBA

Distributors: Hanimex (UK) Ltd,
Hanimex House, 15-24 Great Dover Street,
London, SE1. Tel: 01-407 8161.

SR40

Transcription motor unit in shelf mounting cabinet with pickup. Speeds: $33\frac{1}{3}$ and 45rpm. 12in diecast turntable. Belt drive. Rocker switches. Bias compensation. Hydraulically damped lift and lower device. Special Toshiba IC cartridge with FET preamplifier. Whole unit on double-floating suspension. Automatic pickup return and switch-off. Finish: American walnut with clear plastic lid. Size: $7\frac{3}{4} \times 18\frac{3}{4} \times 15\frac{3}{4}$ in. Price: £87 (including PT).

SR50

Transcription motor unit in shelf mounting cabinet with pickup arm and photo-electric cartridge. Speeds: $33\frac{1}{3}$ and 45rpm. 12in diecast

turntable. Belt drive. Brushless servomatic DC motor with electronic control. Fine speed adjustment. Rocker switches. Low-mass resonance-free tubular arm. Bias adjustment. Hydraulic lift. Toshiba Photo-Electronic cartridge with moving mass of only 0.3 mg. Built-in pre-amplifier. Finish: American walnut plinth with hinged clear plastic lid. Size: $7\frac{1}{2} \times 22\frac{1}{4} \times 15\frac{1}{4}$ in. Price: £175 (including PT).

TRANSCRIPTORS LTD

2 Theobald Street, Boreham Wood, Herts.
Tel: 01-953 0771.

Hydraulic reference turntable ★

Self-standing unit, on adjustable acoustic feedback legs, level incorporated. Speeds: $33\frac{1}{3}$ and 45 only, $\pm 3\%$ fine speed adjustment by the incorporated hydraulic speed stabiliser. Soft rubber belt, drives 11 lb non-ferrous platter via a neon idler stroboscope from a synchronous motor. Strobe geared up 6:1 ratio, resulting in indications more accurate than any measuring instrument. Slipping clutch recoil start motor operated via a vacuum switch. P.T.F.E. main bearing, solid brass gold-plated platter weights. Fabricated Perspex top hinged at rear with swing leg support. Finish Black and Aluminium. All mains voltages and frequencies available. Rumble not measurable. Speed stability 0.005% short term, 0.01% long term. Size: $17 \times 17 \times 7$ in. Price: (including PU arm) £79 4s (plus £18 18s PT); (less PU arm) £63 (plus £15 PT).

Transcriptor turntable

Similar dimensions and specification as the hydraulic reference turntable but fitted with conventional 12in diameter turntable platter. Supplied complete with pickup arm and clear plastic top. Price: £46 10s (plus £11 2s PT).

Our advice on Hi-fi:



Go into it with your ears open.

At BSR we make about 80% of the record decks in the country. And we've just introduced a special new range of Hi-fi decks that's tailored in quality and price to suit the man who's interested in Hi-fi.

But may not be too sure what it's all about.

Hi-fi is, of course, expensive.

But the BSR McDonald range gives outstanding value for money. Take the MP 60 single player deck. (Single players, rather than automatics, are always the first choice of the enthusiast, who likes to prepare and position his records by hand).

The MP60 has the features of decks which could cost up to £50 more.

It's just £15. (Recommended retail

price including P.T.)

Then, for the less fanatical, we have three automatic decks.

The McDonald 610, 510 and 310. Each with its own special features.

Our advice is: before you do anything about Hi-fi, read our free booklet: "BSR's Guide to Good Listening".

It tells you what the complicated terms mean.

It tells you how to set up the basic Hi-fi system.

All in easy-to-understand language and, all in all, a pretty convincing story.

BSR Limited, McDonald Division, Monarch Works, Cradley Heath, Warley, Worcs.

Tel: Cradley Heath 69272.

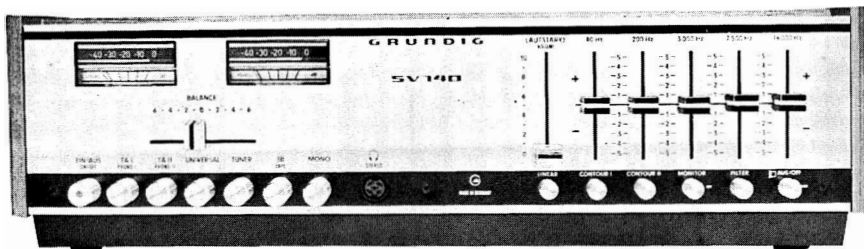
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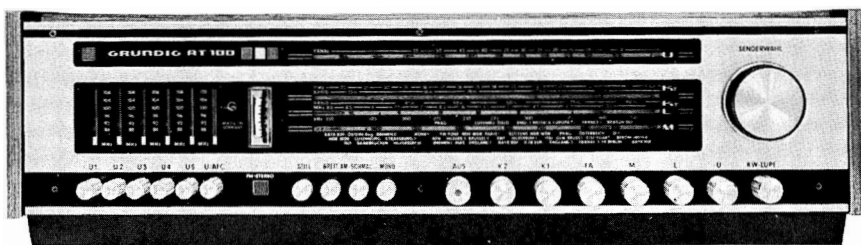
It's a sound start.

Hear it all- on the Grundig SV 140 amplifier and the RT 100 tuner

Designed with the true sound connoisseur in mind, these two magnificent instruments incorporate all the latest developments in electronic sound engineering.



The SV 140, equipped with 51 transistors, 20 diodes and three rectifiers, is a hi-fi amplifier of unprecedented performance. Delivering 2 x 50 W continuous rating (2 x 70 W music power) it gives you the whole sound, the full sound—with a distortion factor of *less than 0.5%* at full power, over the full frequency range.



The RT 100 is a multi-band hi-fi tuner with a total of 45 transistors, 35 diodes and 2 rectifiers. It has five wavebands—LW, MW, 2 SW and VHF (FM). The separate AM and FM sections are designed for maximum efficiency, and the RT 100 also features the unique Grundig Super Tunoscope, automatic frequency control, short wave fine tuning, AM bandwidth selection and built-in AM and FM aerials.

The SV 140 and RT 100 are at your local Grundig showrooms now. Go along and hear it all.

Hear it all on



Grundig (Great Britain) Ltd., London SE26.
A member of the British Industrial Holdings Group.

Directory of Radio Tuners

In the abridged specifications of these directory entries the following abbreviations have been used: **Psn**=Power supply needed; **AFC**=Automatic frequency control; **AGC**=Automatic gain control; **ind**=Indicator; **disc**=Discriminator; **imp**=Impedance; **det**=Detector. ★ indicates model is illustrated.

ACOUSTIC MANUFACTURING CO LTD

See Quad.

ARENA

Distributed by: Highgate Acoustics Ltd,
184-188 Great Portland Street, London, W1.
Tel: 01-636 2901.

Arena F211 ★

Transistorised stereo FM tuner. Range: 88-108 MHz. Five preset stations. Modular construction. Sensitivity: 2.5 μ V. Three aerial tuned circuits, four IF filters. 11 silicon transistors. Finish: teak or rosewood. Size: $10\frac{1}{2} \times 3\frac{1}{8} \times 7\frac{3}{4}$ in. Designed for use with Arena F210 stereo amplifier. Suitable for operation also with other hi-fi amplifiers. Price: £36 15s (including PT); multiplex decoder £7 7s extra.

ARMSTRONG AUDIO LTD

Walters Road, London, N7. Tel: 01-607 3213.

Model 523 ★

AM/FM tuner. Range: VHF 86-109 MHz, MW 185-590 metres, LW 1000-2000 metres. Variable tuning. FM ratio detector. Meter tuning indicator. Sensitivity: FM 1.5 μ V for 30 dB quieting, AM 5 μ V for 20 dB quieting. Aerial input: 75 ohms coaxial and 300 ohms balanced. Output: 0-1V variable. Stereo multiplex decoder optional (see M8 Decoder below). FM quiet-tuning control. Stereo indicator light. Edge connector for plug-in decoder. Mains: 100-125V and 200-250V AC. Size: $11\frac{1}{2}$ in wide, $10\frac{3}{4}$ in deep, $4\frac{5}{8}$ in high. Price: £41 19s (plus £10 10s PT).

Model 524 ★

FM tuner. Range: 86-109 MHz. Variable tuning. Ratio detector. Meter tuning indicator. Sensitivity: 1.5 μ V for 30 dB quieting. Aerial input: 75 ohms coaxial and 300 ohms balanced. Out-

put: 0-1V variable. Stereo multiplex decoder optional extra (see M8 Decoder below). Quiet-tuning control. Stereo indicator light. Edge connector for plug-in decoder. Mains: 100-125V and 200-250V AC. Size: $11\frac{1}{2}$ in wide, $10\frac{3}{4}$ in deep, $4\frac{5}{8}$ in high. Price: £32 3s 6d (plus £8 1s PT).

Model M8

Plug-in stereo multiplex decoder for 523 and 524 tuners. Price: £9 10s.

BANG & OLUFSEN UK LTD

Eastbrook Road, Gloucester, GL4 7DE.
Tel: Gloucester 21591.

Beomaster 5000 ★

Transistor stereo FM tuner. FM/VHF only. Variable tuning. Ratio detector. Meter tuning indicator. Sensitivity: 0.8 μ V for 20 dB quieting. Aerial input: 75 ohms coaxial and 300 ohms balanced. Output: 55 mV-1V adjustable. Stereo multiplex decoder incorporated. AFC. Inter-station muting. Mains supply. Automatic stereo/mono switching. Matches Beolab amplifier. Teak or rosewood finish. Size: $18\frac{1}{2} \times 4 \times 9\frac{3}{4}$ in. Price (teak): £105 (including PT); (rosewood) £106 (including PT).

BRYAN AMPLIFIERS LTD

18 Greenacres Road, Oldham, Lancs.
Tel: 061-624 4074.

1500

Stereo FM tuner. Range: 88.5-108 MHz. Variable tuning. FM detector: ratio. Tuning indicator: meter. Sensitivity: 2 μ V. Aerial impedance: 80 ohms coaxial. Output voltage: 150 mV at 30% modulation. Multiplex decoder fitted. AFC. Mains powered. Dimensions: $13\frac{3}{4} \times 5\frac{1}{4} \times 10\frac{5}{8}$ in. Price: (chassis) £38 13s (plus £9 14s PT); (cabinet version) £42 13s (plus £10 11s PT); (mono chassis) £29 4s (plus £7 10s PT); (mono cabinet version) £33 11s (plus £8 PT).

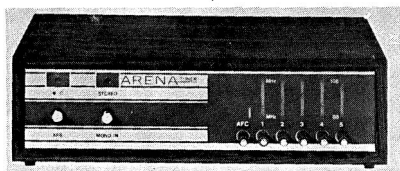
BUSH

Rank Bush Murphy Ltd, Power Road,
Chiswick, London, W4. Tel: 01-994 6491.

Bush A747 ★

Tuner operates on 88-108 MHz, 187-570 m and 1,070-1,900 m. Variable tuning. FM ratio detector. Tuning indicator: illuminated scale and meter, auto beacon for stereo. Sensitivity: 3 μ V for 26 dB quieting. Aerial: internal ferrite AM, 75 ohm unbalanced FM. Output voltage: 2.2V max AM, 1.5V max FM. Multiplex fitted, actuated automatically on reception of stereo broadcast. AFC on FM. Psn H.T. Dimensions: $4\frac{3}{8} \times 16 \times 9\frac{3}{16}$ in. All sockets recessed to avoid cable clutter. Price: £29 15s (plus £7 PT).

★ Indicates entry is illustrated



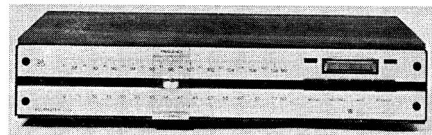
Arena F211



Armstrong Audio 523 AM-FM



Armstrong Audio 524 FM



Bang & Olufsen 5000



Bush A747

CAMBRIDGE AUDIO LABORATORIES LTD

The River Mill, St. Ives, Huntingdon.
Tel: St. Ives (Hunts) 2901. Telex: 32223.

3400A

Stereo FM tuner. Range: 85-110 MHz. Input: less than $1 \mu\text{V}$ (20 dB quieting). FR (± 1 dB): 25 Hz-25 KHz. Distortion 0.25% at 400 Hz full modulation. Signal/noise ratio > 60 dB at max modulation. Digital readout of frequency. Image rejection 70 dB max at 100 MHz. IF rejection 80 dB min. Selectivity 45 dB min. Novel design using phaselock techniques and narrow band tracking filters. Price: £85.

CHAPMAN

Chapman division, Reslosound Ltd,
Reslo Works, Spring Gardens, Romford,
Essex. Tel: Romford 61926 (three lines).

Chapman SD1166 decoder

Free-standing unit in metal case. Self-powered for operation from 200-250V 40-60 Hz. (100-125V to order). Complete with plugs and cables. Price: £14 10s.

Chapman FM2005 ★

Tuner operates on 86-108 MHz, 182-570 m, 670-2,000 m, 15-50 m and 50-150 m. Variable tuning with tuning meter. Sensitivity: $2 \mu\text{V}$ AM, better than $5 \mu\text{V}$ FM. Aerial impedance: coaxial 75 ohms FM. AFC. Dimensions: $15 \times 7 \times 7\frac{1}{2}$ in. Fitted stereo decoder. Price: £67 (plus £17 19s 3d PT).

CROWN

Crown Radio Co Ltd, 137-149 Goswell Road,
London, EC1. Tel: 01-253 1971/2.

FM-300 ★

Solid state stereo tuner. Range: 87-108 MHz. Aerial impedance: 300 ohms. AFC. Output: 0.5V 10K. Stereo indicator glows automatically. Psn: 117-220V, 50-60 Hz. Finish: oiled walnut. Dimensions: $2\frac{5}{8} \times 11\frac{5}{8} \times 4\frac{3}{4}$ in. Weight: $2\frac{1}{2}$ lb. Price: £25 5s 9d (plus £6 5s 4d PT).

FM-500 ★

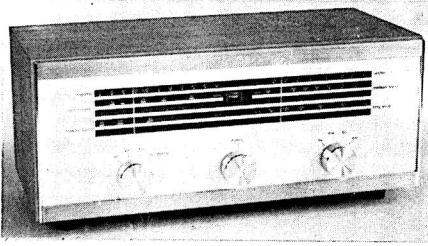
Solid state stereo tuner. Range: 87-108 MHz, 187-570 m. AFC. Output: 0.5V 10K. Stereo indicator glows automatically. Finish: oiled walnut. Dimensions: $4\frac{1}{8} \times 15\frac{1}{8} \times 10\frac{1}{2}$ in. Weight: $8\frac{1}{4}$ lb. Price: £42 8s 11d (plus £10 9s 8d PT).

DUAL

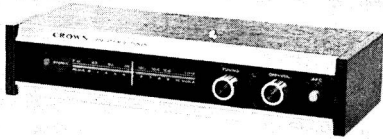
Dual Electronics Ltd, Paramount Industrial
Estate, Mill Road, Stokenchurch, Bucks.
Tel: Radnage 3467/8.

CT15

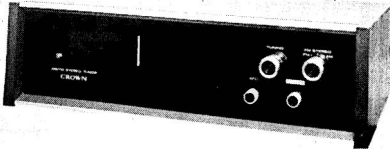
Transistorised stereo tuner. Range: 87.2-104.3



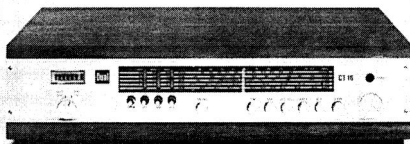
Chapman AM/FM stereo tuner



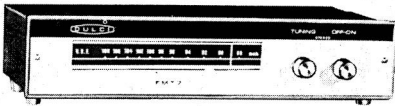
Crown FM-300



Crown FM-500



Dual CT16



Dulci FMT7-S



Dynaco FM-3

MHz (VHF), 5.85-10.3 MHz (SW), 510-1,630 KHz (MW), 350-145 KHz (LW). Sensitivity: VHF/FM, 1.5 μ V; SW, 8 μ V; MW, 40 μ V; LW, 78 μ V. FM limiting: 40 μ V. FR: 40 Hz-15 KHz \pm 1.5 dB. HD: < 1%. S/N: > 65 dB on FM. Push-button selection of wavebands. FM aerial impedance: 240 ohms. Tuning meter. Tuning: variable, with meter. Psn: 110-220V 50 Hz. Dimensions: 16½ × 4¼ × 11 in. Weight: 7½ lb. Price: £66 4s (plus £15 11s 6d PT).

CT16 ★

Transistorised stereo tuner. Range: 87-108 MHz (VHF), 6.7-15.4 MHz (SW1), 5.5-6.6 MHz (SW2), 500-1,650 KHz (MW), 150-350 KHz (LW). Sensitivity: FM, 1.5 μ V (max); SW, 10 μ V; MW, 20 μ V; LW, 50 μ V, FR: 40 Hz-15 KHz \pm 1.5 dB. HD: < 1%. S/N: > 70 dB FM. Push-button selection of wavebands and switchable AFC. Tuning: variable and preset, with meter. Psn: 110-220V 50 Hz. Dimensions: 16½ × 4¼ × 11¼ in. Weight: 8.4 lb. Price: £85 16s 3d (plus £20 3s 9d PT).

DULCI

Lee Products (Great Britain) Ltd,
10-18 Clifton Street, London, EC2.
Tel: 01-247 6711.

FMT7

FM tuner. Range: 88-108 MHz. Variable tuning. Ratio detector. Sensitivity: 14 μ V 3 dB from limiting. Aerial input: 75-80 ohms (coaxial). Output: 200 mV. AFC \pm 250 KHz. Styled to match Dulci 207 amplifier. Transistorised. Mains: 110-130V, 200-250V. 50-60 Hz. Size: 2¾ × 13¾ × 7 in. Price: £18 12s 5d (plus £4 7s 7d PT).

FMT7S ★

Stereo version of FMT7. Stereo decoder fitted. Similar specification to FMT7. Separation: 25 dB at 1 KHz. Non-linear crosstalk: -30 dB. Signal-to-noise ratio: better than 35 dB (stereo mode). Output: 100 mV. 11 transistors. Price: £25 1s 11d (plus £5 18s 1d PT).

MPX7

Multiplex stereo adaptor for FMT7. Price: £8 (no PT).

DYNACO

Distributors: Howland-West Ltd,
2 Park End, South Hill Park, London, NW3.
Tel: 01-794 6666 and 6033.

FM-3 ★

Variable tuned VHF/FM tuner for shelf mounting or building in. Synchronous balanced-bridge detector. Twin indicators for tuning and stereo transmissions. Sensitivity 4 μ V for 30 dB quieting. Output 2V. Multiplex decoder fitted. Four IF stages with progressive limiting. Completely

★ Indicates entry is illustrated

stable without AFC. Can be fully aligned without use of test instruments. Size: $13\frac{1}{2} \times 4\frac{1}{2} \times 8$ in. Mains power unit. Price: (assembled) £63 18s 4d (plus £16 13s 11d PT); (kit) £53 5s 3d (plus £13 18s 4d PT).

EAGLE PRODUCTS

Distributors: B. Adler & Sons (Radio) Ltd, Coptic Street, London, WC1.

Tel: 01-636 9606/7. Cables: Reldab, London.

AFM 200 AM/FM tuner

VHF/FM 88-108 MHz, MW 187-560 m. Variable tuning. Foster Seeley. Magic eye indicator. Sensitivity $2 \mu\text{V}$ for 20 dB quieting. Aerial input 300 ohms unbalanced. Socket for adding multiplex decoder. AFC. Mains 240V AC. 11 valves (including magic eye). Price: £28 14s 4d (plus £7 4s 6d PT).

AFT60 ★

Transistorised AM/FM stereo tuner. Range: FM 88-108.5 MHz, MW 187-500 m. Variable tuning. Meter tuning indicator. Stereo beacon. Sensitivity: FM $2 \mu\text{V}$, AM $500 \mu\text{V}$. Aerial input: 75 ohms coaxial. Output: 50-200 mV variable. Decoder included. Four double-tuned IF stages. Switchable AFC. 13 silicon transistors. Mains: 220/240V AC. Size: $12\frac{3}{4} \times 4\frac{1}{2} \times 9\frac{1}{2}$ in. Price: £42 7s 8d (plus £10 17s 11d PT).

GOODMANS LOUDSPEAKERS LTD

Axiom Works, Lancelot Road, Wembley, Middlesex. Tel: 01-902 1200.

Cables: Goodaxiom, Wembley.

Stereomax ★

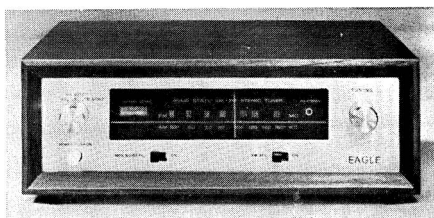
All-silicon transistor AM/FM stereo tuner. Ranges: VHF 87.5-108 MHz, MW 186-550 metres. Variable tuning with separate dials and drives for AM and FM. Ratio detector on FM. Meter tuning indicator, lamp stereo indicator. Sensitivity: $2 \mu\text{V}$ for 30 dB quieting. Aerial input: FM/VHF 70 ohms coaxial, 300 ohms balanced. Output: 250 mV for 30% modulation. Multiplex decoder fitted but version without decoder available. AFC on both wavebands. Controls: AM tuning, FM tuning, wavechange switch including mono/stereo, on/off push-button, AFC, local-distant switch, quiet tuning switch. Mains: 105, 120, 200, 220, 240V AC 40-60 Hz. Size: $5\frac{1}{2}$ in wide, $10\frac{1}{2}$ in high, $7\frac{1}{4}$ in deep. Finish: teak or walnut. Price: £65 5s (plus £17 5s 5d PT).

GRAMPIAN REPRODUCERS LTD

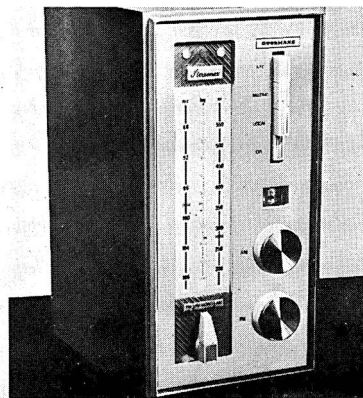
19 Hanworth Trading Estate, Feltham, Middx. Tel: 01-894 9141. Cables: Reamp, Feltham.

FM tuner 571 ★

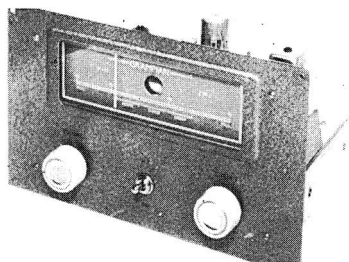
Free-tuned. Range: 85-98 MHz. Ratio det. Magic eye ind. Psn 300V at 35/40 mA; 6.3V at



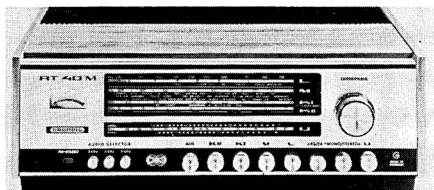
Eagle AM/FM stereo tuner



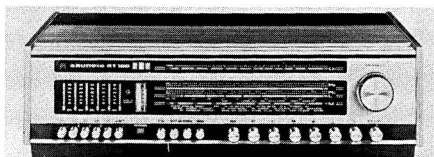
Goodmans Stereomax AM/FM



Gramphon 571 FM tuner



Grundig RT40M



Grundig RT100

2.5 amps. Size: $10\frac{1}{4} \times 5\frac{1}{2} \times 6\frac{1}{2}$ in. Price: £23 12s 6d (plus £5 16s 6d PT). Power pack £9 5s.

GRUNDIG (Great Britain) LTD
Hi-Fi Division, 15 Orchard Street,
London, W1. Tel: 01-935 4898.

RT40M ★

AM/FM stereo tuner. Range: 87-108 MHz, MW 185-587 m, LW 858-2,000 m, SW1 49 metre band, SW2 18.5-55.6 m. Variable tuning. Independent station selection of AM and FM stations. Tuning meter. Stereo indicator beacon. Sensitivity: VHF $1.4 \mu\text{V}$, AM $10 \mu\text{V}$ (for 10 mV audio). Stereo multiplex decoder fitted. Switched AFC. 27 transistors, 19 diodes. IFs: 470 KHz and 10.7 MHz. Output: FM 1V, AM 0.8V for 30% modulation. FR: 30 Hz-15 KHz. Distortion factor: $<0.5\%$ at 75 KHz. Variable selectivity: 3 KHz, 5 KHz, 9 KHz. Outlet for amplifier and tape recorder. Mains: 110, 130, 220, 240 50/60 Hz. Consumption: 11W. Shelf or cabinet mounting. Size: $6 \times 15\frac{3}{8} \times 10\frac{1}{2}$ in. Finish: oiled teak (matt walnut to special order). Price: £126 9s 3d (including PT).

RT100 ★

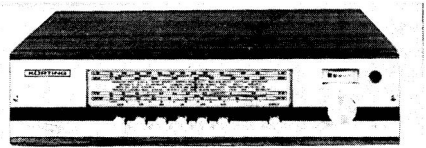
AM/FM stereo tuner. Pre-selection of five VHF stations. Range: 87.5-108 MHz, MW 185-587 m, LW 680-2050 m, SW1 34-99 m, SW2 13.5-35 m. Tuning meter. Stereo indicator beacon. Sensitivity: VHF $1.5 \mu\text{V}$ at 15 KHz deviation and 26 dB quieting, AM $5-12 \mu\text{V}$ for 10 mV audio. Stereo multiplex decoder fitted. Switched AFC. 45 transistors, 37 diodes. Image rejection: FM 60 dB, AM 12-56 dB. Distortion factor: $<0.5\%$ for 40 KHz deviation. Output: FM 650 mV, AM 800 mV. Output impedance: 2K, rec load $>22\text{K}$. Mains: 110, 130, 220, 240 50/60 Hz. Finish: oiled teak (matt walnut to special order). Size: $6 \times 20 \times 12$ in. Price: £181 11s 9d (including PT).

KORTING

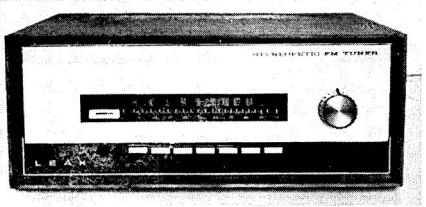
Distributors: Europa Electronics Ltd,
Howard Place, Shelton, Stoke-on-Trent,
ST1 4NW. Tel: Stoke-on-Trent 29316.

T500, Type 29813 ★

Stereo tuner. Has 4-stage IF amplifier with automatic bandwidth control dependent on field intensity on AM with silicon transistors. Tuning indicator with measuring instrument and compensated detector/amplifier. Ranges: VHF/FM 87.5-104 MHz; SW 5.85-7.4 MHz (41 and 49 m band); MW 510-1,620 KHz; LW 145-355 KHz. Sensitivity: FM $3 \mu\text{V}$. It has 12 transistors, 11 diodes and one rectifier. Ferrite aerial with double parallel coils for MW and LW. Stereo decoder with automatic indicator. Low cabinet has natural walnut colour



Korting T500



Leak Stereofetic

with satin finish. Size: $3\frac{1}{2} \times 14 \times 9$ in. Price: £39 1s 10d (plus £9 13s 2d PT).

LAFAYETTE

Barnet Factors Ltd, 147 Church Street,
London, W2. Tel: 01-723 5328.

Lafayette LT-425T

AM/FM stereo tuner. Range 88-108 MHz and MW 187-545 m. Variable tuning with indicator meter. Sensitivity: $1.6 \mu\text{V}$. Aerial impedance: 300 ohm balanced. Output: 1V. Multiplex decoder fitted. AFC. Psn: 220-240V. Dimensions: $13 \times 3\frac{3}{8} \times 9\frac{3}{4}$ in. Fully automatic stereo indication, muting control, noise filter, built-in AM/FM aeriels. Front and rear tape output jacks. Utilises integrated circuits. Price: £47 8s 1d (plus £13 0s 8d PT).

H. J. LEAK & CO LTD

Brunel Road, East Acton, London, W3.
Tel: 01-749 1641. Cables: Sinusoidal, Ealux,
London.

Stereofetic ★

Transistorised FM stereo tuner. Variable tuning. Range: 87-108 MHz. Sensitivity: $2.5 \mu\text{V}$ for 30 dB signal to noise. 75 ohms unbalanced aerial input. Output: 0.9V rms per channel. Distortion: $<0.5\%$ for full deviation. Tuning meter. Price: chassis model £56 11s (including PT), in wood case £64 14s 4d (including PT).

L & H

Distributors: Britimpex Ltd,
16-22 Great Russell Street, London, W1.
Tel: 01-636 7600. Cables: Britron, London.

★ Indicates entry is illustrated

Signalmaster Mk III 6087 ★

Self-contained battery-operated FM/VHF tuner. Will also operate from 32V from L & H Audiomaster amplifier. Plug-in V aerial. Socket for 70 ohm external aerial. Push-button on/off and AFC. Illuminated tuning scale. Transistors. Range: 86-104 MHz. PP9 or equivalent battery. Consumption 9 mA. Teak case. Size: $11\frac{1}{4} \times 3\frac{1}{2} \times 7\frac{1}{8}$ in. Price: £25 18s (plus £5 11s. 1d PT).

Stereo decoder module

Plug-in type suitable for Signalmaster Mk III. Fits inside case. Channel separation better than 32 dB at 1 KHz. Consumption 3 mA. Automatic stereo beacon. Price: £7 17s 6d. Connecting lead with 5-pin plug. Price: 15s.

LOWTHER MANUFACTURING CO

Lowther House, St. Mark's Road, Bromley, Kent, BR2 9HQ.

Tel: 01-460 5225. Cables: Lowther, Bromley.

FM tuner Mk VI

Range 87.8-101 MHz. Variable tuning. Switched AFC. AGC. Aerial input: 70/80 ohms coaxial. Output: 0.75V RMS. Self-powered. Mains: 200-240V AC. All transistor. Size: $10\frac{1}{4} \times 7 \times 4\frac{3}{4}$ in. Price: £35 (plus £9 11s 1d PT).

Stereo decoder GL1

Multiplex decoder suitable for Mk VI tuner. Price: £16.

L. L. ELECTRONICS LTD

9 Brydges Road, London, E15.

Tel: 01-534 3800.

Nova

AM/FM tuner operates on 88-108 MHz and 150-550 m. Tuning: variable. FM detector: ratio. Sensitivity: 10 μ V. Aerial impedance: 75 ohms coax. Output voltage: 150 mV. Multiplex decoder fitted. AFC switch. Mains: 200-250V 50 Hz. Size: $14 \times 9 \times 3\frac{1}{2}$ in. Price: £51 9s (including PT).

LUX

Distributors: Shriro (UK) Ltd, Electronics Division, Lynwood House, 24-32 Kilburn High Road, London, NW6. Tel: 01-624 9102.

WL515

Solid state radio tuner with FET devices. Range: 76-90 MHz, FM: 187-572 m. MW. Tuning: variable. Tuning indicator: meter. Multiplex decoder and AFC fitted. Output: 770 mV. Psn: 240V 50 Hz. Dimensions: $5\frac{11}{16} \times 17 \times 10\frac{1}{16}$ in. Price: £87 (plus £21 5s 3d PT).

WL313

Solid state radio tuner. Range: 88-108 MHz, FM: 187-572 m. MW. Tuning: variable. Tuning indicator: meter. Multiplex decoder and AFC



L. & H. Signalmaster 6087



Nikko FAM-12F



Nikko FAM-14

fitted. Aerial: 300 ohms balanced. Output: 770 mV. Psn: 180-250V 50 Hz. Dimensions: $7\frac{1}{2} \times 18\frac{3}{4} \times 7\frac{1}{8}$ in. Weight: 25 lb. Price: £115 10s (plus £28 4s 7d PT).

NIKKO ELECTRIC MFG CO LTD

Distributors: Howland-West Ltd, 2 Park End, South Hill Park, London, NW3. Tel: 01-794 6666 and 6033.

Nikko FAM-12F ★

AM/FM transistorised tuner. Range: VHF 88-108 MHz, MW 182-566 metres. Variable tuning. Meter indicator. Sensitivity: 2 μ V for 20 dB quieting. Output: 0.5V. Stereo multiplex decoder fitted. Switchable AFC. Mains: 200-240V 50/60 Hz. Local-distance control. Noise filter. Stereo indicator. 17 transistors, 16 diodes. Size: $12 \times 10 \times 3\frac{1}{2}$ in. Weight: $7\frac{3}{4}$ lb. Price: £55 (plus £13 8s 3d PT).

Nikko FAM-14 ★

AM/FM tuner. Range: 88-108 MHz, 187-567 m. Variable tuning with meter indicator. Sensitivity: 1.8 mV. Output: FM 1.2V; AM 0.5V. Multiplex decoder fitted. AFC. Mains powered. Dimensions: $13 \times 9\frac{1}{2} \times 3\frac{3}{4}$ in. Panel dimmer control. Stereo output 10 mV. Price: £75 (plus £18 5s 9d PT).

PEAK SOUND (Harrow) LTD

32 St. Judes Road, Englefield Green, Egham, Surrey. Tel: Egham 5316.

Olympus

Range: 87.5-108.5 MHz. Variable and preset tuning. Wide band ratio detector. Tuning meter. Sensitivity: 2 μ V for 30 dB quieting. Aerial: 75 ohms coax. or 300 ohms balanced. Output: 150 mV. Multiplex decoder. AFC with manual override. Psn mains. Voltage tuned front end using 4 double diodes, 2 dual gate FET. Silver clad chassis. Matches Olympus amplifier. Size: 16 \times 10 \times 4in. Price: on application.

PHILIPS

Philips Electrical Ltd, Century House, Shaftesbury Avenue, London, WC2.
Tel: 01-437 7777.

RH690 ★

Three waveband tuner. 87.5-108 MHz, 187-577 m and 1,154-2,000 m with variable tuning and ratio FM det. Sensitivity: 7 μ V (VHF) for 26 dB quieting; 500 μ V (AM). Aerial 300 ohm balanced and ferrite rod (switchable) with indicator lamp. AFC. Output: 250 mV, 10K. Psn: 110, 127, 220, 240V AC. Dimensions: 13 $\frac{1}{8}$ \times 2 $\frac{7}{8}$ \times 8 $\frac{1}{2}$ in. Price: £44 (including PT).

RH691 ★

Four waveband tuner: 87.5-108 MHz, 187-571 m, 750-2,000 m, 16.2-50.8 m. Variable tuner with duplex flywheel control and tuning indicator meter. Ratio FM det. Sensitivity: 7 μ V (VHF) for 26 dB quieting; 90 μ V (AM). Aerial 300 ohm balanced and switchable ferrite rod. Decoder with indicator lamp. Switchable AFC. Outputs: 1.4V (FM), 600 mV (AM), 10K. Psn: 110, 127, 220, 240V AC. Dimensions: 14 $\frac{1}{8}$ \times 3 $\frac{7}{8}$ \times 10 $\frac{3}{8}$ in. Price: £66 11s 2d (plus £16 8s 10d PT).

PIONEER

Distributors: Shiro (UK) Ltd, Electronics Division, Lynwood House, 24-32 Kilburn High Road, London, NW6.
Tel: 01-624 9102.

TX-500

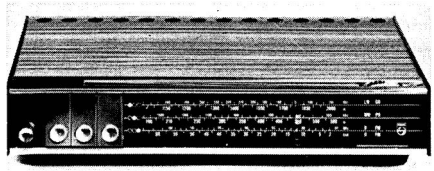
AM/FM FET transistorised tuner. Multiplex decoder. Multiplex filter. Sensitivity: 2.5 μ V. S/N: 50 dB. Image rejection: 55 dB (98 MHz). Multiplex separation: 35 dB. AM section: 10 μ V sensitivity. Image rejection: 47 dB (1 MHz). Built-in ferrite aerial. Range: 88-108 MHz, 187-573 m. Fine tuning meter. Automatic mono/stereo switching. Size: 5 \times 13 \times 13 $\frac{1}{2}$ in. Psn: 110-240V. Price: £77 17s 11d (including PT).

QUAD

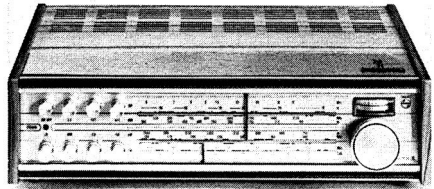
Acoustical Manufacturing Co Ltd, St. Peter's Road, Huntingdon, Hunts.
Tel: Huntingdon 2561/2. Cables: Acoustical.

Quad FM stereo tuner ★

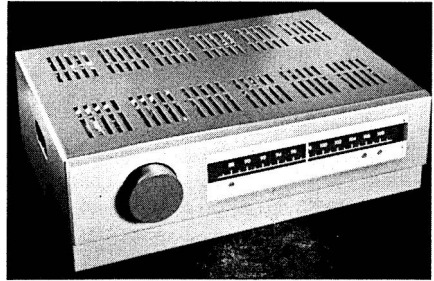
Range: 87.5-108 MHz. Variable tuning. Foster-Seeley detector. Twin neon tuning indicator.



Philips RH690



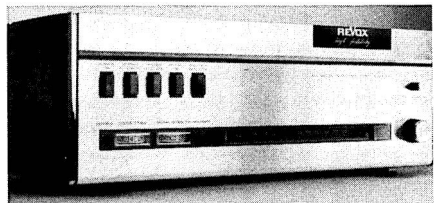
Philips RH691



Quad FM Stereo



Quad AM3



Revox A76

★ Indicates entry is illustrated

Sensitivity: 2 μ V for 20 dB quieting. Aerial input: 75 ohms coaxial. Output: 100 mV for 30% modulation. Multiplex decoder fitted. AFC. Mains. Automatic stereo-mono switching. Separate mono output in addition to stereo. Stereo beacon. Size: 10 $\frac{1}{4}$ \times 3 $\frac{3}{8}$ \times 7 $\frac{1}{8}$ in. Price: £40 (plus £11 PT).

Quad AM3/European ★

Variable tuning. Range: LW 800-2070 m, MW 185-588 m, SW 16.2-52 m. Tuning indicator. Aerial/earth sockets. Output: 100 mV nominal for 30% modulation. Output impedance: 15K. Switched variable selectivity. 9 KHz filter for adjacent channel heterodyne. IF: 470 KHz. Mains: 100-130V or 200-250V 50-60 Hz. Consumption: 25W. Three valves plus magic eye. Removable metal cover permits mounting through cabinet cut-out. Size: (free standing) 3 $\frac{3}{8}$ in high, 10 $\frac{1}{4}$ in wide, 8in deep; (panel mounting) 3 $\frac{1}{4}$ in high, 10 $\frac{1}{4}$ in wide, 7 $\frac{1}{8}$ in deep. Weight: 8 lb. Price: £38 (plus £10 9s PT).

Quad AM3/Overseas ★

Range: MW 185-588 m, SW1 45-136 m (2.2-6.6 MHz), SW2 16.2-52 m (5.8-18.5 MHz). 10 KHz filter for adjacent channel heterodyne. All other details as for AM3/European. Price: £38 (plus £10 9s PT).

RADFORD

Radford Audio Ltd, Ashton Vale Road, Bristol BS3 2HZ. Tel: Bristol 662301.

FMT-3

Stereo FM tuner. Range: 88-108 MHz. Variable tuning. Ratio detector. Meter tuning indicator. Sensitivity: 2 μ V for 20 dB quieting. Aerial input: 75 ohms coaxial, 300 ohms balanced twin. Output: 1V. Stereo decoder fitted. AFC. Mains: 110, 125, 140, 220, 235, 250. Size: 6 $\frac{1}{4}$ \times 15 \times 14 $\frac{1}{2}$ in. Price: £60 (plus £15 8s PT).

RADON

Radon Industrial Electronics Co Ltd, Brooklands Trading Estate, Orme Road, Worthing, Sussex. Tel: Worthing 34904/5/6.

Series 404

Solid state FM tuner. Range: 87-106 MHz. Sensitivity: 15 μ V for limiting. AFC. Aerial: 75 ohms coaxial. AGC: 6 dB for 60 dB input change. Fuse protected power pack. Modular construction. Controls: tuning, on-off, AFC. Cabinet finish: blond oak or teak with satin lacquer.

404 Mk 1

FM mono tuner with AFC. Price: £23 10s (plus £5 10s PT).

404 Mk 2

VHF/FM tuner with stereo decoder and AFC. Price: £31 16s 8d (plus £8 1s 4d PT).

404 Mk 3

VHF/FM/AM tuner with stereo decoder and AFC. In addition to FM band, medium wave-band 180-550 m is included. Price to be announced.

REVOX

Distributors: C. E. Hammond & Co Ltd, 90 High Street, Eton, Windsor, Berks. Tel: Windsor 63388. Telex: 84316.

Revox A76 ★

Stereo FM tuner. Range: 87.5-108 MHz. Sensitivity: 1 μ V for 30 dB S/N. Distortion: 0.2% for 40 KHz deviation at 1 KHz. S/N (unweighted) 70 dB. Stereo separation 40 dB. Output: 0-1V for 75 KHz deviation (adjustable). FR: 30 Hz-15 KHz \pm 1 dB. De-emphasis: 50 μ /secs. 41 silicon transistors, 27 diodes, 6 integrated circuits, 2 dual insulated-gate FET, 2 rectifiers. Mains: 110, 130, 150, 220, 240, 250V 50/60 Hz. Consumption: 20W. Size: 6 $\frac{3}{8}$ \times 16 $\frac{3}{8}$ \times 9 $\frac{3}{8}$ in. Weight: 17 $\frac{1}{2}$ lb. Price: £162 15s (including PT).

ROGERS DEVELOPMENTS (Electronics)

LTD

4-14 Barmeston Road, Catford, London, SE6. Tel: 01-698 7424/4340. Cables: Rodevco, London, SE6.

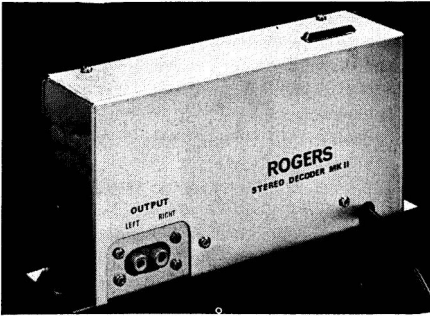
Multiplex stereo decoder Mk II ★

Designed for use with Rogers FM tuners but also suitable for operation with other makes of tuner. Unpowered and self-powered versions. Automatic electronic switching for stereo broadcasts. Mullard Vinkor tuned circuits. Seven silicon planar transistors. Selective anti-noise filter. High degree of filtering permits tuner to be connected to tape recorder without interference (input impedance to recorder must be over 100K). Stabilised 12V supply. Input signal level: 0.5-1V. Input imp 30K approx. Output: 700 mV RMS for input of 350 mV RMS per channel. Separation: better than 30 dB at 1 KHz. Total spurious output (including 19/38 KHz): better than -50 dB. Mains: 105-125V, 200-250V AC 3W. Size: (less power supply) 7 $\frac{3}{8}$ \times 2 \times 4in; (with power supply) 9 $\frac{1}{4}$ \times 2 \times 4in. Weight: (unpowered) 1 lb 6 oz; (powered) 2 lb 1 oz. Price: (unpowered) £15; (powered) £17.

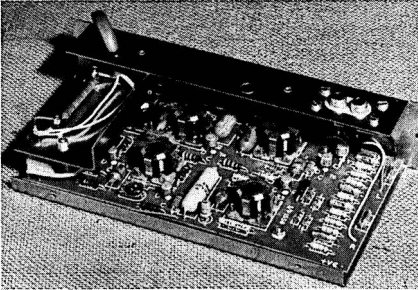
Ravensbourne 2 FET tuner, Series II ★

Range: 88-108 MHz. Variable tuning. Wide-band ratio detector. Centre-zero tuning meter. Sensitivity: 2.7 μ V for 30 dB quieting. Aerial impedance: 75 ohms coaxial and 300 ohms balanced. Output: 200 mV average for 30% modulation. Integrated circuits in I.F. strip. Multiplex decoder. Switched AFC. FET front end. Inter-station noise suppression. Mains: 200-250V AC. Consumption: 8W. Size: (chassis) 11 $\frac{1}{2}$ \times 11 \times 4in; (case) 12 $\frac{1}{2}$ \times 11 $\frac{1}{2}$ \times 5 $\frac{1}{2}$ in. Prices:

RADIO TUNERS



Rogers stereo decoder



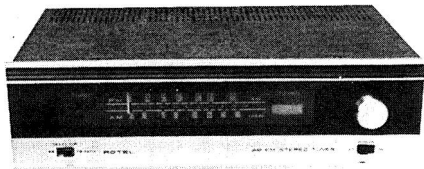
Rogers stereo decoder



Rogers Ravensbourne 2 FET



Rogers Ravensbrook FET



Rotel 120

(chassis with decoder) £49 10s (plus £12 7s 9d PT); (cabinet model with decoder) £53 10s (£13 7s 9d PT). Case alone, £5 (plus 9s 5d PT).

Ravensbrook FET FM tuner ★

Range: 88-108 MHz. Variable tuning. Ratio detector. Centre-zero meter. Sensitivity: better than $5 \mu\text{V}$ (IHFM). Aerial impedance: 75 ohms coaxial and 300 ohms balanced. Output: 200 mV for 30% modulation. Stereo decoder fitted. Switchable AFC. Three-gang FET front-end. Integrated circuit IF strip. Switchable inter-station noise suppression. Mains: 105/125V, 200/250V, 50-60 Hz. Consumption: 7.5W. Size: (chassis) $3\frac{3}{4} \times 10\frac{3}{4} \times 10$ in; (cabinet) $5 \times 11\frac{1}{2} \times 10$ in. Prices: (chassis) £36 (plus £9 0s 2d PT); (cabinet model) £41 (plus £10 5s 3d PT); (cabinet alone) £5 9s 5d (including PT).

ROTEL

Distributors: Rank Audio Visual Ltd, Rank Aldis—Audio Products, P.O. Box 70, Great West Road, Brentford, Middlesex. Tel: 01-568 9222.

Rotel 120-ST ★

Stereo AM/FM tuner. Range: 88-108 MHz, 187-560 m. Variable tuning. Meter tuning indicator. Sensitivity: FM $2.5 \mu\text{V}$, AM $15 \mu\text{V}$. Stereo decoder fitted. AFC. Output: FM 1.2V, AM 400 mV. FET FM tuner front end. Mains: 117-240V AC. Automatic stereo switching. Size: $3\frac{3}{4} \times 12\frac{1}{4} \times 8\frac{3}{4}$ in. Price: £39 10s (plus £9 17s 8d PT).

SANSUI

Sole UK importer: Brush Clevite Co Ltd, Thornhill, Southampton SO9 1QX. Tel: Southampton 45166.

Distributors for Scotland, North and Midlands: Audio Distributors Ltd, Oldington Trading Estate, Stourbury Road, Kidderminster, Worcs. Tel: Kidderminster 3293.

Sansui TU70 ★

AM/FM multiplex stereo tuner. Range: VHF 88-108 MHz. MW 186-560 metres. Variable tuning. Ratio detector. Magic eye tuning indicator. Sensitivity: $1.2 \mu\text{V}$ for 20 dB quieting. Aerial input: 300 ohms balanced. Output: 1.2V. Fitted with stereo decoder. Switchable AFC. Stereo indicator. Switchable quiet tuning. Noise filter. Mains: 100, 117, 240V AC 50/60 Hz. Size: $12\frac{5}{8} \times 15\frac{7}{8} \times 5\frac{1}{2}$ in. Price: £66 15s (plus £16 6s 4d PT).

Sansui TU555 ★

Stereo AM/FM tuner. Range: 88-108 MHz. 187-560 m. Variable tuning with indicator meter. FM detector: ratio. Sensitivity: FM $2.0 \mu\text{V} \pm 3$ dB (20 dB quieting). Aerial: coaxial and bal-

★ Indicates entry is illustrated

anced. Output voltage: greater than 1.5V. Multiplex decoder fitted. Psn: 100-240V AC, 10W. Dimensions: $4\frac{3}{8} \times 11\frac{1}{2} \times 11\frac{1}{2}$ in. FET front end. Noise muting circuit. Price: £62 4s 10d (plus £15 4s 4d PT).

Sansui TU777 ★

Stereo AM/FM tuner. Range: 88-108 MHz, 187-560 m. Variable tuning with indicator meter. FM detector: ratio. Sensitivity: $1.4 \mu\text{V} \pm 3 \text{ dB}$ (20 dB quieting). Aerial: coaxial and balanced. Output voltage: 0-2V variable. Multiplex decoder fitted. Psn: 100-240V AC, 10W. Dimensions: $6\frac{1}{2} \times 13\frac{9}{16} \times 13\frac{1}{8}$ in. Circular tuning dial. FET front end. FM local/distant switch. Stereo noise canceller. Price: £75 15s 6d (plus £18 10s 5d PT).

SCOTT

Distributors: A. C. Farnell (Sheffield) Ltd, Kenyon Street, Sheffield, 1;
A. C. Farnell (London) Ltd,
25a Hermitage Road, London, N4.

312-D

Solid state tuner with multiplex decoder. FM front end: three FET. Sensitivity: $1.7 \mu\text{V}$. Stereo separation: 40 dB. S/N: 65 dB. Computer type push-button switches. Interstation muting. Price: £174 10s (including PT).

315-B

Solid state tuner with multiplex decoder. FM front end: FET. Sensitivity: $2.2 \mu\text{V}$. Stereo separation: 36 dB. Signal to noise ratio: 60 dB. Price: £118 (including PT).

SENNHEISER ELECTRONICS

Distributors: Audio Engineering Ltd,
33 Endell Street, London WC2H 9BA.
Tel: 01-836 9373.

EFM.303 Stereo Tuner ★

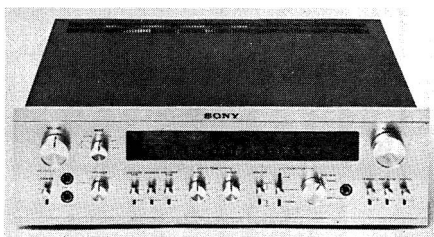
Range: 87.5-108.5 MHz. Variable tuning. Two meters for tuning indication. Sensitivity $< 2 \mu\text{V}$ for 20 dB quieting. Output 0.5V. Built-in multiplex decoder. Automatic stereo transmission indicator. Interstation noise suppression. Switched AFC. Mains: 200-240V 50 Hz. Size: $15 \times 4 \times 9$ in. Price: £121 10s (including PT).

SINCLAIR RADIONICS LTD

22 Newmarket Road, Cambridge.
Tel: Cambridge 52996.

System 2000 ★

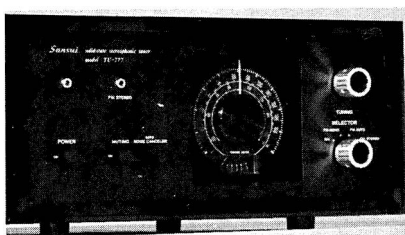
Transistorised mono or stereo FM tuner. Range: 86-108 MHz. Variable tuning with facility for remote operation. Pulse counting discriminator. Electronic fine tuning. Electronic tuning indicator. 11 silicon transistors. Interstation muting. AFC. Plug-in multiplex decoder. Automatic stereo switching. Stereo beacon. Output: 500 mV



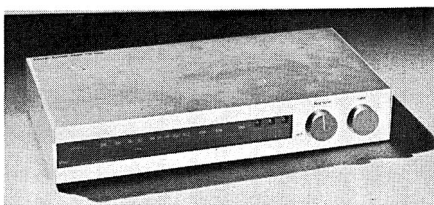
Sansui TU70



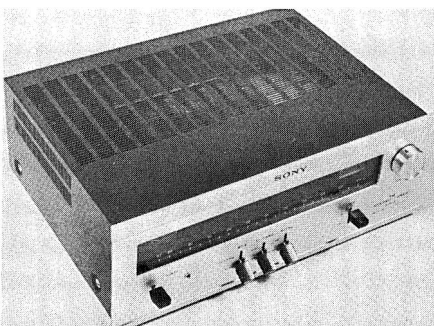
Sansui TU 555



Sansui TU 777



Sinclair 2000



Sony ST-5000FW

low impedance. FR 10 Hz-20 KHz ± 1 dB. Sensitivity 5 μ V for full limiting. Mains: 200-250V 50 or 60 Hz. 100-125V versions available. Separate aerial inputs for low-level and high-level signals. Aerial inputs 75 ohms coaxial. Finish: cabinet and controls solid aluminium. Size: 12 \times 6 \times 2in. Price: (mono) £26 5s (including PT); (stereo/mono) £30 9s (including PT); (plug-in decoder) £4 4s.

SONY (UK) LTD

Ascot Road, Bedfont, Feltham, Middx.
Tel: Ashford 50021.

ST-5000FW ★

Stereo transistorised FM tuner. Range: 87-108 MHz. Variable tuning. Sensitivity: 2 μ V for 20 dB quieting. Aerial impedance: 300 ohms balanced, 75 ohms coaxial. Output: 0.7V 10K; 0.2V 1K. Multiplex decoder fitted. AFC. Mains: 100, 117, 220 or 240V 50/60 Hz. Size: 5 $\frac{3}{4}$ \times 15 $\frac{3}{4}$ \times 12 $\frac{1}{2}$ in. Price: £146 10s 4d (plus £33 4s PT).

ST-80W

Stereo transistorised FM tuner. Range: 87-108 MHz. Variable tuning. Sensitivity: 2.5 μ V for 20 dB quieting. Aerial impedance: 300 ohms balanced. Multiplex decoder. AFC. Mains: 117, 220V 50-60 Hz. Size: 5 $\frac{1}{8}$ \times 8 $\frac{3}{8}$ \times 6 $\frac{5}{16}$ in. Price: £39 12s 8d (plus £9 15s 4d PT).

ST-5100 ★

Stereo transistorised AM/FM tuner. Range: FM 87-108 MHz, 187-560 m. Variable tuning. AFC. Twin tuning meters. FET front end. Six solid state filters in IF section. AM ferrite rod aerial. Quiet tuning. Flywheel tuning control. Sensitivity: FM 1.8 μ V for 20 dB quieting, AM 20 μ V on external aerial. FR: (FM) 20 Hz-15 KHz ± 1 dB. Mains: 100, 117, 220, 240V 50/60 Hz. Size: 5 $\frac{3}{4}$ \times 16 $\frac{5}{8}$ \times 13 $\frac{3}{8}$ in. Price: £99 15s (including PT).

J. E. SUGDEN & CO LTD

Bradford Road, Cleckheaton, Yorks.
Tel: Cleckheaton 2501.

R51

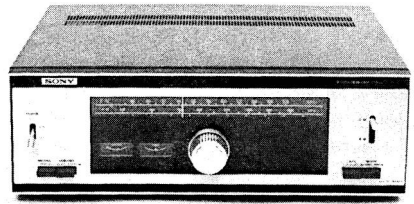
FM stereo tuner to match C51 amplifier. Features include two dual-gate FET input circuit, four-stage IF amplifier, normal variable tuning dial plus four preset positions. Range: 88-104 MHz. Sensitivity: 2 μ V. Stereo decoder fitted. Includes special filter to eliminate adjacent channel warbles. Price to be announced.

R21

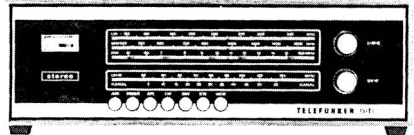
FM stereo tuner with same specification as R51 but designed to match A21 amplifier. Price to be announced.

TELEFUNKEN

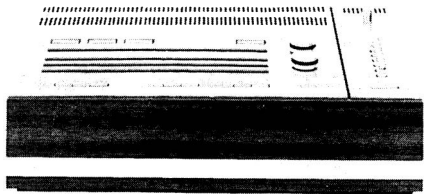
Distributor: A.E.G. (Great Britain) Ltd,



Sony ST-5100



Telefunken T201



Telefunken T250

Lonsdale Chambers, 27 Chancery Lane, London, WC2. Tel: 01-242 9944.
Cables: Allgem, London.

T201 ★

Stereo transistorised tuner to DIN 45.500 standards. Ranges: 87.5-104 MHz, 5.9-16 MHz, 186-584 m and 860-2000 m. Separate flywheel tuning for FM and AM. AM/FM tuning indicator. Sensitivity: FM 1.2 μ V for 26 dB signal/noise ratio at 40 KHz deviation, AM 6 μ V for 10 dB signal/noise. Automatic stereo indicator. AFC. FR: (-1 dB) 30 Hz-12.5 KHz. Output: 900 mV 220K. Sockets for 240 ohm FM dipole, local FM dipole (attenuator fitted), AM aerial, amplifier (22K). Features excellent cross-modulation characteristics. Mains operated. Price: £61 15s 1d (plus £14 6s 11d PT).

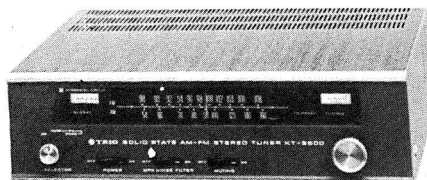
T250 ★

Stereo transistorised tuner to DIN 45.500 standards. Ranges: 87.5-104 MHz, SW 5.9-18 MHz, MW 185-577 m, 860-2000 m. Sensitivity: FM 0.8 μ V for 26 dB signal/noise ratio at 25 KHz deviation, AM approx 5 μ V for 10 dB signal/noise. Separate AM and FM tuning and tuning indicators. Audio response: (-1 dB) 30 Hz-14 KHz, less than 0.5% distortion. Sockets for FM and AM aeriels, amplifier and tape recorder.

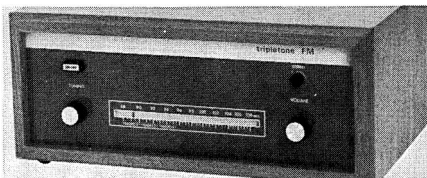
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Trio KT-7000



Trio KT3500 (alternative view)



Tripletone FET FM Tuner Mk II

Features include five buttons for electronic pre-selection of FM stations, AM bandwidth switching and excellent cross-modulation characteristics. Mains: 110/125, 220/240V 50/60 Hz. Price: £157 12s 10d (plus £36 12s 2d PT).

TELETON

Teleton Electro (Distributors) Co Ltd,
Teleton House, Robjohns Road, Widford,
Chelmsford, Essex.
Tel: Chelmsford 62442. Telex: 99338.

GT.101

Solid-state FM/AM stereo tuner matching GA.101 amplifier. Ranges: 88-108 MHz, 187-570 m. Sensitivity: better than 7 μ V (FM), 150 μ V/m (AM). Multiplex separation: more than 25 dB, signal/noise more than 50 dB. Aerial: built-in plus extension, 300 ohms balanced. Output: 1V 100% modulated. Mains: 110-117, 220-240V 50-60 Hz. Dimensions: 12 \times 9 $\frac{1}{2}$ \times 4in. Price: £45 10s (including PT).

TRIO

Distributors: B. H. Morris & Co (Radio) Ltd,
84-88 Nelson Sireet, Tower Hamlets,
London E1 2DY. Tel: 01-790 4824.

KT-7000 ★

Solid state AM/FM stereo tuner using front end FETs, four ICs and two crystal IF stages. Ranges: VHF and MW. Inter-station muting. Signal

strength meter. Centre-zero tuning indicator. Automatic stereo/mono switching with indicator. Aerial: 300 ohms (balanced) and 75 ohm. FM sensitivity: 1.5 μ V. FR 20 Hz-15 KHz, \pm 2 dB; HD: mono, <0.3%; stereo, <0.6%; S/N better than 70 dB at 30 μ V. Output: 1.5V. AM sensitivity: 15 μ V (ext. aerial). Output: 0.4V. Dimensions: 5 $\frac{5}{8}$ \times 16 $\frac{5}{16}$ \times 11in, to match KT-6000 amplifier. Weight: 18 lb. Psn: 110-120V, 220-240V, 20W. Price: £125.

KT1000

Solid state AM/FM multiplex stereo tuner. Ranges: 88-108 MHz; 187-556 m. Sensitivity, IHF: FM 3 μ V; AM 30 μ V (ext. aerial terminal), 300 μ V (bar aerial). HD (at 400 Hz, 100% modulation): mono less than 0.8%, stereo less than 0.9%. S/N (at 100% modulation): better than 60 dB. Aerial input: 300 ohms balanced and 75 ohms unbalanced. Output impedance: 200 ohms. Consumption: 15W. Dimensions: 4 $\frac{3}{8}$ \times 10 $\frac{1}{4}$ \times 9 $\frac{3}{8}$ in. Weight: 8.5 lb. Price: £52.

KT-3500 ★

Solid state AM/FM stereo tuner. FET front end. Integrated circuits. Range: FM 88-108 MHz, AM 187-555 m. Variable tuning. Ratio detector. Two meters, one for signal strength the other a centre-zero tuning indicator. Sensitivity: FM 1.9 μ V, AM 15 μ V. Ferrite rod AM aerial, sockets for FM aerial input. Quiet tuning facility. Stereo decoder fitted. Output: FM 1V \pm 1 dB at 400 Hz 100% modulation, AM 0.4V \pm 1 dB at 400 Hz 30% modulation. HD: mono <0.6%, stereo <0.9%. SN: better than 60 dB at 100% modulation. Stereo separation: better than 35 dB, Size: 4 $\frac{1}{8}$ \times 13 \times 12 $\frac{1}{2}$ in. Weight: 10 $\frac{1}{4}$ lb. Price: £65 (including PT).

TRIPLETONE MANUFACTURING CO LTD

Factory No. 1, 138 Kingston Road,
Wimbledon, London, SW19.
Tel: 01-542 1189.

FM tuner Mk II ★

Transistorised stereo tuner. Range: 88-108 MHz. Variable tuning with AFC. Sensitivity: 2.3 μ V for 20 dB quieting. Aerial input: 70-80 ohms coaxial. Output: 0-100 mV via emitter follower. Controls: tuning, volume, mains on/off pushbutton. Crosstalk: better than 30 dB at 1 KHz. AFC hold: 400 KHz. Bandwidth: 210 KHz. IF: 10.7 MHz. FET tuner. Stereo decoder included. Automatic stereo switching. Stereo beacon. Size: (chassis) 3 $\frac{3}{8}$ \times 11 \times 7 $\frac{1}{2}$ in; (cabinet) 5 $\frac{1}{4}$ \times 13 \times 9in. Weight: (chassis) 6 lb; (cabinet model) 9 lb. Prices: (complete with stereo decoder and cabinet) £37 19s 10d (including PT); (mono tuner) £31 9s (including PT); (less cabinet) £35 1s 3d and £28 13s 9d (including PT); (decoder separately) £8.

NATIONAL PANASONIC

OUR ANSWER TO THOSE WHO SAY THERE'S
NOTHING TO CHOOSE BETWEEN HI-FI EQUIPMENT

■ 3-SPEED, 7" 4-TRACK STEREO TAPE DECK
■ 3-TAPE HEAD SYSTEM . . . INDIVIDUAL HEADS FOR ERASING, RECORDING AND PLAYBACK ■ ECHO EFFECT ■ TAPE MONITORING SYSTEM ■ 2-LC IN PLAYBACK CIRCUITS FOR RELIABLE PERFORMANCE UNDER ALL CONDITIONS ■ WIDE FREQUENCY RESPONSE RANGE AND MINIMUM WOW AND FLUTTER ■ 4-POLE HYSTERESIS SYNCHRONOUS MOTOR ■ NOISE FREE DEVICE FOR FILTERING OUT NOISES ON NON-RECORDED PORTIONS OF THE TAPE ■ 2 LARGE, PRECISION VU METERS ■ TAPE GUIDE ROLLER AND TENSION ARM ■ DARK TRANSPARENT PLASTIC COVER FOR PROTECTING THE SET FROM DUST ■ JACKS FOR MIC, AUXILIARY INPUT, LINE OUTPUT, STEREO HEADPHONE OUTPUT AND DIN CONNECTION ■ SOUND-ON-SOUND AND SOUND-WITH-SOUND ■ AUTOMATIC STOP WHEN TAPE IS FINISHED ■ TAPE CLEANING DEVICE ■ AC OPERATION ■ 20-27,000 Hz ■ 18½" (W) X 13½" (H) X 8" (D) ■ 24½ LB.

RS. 768US

4-Track Stereo Tape Deck with Professional 3-Tape Head System.



AMPLIFIER SECTION

RMS Power (at 1kHz and rated distortion)

11/11W at 4 Ω
8/8 W at 8 Ω

Harmonic Distortion (at 1kHz and rated output)

0.8%

Intermodulation Distortion (60Hz+7kHz, 4:1, SMPTE)

1.2%

Frequency Response

15Hz~100kHz-3dB

Input Sensitivity (for rated output):

Phone 2.5mV
Ceramic 20 mV
Auxiliary 150 mV
Tape Monitor 150 mV

Hum and Noise:

Phone 60 dB
Auxiliary 70 dB

Bass Range

+10 db at 50 Hz

Treble Range

+10 dB at 10 Hz

SA. 420

30 Watt AM/FM Stereo Tuner Amplifier with field effect transistor and advanced ITL-OTL-OCL circuitry



FM TUNER SECTION

Frequency Range 88~108 MHz
FM Usable Sensitivity (IHF) 4μV
FM Harmonic Distortion (at 400 Hz, 100% modulation) 1.5%
Signal to Noise Ratio 60 dB
FM Stereo Separation (at 1 kHz) 35 dB

AM TUNER SECTION

Frequency Range 525-1605 kHz
AM Sensitivity (IHF) 100μV/m, 20μV
Selectivity (at 1 MHz and 10 kHz) 25 dB
Image Rejection (at 1 MHz) 45 dB



Colour brochures and full

details of specifications are available

from the showroom at 9 Connaught Street, London, W.2.

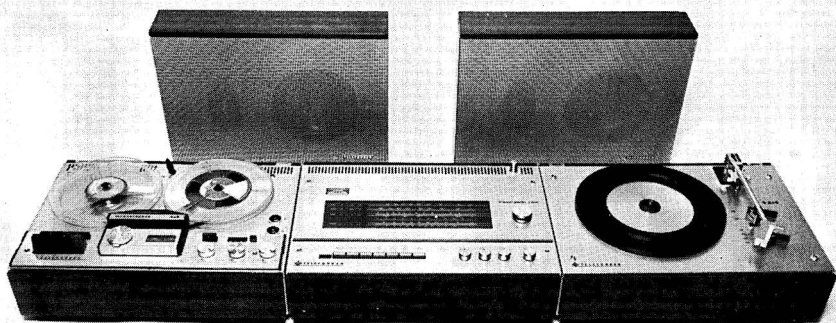
Slim lines, sweet sound, stunning impact – that's the Mini-Acusta from Telefunken. The Mini-Acusta is an elegant all-in-one sound system incorporating 4-track stereo tape recorder, hi-fi tuner/amplifier, transcription unit and two full-range loudspeakers.

The Mini-Acusta looks like

£300 worth of high-fidelity equipment. In fact, it costs a lot less. But who's to know?

See your local audio dealer for details of the Mini-Acusta '205' System. Or write to Telefunken at:

AEG House,
Chichester Rents,
Chancery Lane,
London WC2A 1NH



Mini-Acusta

Midi price

Maxi sound system

Directory of Tuner/ Amplifiers

*The abbreviations used in this section are defined at the beginning of the Tuner and Amplifier Sections.

★ Indicates entry is illustrated

ACOUSTIC RESEARCH

Bell & Howell Ltd, Audio Products Division, Alperton House, Bridgewater Road, Wembley, Middlesex. Tel: 01-902 8812.

AR Receiver ★

Stereo FM tuner/amplifier. Range: 88-108 MHz. Variable tuning. FET front end. Multi-section crystal IF. Centre-zero tuning meter. Sensitivity: 2 μ V IHF usable sensitivity. S/N: 65 dB ASA 'C' (flat) weighting. Stereo decoder fitted. Inter-station muting. Separation: 40 dB at 400 Hz. Inputs: mag PU 2.5 mV at 1 KHz, tape 200 mV 150K, aux 200 mV 150K. Noise level: PU input 57 dB, other inputs 75 dB. Controls: treble, bass, balance, volume, selector, speaker/headphones, tuning, on-off. Output: 60W RMS per channel. Impedance: 4 ohms to 16 ohms. HD: <0.5% any frequency 20 Hz-20 KHz. FR: 20 Hz-20 KHz \pm 1 dB at full output. Mains: 100, 120, 220, 240V 50-60 Hz. Size: (with wood case) 6 \times 17 $\frac{1}{4}$ \times 11 $\frac{1}{2}$ in. Price: £300 5s (plus £80 10s PT).

AKAI

UK distributors: Pullin Photographic (Rank Organization), P.O. Box 70, Great West Road, Brentford, Middx. Tel: 01-568 9222.

AA8000 ★

Stereo AM/FM. Range: 88-108 MHz, 187-565 m. Variable tuning with indicator meter. Sensitivity: FM 2 μ V; AM 20 μ V. Aerial impedance: FM 300 ohms, 75 ohms; AM ferrite with external socket. Multiplex decoder fitted. AFC. Remote control facilities for tape recorders having remote control. FET. Inputs: tape 150 mV, noise level 75 dB; pickup 3 mV, noise level 65 dB; aux 150 mV, noise level 75 dB. Controls: Bass \pm 10 dB; loudness +6 dB at 100 Hz; treble \pm 10 dB. Psn 100-240V, 50 or 60 Hz, 30W. Power output: 90W RMS. HD 0.2% at 45W. FR 20 Hz-50 KHz -3 dB. Output impedance

(speaker) 8 ohms. Dimensions: 5 $\frac{1}{2}$ \times 18 $\frac{1}{8}$ \times 14in. Price: £155 (plus £38 15s 9d PT).

AA6600

Stereo AM/FM. Range: FM 88-108 MHz, AM 187-565 m. Variable tuning. One signal strength meter, one centre zero tuning meter. Sensitivity: FM 2 μ V, AM 20 μ V. Aerial input: 300 ohms balanced, 75 ohms coaxial. Stereo decoder fitted. AFC. FET front end. Integrated circuits incorporated. Inputs: mag PU 3 mV, aux 200 mV, tape monitor 200 mV. Output: 35W RMS per channel. HD: 0.8% at rated output. FR: 20 Hz-50 KHz -3 dB. Output impedance: 4-16 ohms. Mains: 100-240V AC. Size: 5 $\frac{1}{4}$ \times 17 $\frac{1}{4}$ \times 13 $\frac{3}{8}$ in. Four-way speaker outlets. Price: £119 (plus £29 15s 7d PT).

ARENA

Distributors: Highgate Acoustics Ltd, 184-188 Great Portland Street, London, W1. Tel: 01-636 2901.

T.1500F ★

Transistorised stereo. Range: FM/VHF, LW, MW, 49-metre band. Controls: volume, bass, treble, tuning, mode, wavechange. Inputs for PU and recorder. Outlets for speakers and recorder. Module construction. 28 silicon transistors, 21 diodes. Vari-cap FM tuning. Output: 8W RMS per channel. Sensitivity: AM 10 μ V, FM 1 μ V. Available with ceramic or magnetic pickup input. Price: £72 9s (magnetic); £70 7s (ceramic). Multiplex decoder £7 7s extra.

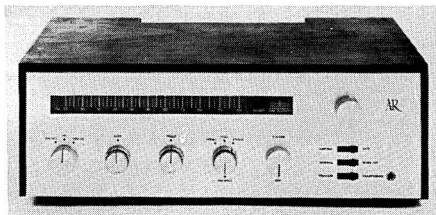
T.2600 ★

All-transistor stereo tuner/amplifier. Constructed on miniature module system. Includes MOS FET transistors. Range: FM 87-108 MHz, LW, MW, 49 metre band, SW. Pushbutton selection of up to five FM/VHF stations. AFC. Output: 20W RMS per channel. FR: 20 Hz-25 KHz. Multiplex decoder optional. Inputs for tape recorder and PU. Outputs for headphones and two sets of speakers. Finish: teak or rosewood. Size: 5 $\frac{3}{4}$ \times 15 $\frac{3}{4}$ \times 8 $\frac{1}{2}$ in. Price: £85 3s 5d (plus £18 15s 7d PT); multiplex decoder £7 7s extra.

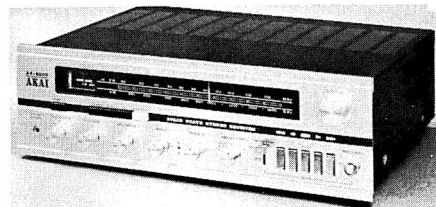
T.2700

All-transistor stereo tuner/amplifier. Constructed on miniature module system. Includes MOS FET transistors. Range: FM 87-108 MHz. Pushbutton station selection. AFC. Multiplex decoder optional. Inputs: tape recorder, PU, aux (2). Outlets: headphones, four speakers, with front panel selection. Output: 20W RMS per channel. FR: 20 Hz-25 KHz. Socket for FM aerial input (75 ohms coaxial). Size: 3 $\frac{1}{2}$ \times 19 $\frac{3}{4}$ \times 9 $\frac{3}{4}$ in. Finish: teak or rosewood. Price: £80 0s 2d (plus £17 12s 10d PT); multiplex decoder £7 7s extra.

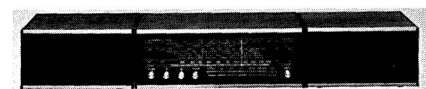
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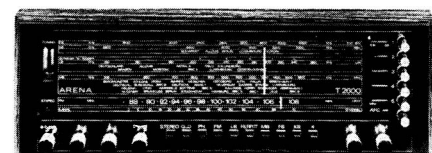
Acoustic Research AR



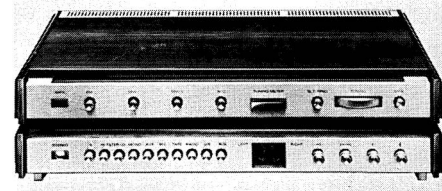
Akai AA-8000



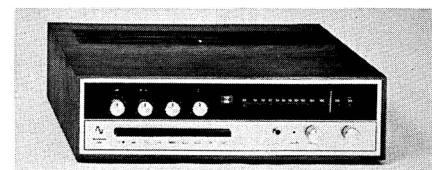
Arena T1500F plus two HT21 speakers



Arena T2600



Arena T9000



Armstrong Audio 525

T.9000 ★

All-transistor tuner/amplifier constructed on extended module system. Range: VHF 87.5-108.5 MHz, MW I 500-1,000 KHz (tuned RF stage) MW II 950-2,000 KHz (tuned RF stage). Tuning scale, meter and AFC. Silent tuning on VHF. Multiplex decoder. Sensitivity: better than $1 \mu\text{V}$ for 30 dB (FM) 20 dB (AM) S/N ratio and 40 KHz frequency deviation. FR 10 Hz-40 KHz ± 3 dB at 75W RMS all outputs. HC 75W per channel RMS 8 ohms. Inputs: pickup, tape recorder, mic, two aux. Outputs: four speakers. 64 silicon transistors, 39 diodes, MOS FET transistors. Tuning silicon diode on both VHF and AM. Cabinet is in rosewood. Size: $5\frac{1}{2} \times 20\frac{1}{4} \times 11\frac{1}{2}$ in. Weight: 44 lb. Price: £303 9s (including PT).

ARMSTRONG AUDIO LTD

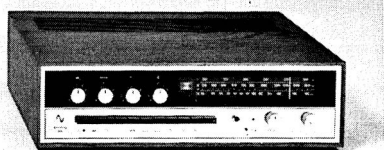
Walters Road, London, N7. Tel: 01-607 3213.

Model 525 ★

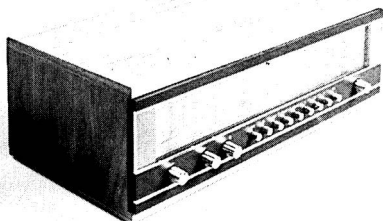
FM. Range: VHF 86-109 MHz. Variable tuning. Ratio detector. Meter tuning indicator. Sensitivity: $1.5 \mu\text{V}$ for 30 dB quieting. Aerial impedance: 75 ohms coaxial and 300 ohms balanced. Plug-in stereo multiplex decoder optional extra (see Radio Tuner Section). Quiet-tuning control. Stereo indicator light. Inputs: PU(1) 60 mV 100K, PU(2) 3.5 mV 50K, tape play 400 mV 100K. Noise level: PU -55 dB, tape -70 dB. Controls: balance (maximum to zero each channel), bass ± 10 dB, treble ± 10 dB, loudness (two volume levels with loudness contours at low level), rumble filter -5 dB at 30 Hz, treble filter (1) 6.5 KHz -3 dB, 10 KHz -25 dB, treble filter (2) 4.5 KHz -3 dB, 9 KHz -40 dB. Output: 25W RMS per channel. Output impedance 4-16 ohms. HD <0.5% at rated output. FR 20 Hz-20 KHz -1 dB at 25W RMS. Transistorised. Mains: 100-125V and 200-250V AC. Size: $17 \times 10\frac{3}{4} \times 4\frac{1}{2}$ in. Price: £70 5s (plus £17 11s 9d PT).

Model 526 ★

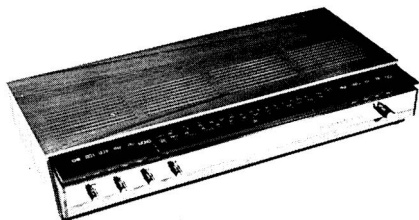
AM/FM. Range: VHF 86-109 MHz, MW 185-590 metres, LW 1,000-2,000 metres. Variable tuning. FM ratio detector. Meter tuning indicator. Sensitivity: $1.5 \mu\text{V}$ for 30 dB quieting on VHF, $5 \mu\text{V}$ for 20 dB quieting on AM. Aerial impedance: 75 ohms coaxial and 300 ohms balanced. Plug-in stereo multiplex decoder optional extra (see Radio Tuner Section). FM quiet-tuning control. Stereo indicator light. Inputs: PU(1) 60 mV 100K, PU(2) 3.5 mV 50K, tape play 400 mV 100K. Noise level: PU -55 dB, tape -70 dB. Controls: balance (maximum to zero each channel), bass ± 10 dB, treble ± 10 dB, loudness (two volume levels with loudness contours at low level), rumble filter -5 dB at 30 Hz. Treble filter (1) 6.5 KHz -3 dB, 10 KHz -25 dB, treble filter (2) 4.5 KHz -3 dB, 9 KHz



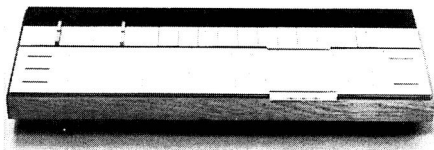
Armstrong Audio 526



Bang & Olufsen Beomaster 900M



Bang & Olufsen Beomaster 1000



Bang & Olufsen Beomaster 1200



Bang & Olufsen Beomaster 1600

—40 dB. Output: 25W RMS per channel. Output impedance: 4-16 ohms. HD <0.5% at rated output. FR 20 Hz-20 KHz —1 dB at 25W RMS. Transistorised. Mains: 100-125V and 200-250V AC. Size: 17×10 $\frac{3}{4}$ ×4 $\frac{1}{2}$ in. Price: £79 (plus £19 15s 6d PT).

BANG & OLUFSEN UK LTD

Eastbrook Road, Gloucester GL4 7DE.

Tel: Gloucester 21591.

Beomaster 900M ★

Stereo. 5W per channel. Range: 87.5-108 MHz, 578-188 m, 880-2,040 m, 38.5-51 m. Variable tuning. Ratio detector. Tuning meter. Sensitivity: 2.8 μ V for 26 dB quieting. Aerial impedance: 75 ohms coax. Multiplex decoder available. AFC. FR 30 Hz-16 KHz \pm 3 dB. Output impedance 4 ohms. Inputs: gram 500 mV 470K, tape 450 mV 250K. Controls: volume, bass, treble, on/off, gram, tape, aerial and AFC, mono, band select, tuning. Mains 10-65W. Size: 15×5 $\frac{3}{4}$ ×9in. Price: (teak) £72 (including PT); (rosewood) £73 (including PT).

Beomaster 1000 ★

Stereo 15W per channel. Range: 87.5-108 MHz. Variable tuning. Ratio detector. Tuning meter. Sensitivity: 2.5 μ V for 26 dB quieting. Aerial impedance: 75 ohms coax. Multiplex decoder. AFC. A-B monitoring. FR 30 Hz-20 KHz \pm 2 dB. Amplifier noise level —53 dB at 50 mW. Output impedance 4 ohms. Inputs: gram I 200 mV 470K, gram II 4 mV 47K, tape 200 mV 470K. Controls: on/off, speakers, hi filter, low filter. mono, tuner, AFC, gram I and II, tape, volume, bass, treble, balance, tuning. Psn mains. Size: 19 $\frac{3}{4}$ ×3 $\frac{1}{2}$ ×10in. Price: (teak) £95 (including PT); (rosewood) £96 (including PT).

Beomaster 1200 ★

Stereo, transistorised. 15W per channel. Ranges: 87.5-104 MHz, 184-578 m, 857-2,040 m. Variable tuning plus 3 FM presets. Lamp indicator. Sensitivity: 1.5 μ V for 26 dB S/N on FM. Ratio detector. Decoder fitted. Switched AFC. Aerial: 75 ohms IEC. FR (\pm 1 $\frac{1}{2}$ dB): 20 Hz-40 KHz. HD: less than 1% at 2×15W; N level —65 dB. Inputs: switched PU, magnetic 4 mV 47K and crystal 200 mV 470K, tape 200 mV 470K. Outputs: tape 100 mV 100K, headphones 100 ohms nominal, speakers 4 ohms. Controls: wide cursor tuning, slider volume and tone, bass, treble. Features include: use of FETs, speaker s/c proof, built-in tilt bracket. Mains: 110, 130, 220, 240V 50/60 Hz. Dimensions: 21.4×8.1×3.1in. Price: (teak) £108; (rosewood) £109 (including PT).

Beomaster 1600M ★

Stereo, transistorised. 15W per channel. Ranges: 87.5-104 MHz. 16-49 m. 66.6-200 m. 188-578 m. 857-2,040 m. Variable tuning plus 4 FM presets.

★ Indicates entry is illustrated

Meter indicator. Sensitivity: 2 μ V for 26 dB quieting on FM. Decoder fitted. Ratio detector. Switched AFC. Aerial: 75 ohms IEC. FR (± 1 dB): 30 Hz-25 KHz. HD: less than 1% at 2×15 W; N level better than 50 dB. Inputs: magnetic PU 4 mV 47K, tape 200 mV 500K. Output impedance: 4 ohms. Controls: sliders for volume, bass and treble; balance, wavebands and presets, mono, speakers, ext aerial and AFC, bass, treble. Features include: FETs and ceramic filters. Mains: 110, 130, 220, 240V 50/60 Hz. Dimensions: $16\frac{1}{4} \times 9\frac{3}{8} \times 4\frac{3}{8}$ in. Price: (teak) £122; (rosewood) £123 (including PT).

Beomaster 3000 ★

Stereo, transistorised. 38W per channel. Range: 87.5-108 MHz. Variable tuning plus 6 presets. Meter indicator and two illuminated panels. Decoder fitted. Ratio detector. Switched AFC. Aerial: IEC sockets for 75 ohms and 240 ohms. FR (± 1 dB): 40 Hz-20 KHz. HD: 0.3%; N level -65 dB. Inputs: magnetic PU variable 1.5-100 mV 47K, crystal/ceramic variable 200 mV-3V 1M, tape variable 200 mV-3V 1M. Controls: tuning and presets, volume, balance, mono L, mono R, speakers pair 1, speakers pair 2, low filter (80 Hz 12 dB per octave), high filter (4 KHz 12 dB per octave), bass ± 17 dB at 50 Hz, treble ± 14 dB at 10 KHz. Features include: FETs, ceramic filters, integrated circuits, special tuning device, variable input sensitivities, slider controls. Mains: 110, 130, 220, 240V 50/60 Hz. Dimensions: $22\frac{3}{4} \times 10\frac{1}{4} \times 3\frac{3}{4}$ in. Prices: teak £139 10s, rosewood £140 10s (including PT).

BRYAN AMPLIFIERS LTD

18 Greenacres Road, Oldham, Lancs.
Tel: 061-624 4074.

6000

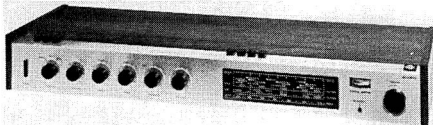
Solid state stereo tuner/amplifier. Range: 88.5-108 MHz. Variable tuning with meter indication. FM detector: ratio. Sensitivity: 2 μ V. Aerial impedance: 80 ohms coaxial. Output voltage: 150 mV at 30% modulation. Multiplex decoder fitted. AFC. Power output: 20W per channel RMS, 4-15 ohms. HD 0.25%. FR 35 Hz-33 KHz at 1W ± 1 dB. Feedback -60 dB. Inputs: magnetic pickup, 3 mV, 50K, noise level -60 to 70 dB; ceramic pickup, 40 mV, 100K, noise level -52 to 60 dB; radio, tape and aux, 75 mV. 50K, -60 to 70 dB. Controls: volume and on-off; balance; bass; treble; selector; mode; monitor; rumble filter. Psn mains. Dimensions: $17\frac{1}{4} \times 12 \times 5\frac{3}{8}$ in. Price: £82 16s (plus £20 5s PT); (chassis model) £77 13s (plus £19 5s PT).

BUSH

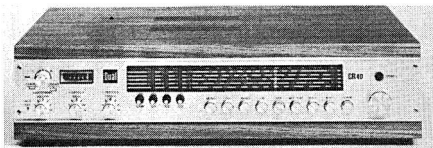
Rank Bush Murphy Ltd, Power Road,
Chiswick, London, W4. Tel: 01-994 6491.



Beomaster 3000



Bush A758



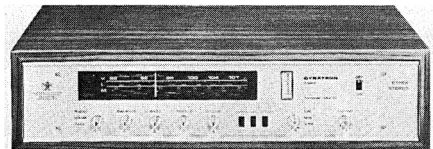
Dual CR40



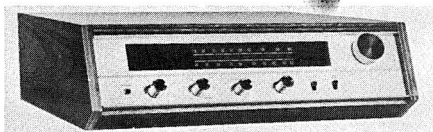
Duette SAT260



Duette SAT460



Dynatron TRV21



Eagle SMC20



Eagle SMC60

Bush Sound System A758 ★

AM/FM tuner/amplifier. Range: FM 88-108 MHz, MW 187-570 m, LW 1070-1900 m. Variable tuning. Ratio detector. Meter tuning indicator. AFC on FM/VHF. Sensitivity: 2 μ V. Aerial impedance: 75 ohms coaxial. Output of tuner section 2.2V max on AM, 1.5V max on FM. Stereo decoder fitted. Stereo audio amplifier. All transistorised. Output: 11W RMS per channel into 4 ohms. HD <0.5% at maximum rating. FR 40 Hz-20 KHz \pm 3 dB. Noise level: 36 dB ref 50 mW. Input voltage to audio amplifier for rated output: 82 mV. Output impedance: 4-16 ohms (max power at 4 ohms). Mains: 220-250V AC without tapings. Sockets recessed at back to avoid cable clutter. Size: 4 $\frac{3}{8}$ \times 31 $\frac{3}{8}$ \times 9 $\frac{3}{8}$ in. Price: £57 19s 1d (plus £13 12s 9d PT).

DUAL

Dual Electronics Ltd, Paramount Industrial Estate, Mill Road, Stokenchurch, Bucks. Tel: Radnage 3467/8.

CR40 ★

Transistorised tuner amplifier. Power output: 16W RMS per channel, 20W music power. HD <0.3% at 15W RMS. Power bandwidth: 20 Hz-30 KHz (DIN). FR 15 Hz-30 KHz \pm 1.5 dB. Range: as for CT16 stereo tuner. S/N: better than 50 dB below 50 mW. Inputs: magnetic PU 3 mV at 47K, equalised CCIR; tape 400 mV at 470K flat; ceramic PU 400 mV at 470K flat. Controls: tuning, volume/loudness, bass \pm 14 dB at 40 Hz, treble \pm 14 dB at 15 KHz. Switchable loudness compensation. Push-button selector, wave change and AFC. Tuning: variable. Psn 110-240V 50 Hz. Dimensions: 16 $\frac{1}{2}$ \times 4 $\frac{1}{2}$ \times 11 $\frac{1}{4}$ in. Weight: 12.8 lb. Price: £144 3s (plus £33 18s 3d PT).

DUETTE

Distributors: J. J. Silber Ltd, 11 Northburgh Street, London, EC1. Tel: 01-253 8031.

SAT260 ★

Stereo tuner/amplifier. Range: 88-108 MHz, 187-560 m. Variable tuning. AFC. Foster-Seeley discriminator. Meter tuning indicator. Sensitivity: FM 3.5 μ V, AM 10 μ V. Aerial impedance: 80 ohms. Stereo decoder fitted. Output: 12W RMS per channel. HD: <1% at rated output. FR: 20 Hz-25 KHz \pm 0.5 dB. Noise level: -55 dB. Inputs: mag PU 3 mV, crystal PU 50 mV, aux 200 mV, tape 200 mV. Output impedance: 4, 8, 16 ohms. Size: 3 $\frac{7}{8}$ \times 14 $\frac{1}{4}$ \times 11in. Mains: 240V AC. Price: £59 2s (plus £14 15s 9d PT).

SAT460 ★

Stereo tuner/amplifier. Range: 88-108 MHz, 187-560 m. Variable tuning. AFC. Foster-Seeley

discriminator. Meter tuning indicator. Sensitivity: FM 2 μ V for 20 dB quieting, AM 10 μ V for 10 dB quieting. Aerial impedance: 80 ohms. Stereo decoder fitted. Output: 12W RMS per channel. HD: <1% at rated output. FR: 20 Hz-25 KHz \pm 0.5 dB. Noise level: -55 dB. Inputs: mag PU 3 mV, tape 200 mV, aux 200 mV. Output impedance: 4, 8, 16 ohms. Size: 4 $\frac{1}{2}$ \times 16 $\frac{1}{4}$ \times 11 $\frac{1}{2}$ in. Mains: 240V AC. Price: £79 14s 6d (plus £19 19s 2d PT).

DYNATRON RADIO LTD

St Peters Road, Furze Platt, Maidenhead, Berks. Tel: Maidenhead 23331.

TRV 21 ★

Stereo transistorised AM/FM tuner/amplifier. Ranges: 87-108 MHz, MW 185-570 m, LW 1100-2000 m. Variable tuning. Ratio detector. Meter tuning indicator. Sensitivity: 5 μ V for 20 dB quieting. Aerial input VHF: 75 ohms coaxial. Stereo decoder fitted. AFC. Output: 8W per channel at less than 1% distortion. FR: (\pm 3 dB) 40 Hz-16 KHz at $\frac{1}{2}$ W. Noise level -90 dB. Output impedances: speakers 4 ohms, ear-phones 8 ohms or greater. Inputs: tape 35 mV 20K, noise level -70 dB; crystal PU 75 mV 100K (special correction), noise level -60 dB; magnetic PU 5 mV, noise level -60 dB. Controls: tuning, balance, input selector, bass, treble, volume, loudness, AFC, filter, on/off. Size: 19 \times 14 \times 5 $\frac{1}{4}$ in. Mains: 240V AC only. Price: £82 10s (including PT).

EAGLE PRODUCTS

Distributors: B. Adler & Sons (Radio) Ltd, Coptic Street, London, WC1. Tel: 01-636 9606/7. Cables: Reldab, London.

SMC10

Stereo tuner/amplifier. Range: FM 88-108 MHz, MW 187-560 m. Stereo decoder fitted. Output: 3.5W per channel. FR 30 Hz-18 KHz. S/N better than 50 dB. Inputs: PU 250 mV, tape 300 mV. Size: 6 $\frac{1}{4}$ \times 15 \times 9 $\frac{3}{8}$ in. Price: £32 18s 6d (plus £6 11s 6d PT).

SMC20 ★

Stereo tuner/amplifier. Range: FM 88-108 MHz, MW 187-560 m. Stereo decoder fitted. Output: 5W RMS per channel. FR 25 Hz-20 KHz. S/N better than 55 dB. Inputs: PU 250 mV, tape 300 mV. Designed to accommodate Garrard 20 Series gram unit which drops into optional cut-out in top of cabinet. Size: 5 $\frac{1}{8}$ \times 16 $\frac{1}{2}$ \times 15 $\frac{3}{8}$ in. Price: £52 5s (plus £12 15s PT).

SMC60 ★

Stereo tuner/amplifier. Range: FM 88-108 MHz, MW 187-560 m. Stereo decoder fitted. Output: 15W RMS per channel. FR 25 Hz-25 KHz. S/N better than 55 dB. Inputs: mag PU 3 mV, tape

★ Indicates entry is illustrated

300 mV. Designed to accommodate Garrard 20 Series gram unit which drops into optional cut-out in top of cabinet. Size: $5\frac{1}{8} \times 16\frac{1}{2} \times 15\frac{3}{4}$ in. Price: £76 9s (plus £18 11s PT).



Fisher 400 FM/stereo tuner amplifier

FANTAVOX

Distributors: B. H. Morris & Co (Radio) Ltd,
84-88 Nelson Street, London E1 2DY.
Tel: 01-790 4824.

SR-542

Stereo tuner/amplifier. Range: FM 88-108 MHz, MW 187-560 m. Sensitivity: FM $10 \mu\text{V}$ for 500 mW. SN: FM 50 dB, AM 35 dB. Output: 5W RMS per channel. FR: 50 Hz-15 KHz. Inputs: mag PU 5 mV, ceramic PU 40 mV, aux 200 mV. Bass control: ± 10 dB at 50 Hz. Treble control: ± 10 dB at 10 KHz. Output impedance: 8 ohms. Mains: 240V 50 Hz. Consumption: 40VA. Size: $4 \times 16\frac{5}{8} \times 8\frac{5}{8}$ in. Weight: $11\frac{1}{2}$ lb. Price: £46.

SR-544

Stereo tuner/amplifier. Range: FM 88-108 MHz, MW 187-560 m. Sensitivity: FM $10 \mu\text{V}$ for 500 mW, AM $300 \mu\text{V}$ for 500 mW. SN: FM 50 dB, AM 35 dB. Output: 5W RMS per channel. FR: 50 Hz-15 KHz. Inputs: mag PU 5 mV, ceramic PU 40 mV, aux 200 mV. Bass control: ± 10 dB at 50 Hz. Treble control: ± 10 dB at 10 KHz. Output impedance: 8 ohms. Mains: 230-250V 50Hz. Consumption: 40VA. Size: $4 \times 16\frac{5}{8} \times 8\frac{5}{8}$ in. Weight: $11\frac{1}{2}$ lb. Price: £52.

FARNELL

A. C. Farnell Ltd, Farnell House,
81 Kirkstall Road, Leeds. Tel: Leeds 35111.

Farnell F2100

Stereo tuner/amplifier. Range: FM 88-108 MHz, MW 187-555 m. Variable tuning. Meter tuning indicator. Sensitivity $15 \mu\text{V}$ for 30 dB quieting. Aerial input (FM) 300 ohms balanced. Ferrite rod for AM. Output: 4.5W RMS per channel. Stereo decoder fitted. AFC. Mains: 110-220V AC. Size: $4\frac{1}{2} \times 16\frac{1}{2} \times 10$ in. Price: £40 (plus £9 17s 6d PT).

FISHER RADIO CORPORATION

Distributors: Getz Bros & Co Inc,
2 Harewood Place, London W1R 0DD.
Tel: 01-499 6901.

160-T

Stereo. Five vertical dials covering FM band with five pre-selected station push buttons. Stereo beacon ind. Usable sensitivity (IHF standard): $2.2 \mu\text{V}$. AFC. FM stereo separation at 1 KHz 35 dB. RMS output power at 1 KHz: 15W per channel. FR 25 Hz-20 KHz ± 2 dB. H and N (volume at minimum): 85 dB below

rated output, Input sensitivity: PU1 2.5 mV; PU2 7.5 mV; aux 250 mV. Price: £140 14s (inc. PT).

175-T

Stereo. Wavebands: 88-108 MHz and 187-567 m (MW). Incorporates FETs and integrated circuits. Sensitivity: FM $2 \mu\text{V}$, AM $10 \mu\text{V}$. S/N ratio: 65 dB. Sensitivity (alternate channel): 45 dB. Stereo separation: 35 dB. Power output: 20W RMS per channel. FR 20 Hz-20 KHz ± 2 dB. Input sensitivities: as 160-T. Price: £190 1s (inc. PT).

250-T

Stereo. Wavebands as 175-T with two separate modes of tuning. Push buttons for five FM stations and flywheel dial for AM. Sensitivity: FM $2 \mu\text{V}$, AM $10 \mu\text{V}$. S/N ratio: 65 dB. HD: 0.5%. Stereo separation: 38 dB. Power output: 30W RMS per channel. FR 20 Hz-20 KHz ± 2 dB. Sensitivities: as 160-T. Price: £229 19s (inc. PT).

400-T ★

Stereo. Wavebands as 175-T, with push-button tuning for five FM stations, flywheel tuning for AM. Stereo beacon ind. Auto mono/stereo switching and a d'Arsonval tuning meter. AFC. Sensitivity: FM $2 \mu\text{V}$, AM $10 \mu\text{V}$. S/N ratio: 65 dB. HD: 0.5%. Stereo separation: 38 dB. Power output: 50W RMS per channel. FR 20 Hz-25 KHz ± 2 dB. Input sensitivities as 160-T. Price: £270 18s (inc. PT).

800-T

Stereo. Wavebands as 175-T with four methods of tuning; RK-30 AutoScan signal-seeking with remote control, flywheel tuning, AutoScan Touch Tuning and Tune-O-Matic push button memory tuning. Crystal FM-IF filter and dual gate RF MOS FETs. Sensitivity: FM $1.7 \mu\text{V}$; AM $10 \mu\text{V}$. HD 0.4%. Stereo separation: 38 dB. Power output: 65W RMS per channel. FR 20 Hz-25 KHz ± 1.5 dB. Input sensitivities: PU1 2.5 mV, PU2 10 mV; aux 250 mV. Price: £338 2s (inc. PT).

GOODMANS LOUDSPEAKERS LTD

Axiom Works, Lancelot Road, Wembley,
Middx. Tel: 01-902 1200.

Model 3000

Solid state stereo. Range: 87.5-108 MHz. Five push buttons. Multiplex decoder. Switchable AFC. Sensitivity: 3 μ V for 26 dB signal/noise ratio. HD less than 0.5%. Power output: 15W per channel RMS into 4 ohms. FR 30 Hz-20 KHz \pm 3 dB. Tone controls: 0 dB at 1 KHz; bass \pm 14 dB at 50 Hz; treble +12 dB to -15 dB at 10 KHz. Aerial impedance: 240 ohms balanced. Record player socket (DIN 5-pin) magnetic pickup input 6.8 mV into 47K. Ceramic pickup input 220 mV into 1.2 M. Tape socket (DIN 5-pin) input 300 mV into 56K; VHF output 60 mV at 68K with 1 μ V input. Aux socket (DIN 5-pin) input 20 mV into 6.8K. Stereo headphone socket (automatic speaker muting), recommended impedance 300-600 ohms. Overall dimensions: 4 \times 21 $\frac{3}{4}$ \times 10 $\frac{3}{4}$ in. Weight: 14 lb. Psn 120, 220 and 245V, 50 Hz, 20-80W. Price: £77 14s 7d (inc. £16 5s 4d PT).

GRUNDIG (Great Britain) LTD

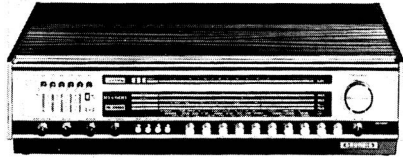
Hi-Fi Division, 15 Orchard Street, London, W1.
Tel: 01-935 4898.

RTV400

Transistorised stereo tuner/amplifier. 43 transistors, 37 diodes. Range: VHF 87.5-108 MHz, LW 680-2050 m, MW 185-587 m, SW 18.5-55.6 m. Eight FM station pre-selectors. Output: 20W RMS per channel. Output impedance: 4-16 ohms. HD: 0.5% at rated output. FR: (audio stages) 40 Hz-16 KHz \pm 1.5 dB. Stereo decoder fitted. Automatic stereo switching. Stereo beacon. Aerials: internal ferrite rod for AM, FM dipole 240 ohms. Sensitivity: FM 2 μ V, MW 15 μ V, SW 3.5 μ V. IFs: 460 KHz and 10.7 MHz. AFC. Stereo separation: >35 dB at 1 KHz. Inputs: mag PU 3 mV 47K, crystal PU 200 mV, tape 200 mV. Noise level: (tape socket) -80 dB, (mag PU socket) -55 dB. Bass control: -20 dB +13 dB at 40 Hz. Treble control: -15 dB +13 dB at 16 KHz. Balance control: +3 dB -10 dB. Automatic overload cut-out. Size: 4 $\frac{1}{4}$ \times 22 \times 11 in. Price: £172 6s 5d (including PT).

RTV650 ★

Transistorised stereo. Ranges: VHF 87.5-108 MHz, LW 680-2050 m, MW 185-587 m, SW1 34-99 m, SW2 13.5-35 m, SW fine tuning \pm 60 KHz of SW bands. Sensitivity: FM 1.5 μ V, AM (MW) 6.5 μ V. IFs: 460 KHz and 10.7 MHz. AFC. Noise level: -70 dB at 40 KHz deviation. Distortion factor: <0.5%. FR 40 Hz-15 KHz \pm 2 dB. Stereo decoder with automatic switching and stereo beacon. Separation: better than 40 dB at 2 KHz. Aerials: internal ferrite rod, FM dipole 240 ohms. 3 KHz and 5 KHz treble



Grundig RT650



Eurovox Halcyon 293

filters. Output: 20W RMS per channel. FR (audio stages) 20 Hz-20 KHz \pm 1.5 dB. Inputs: mag PU 3 mV 47K, tape 200 mV 470K. Output impedance: 4-16 ohms. Automatic overload cut-out. Bass control: -20 dB +15 dB at 20 Hz. Treble control: -20 dB +15 dB at 20 KHz. Mains: 110, 130, 220, 240V 50-60 Hz. Consumption (no load): 30W. Size: 24 \times 6 \times 12 in. Price: £243 17s 10d (including PT).

HALCYON

Distributors: Eurovox Ltd, The Power House,
Headstone Lane, Harrow, Middlesex.
Tel: 01-428 1021/4.

Halcyon 293 ★

Transistor tuner/amplifier. Range: FM 87.5-101 MHz, MW 186-571 m, LW 1170-2050 m. Variable tuning. Switchable AFC. Inputs: ceramic PU, tape. Controls: treble and on-off, bass, volume, balance, mono/stereo, tape, gram, radio, AFC, tuning. 15 transistors, 6 diodes. Output: 4W RMS per channel. Output impedance: 12 ohms. Mains AC. Internal ferrite rod for AM, socket for FM dipole. Finish: teak. Price: £44 7s 2d (including PT).

HENELEC ELECTRONIC PRODUCTS

Henry's Radio Ltd. 303. 309. 354. 356
Edgware Road, London, W2.
Tel: 01-723 1008/9.

Stratosphere

Stereo tuner/amplifier. Range: FM Band II. Output: 4W RMS per channel. Output impedance: 3-15 ohms. Input for ceramic pickup. Headphone socket. AC mains. Plug-in stereo

★ Indicates entry is illustrated

decoder optional extra. Finish: solid teak. Price: £45 (including PT); stereo decoder £6 extra.

KORTING

Distributors: Europa Electronics Ltd, Howard Place, Shelton, Stoke-on-Trent ST1 4NW. Tel: Stoke-on-Trent 29316.

Stereo 400T, Type 30476 ★

Stereo. In natural walnut colour cabinet with satin finish. Ranges: SW, MW, LW, VHF/FM. Tuning indicator with measuring instrument and compensated detector/amplifier. FM sensitivity: $3\mu\text{V}$, band width approximately 140 KHz. Ferrite aerial for AM. Multiplex decoder with indicator. AFC. It has 23 transistors, 11 diodes and one rectifier. Output: 8W per channel. Controls: bass, treble, balance and push button waveband selection. Sockets for aerials, earth, magnetic pickup, tape recorder (and crystal pickup), speakers. Size: $22 \times 4\frac{1}{2} \times 7\text{in}$. Price: £63 19s (plus £15 16s PT).

Stereo 700, Type 29478

Stereo, with natural walnut, satin finish. Ranges: SW, MW, LW, VHF/FM. Tuning indicator. Sensitivity: FM $1.5\mu\text{V}$, AM $10\mu\text{V}$. Ferrite aerial for MW and LW. Multiplex decoder with automatic indicator. AFC. It has 35 transistors, 15 diodes and one rectifier. Controls: bass, treble, balance, push button waveband selection. Output: 10W per channel. Sockets for aerials, earth, crystal, ceramic and magnetic pickup; tape recorder, speakers; earphone or headphone. Dimensions: $6 \times 25 \times 9\frac{1}{2}\text{in}$. Price: £100 0s 9d (plus £24 14s 3d PT).

Stereo 1000L, Type 29480 ★

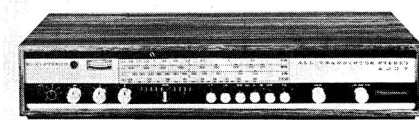
Stereo, in natural walnut cabinet with satin finish. Ranges: SW, MW, LW and VHF/FM. Tuning indicator with measuring instrument in a compensated bridge circuit. Sensitivity: FM $1.5\mu\text{V}$, AM $10\mu\text{V}$. Ferrite aerial for MW and LW. Multiplex decoder with automatic indicator. AFC. It has 39 transistors, 16 diodes and two rectifiers. Output: 25W per channel. Controls: treble, bass, balance, push button wave-change. Sockets for aerials, earth, magnetic, crystal or ceramic pickup; tape recorder, earphone, speakers. Dimensions: $25 \times 6 \times 9\frac{1}{2}\text{in}$. Price: £112 1s 3d (plus £27 13s 9d PT).

LAFAYETTE

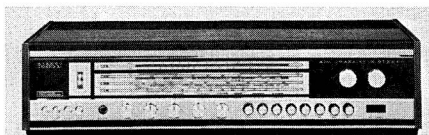
Barnet Factors Ltd, 147 Church Street, London, W2. Tel: 01-723 5328.

Lafayette LR-99

Solid state stereo, AM/FM. Range: 88-108 MHz, 540-1,605 KHz. Sensitivity: FM $3\mu\text{V}$. Stereo separation: 32 dB at 400 Hz. Aerial: 75 ohms unbalanced (FM); built-in ferrite (AM).



Korting Stereo 400T



Korting Stereo 1000L



Lux HQ555

Power output: 10W per channel RMS at 8 ohms. FR 20 Hz-20 KHz $\pm 2\text{ dB}$ at 1W. HD 0.5%. H and N - 50 dB on magnetic pickup. Input: magnetic pickup 3 mV; ceramic 80 mV; auxiliary 250 mV. Bass control at 50 Hz. $\pm 20\text{ dB}$. Treble at 10 KHz, $\pm 20\text{ dB}$. Loudness control: 10 dB at 50 Hz, 4.5 dB at 10 KHz. Output impedance: 4, 8, 16 ohms; low impedance stereo headphone. Size: $4\frac{1}{16} \times 13\frac{1}{8} \times 10\text{in}$. Price: £60 12s 5d (plus £16 13s 5d PT).

Lafayette LR-500T

Solid state AM/FM stereo. Range: 88-108 MHz, 535-1,605 KHz. Sensitivity: FM $1.8\mu\text{V}$. S/N ratio: 67 dB. Distortion: 0.5% at full mod. Stereo separation (tuner): 35 dB at 400 Hz. Power output: 4-16 ohms; 20W per channel RMS at 4 ohms. FR 22 Hz-40 KHz. HD less than 1% at full output. Inputs: magnetic pickup 2.2 mV; aux 270 mV; tape 500 mV. Four integrated circuits. Cabinet size: $5 \times 15 \times 12\text{in}$. Price: £74 2s 3d (plus £20 7s 8d PT).

Lafayette LR-1000

Solid state AM/FM stereo. Sensitivity: FM $1.65\mu\text{V}$. Tuner stereo separation: 38 dB at 400 Hz. Signal-to-noise ratio: 68 dB. HD 0.4% at full mod. FM aerial impedance: 300 ohms. Power output: 40W per channel RMS at 4 ohms. FR 22 Hz-20 KHz $\pm 1\text{ dB}$. HD less than 1%. H and N: tape head -57 dB; pickup (high) -57 dB; aux -75 dB. Inputs: tape head 2.5 mV; pickup (high) 2.2 mV; pickup (low) 7 mV; aux 270 mV. Output impedance: 4-16 ohms; low impedance stereo headphones. Computer-matic TM pro-

tective circuitry for audio power stages. Integrated circuits. FET in tuner front end. Separate bass and treble controls. Cabinet size: $4\frac{3}{8} \times 15\frac{3}{8} \times 11\frac{13}{16}$ in. Price: £94 16s 1d (plus £26 1s 5d PT).

LUX

Distributors: Shriro (UK) Ltd, Electronics Division, Lynwood House, 24-32 Kilburn High Road, London, NW6. Tel: 01-624 9102.

HQ555 ★

AM/FM multiplex stereo. Transistorised. Range: 76-90 MHz, 187-570 m. Tuning: variable. Tuning indicator: meter. H and N: better than -60 dB on pickup 1. FR 20 Hz-20 KHz ± 1 dB. HD <1% at 50W. Inputs: tape 2 mV 100K, pickup 1 2 mV 50K, pickup 2 50 mV 500K. Controls: volume, balance, treble, bass, tuning, loudness, mode, HP filter, LP filter, selector, speaker/phones switch. Psn 240V 50 Hz. Special features include FET devices in tuner. Dimensions: $5\frac{1}{4} \times 17\frac{3}{4} \times 12\frac{5}{8}$ in. Price: £168 (including PT).

LUXOR

Distributors: Luxitone, 84 Bolsover Street, London, W1. Tel: 01-636 2901.

Luxor 4987

Stereo tuner/amplifier. Transistorised. Output: 9W RMS per channel. Output impedance: 4 ohms. HD: 3% at rated output. FR 35 Hz-18 KHz ± 2 dB. Inputs: ceramic PU 250 mV 47K, tape 250 mV 47K. Range: 87-101 MHz. Variable and preset tuning. FM sensitivity: 4 μ V for limiting. AFC. Multiplex decoder fitted. Size: $3 \times 18\frac{3}{4} \times 9$ in. Price: £46 15s (plus £11 PT).

Luxor 4988 ★

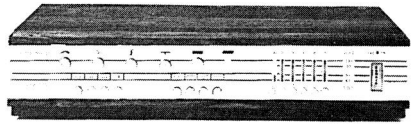
Stereo tuner/amplifier. Transistorised. Output: 20W RMS per channel. Output impedance: 4 ohms. HD: 2% at rated output. FR 20 Hz-20 KHz ± 2 dB. Inputs: ceramic PU 150 mV, magnetic PU 4 mV, tape 50 mV, mic 1.5 mV. FM range: 87-101 MHz. Variable and preset tuning. AFC. Multiplex decoder fitted. Size: $4\frac{1}{2} \times 21\frac{1}{4} \times 10$ in. Price: £75 13s (plus £17 16s PT).

NATIONAL

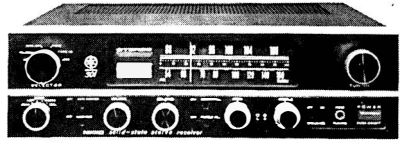
UK distributors: Unamec Ltd, P.O. Box 1, United Africa House, Blackfriars Road, London, SE1. Tel: 01-928 2070.

National SA-54

Solid state stereo FM. Range: 88-108 MHz. Variable tuning with Luminaband indicator. FM detector: Foster-Seeley. Sensitivity: 1.8 μ V. Aerial: 300 ohms balanced. Output: 32W per channel. Multiplex decoder. AFC. Psn mains. Dimensions: $5\frac{1}{8} \times 19\frac{3}{8} \times 14$ in. FETs. Full range controls: high/low filter, muting, loudness,



Luxor 4988



Nikko ST501



Nikko 701-B

ceramic filter, three switched aux, power sockets, ceramic-magnetic input. Price: £121 16s (plus £32 4s PT).

NIKKO ELECTRIC MFG CO LTD

Distributors: Howland-West Ltd, 2 Park End, South Hill Park, London, NW3. Tel: 01-794 6666 and 6033.

Nikko ST501 ★

Transistor AM/FM. Range: VHF 88-108 MHz, MW 182-565 m. Variable tuning. Meter tuning indicator. Sensitivity: 1.8 μ V for 20 dB quieting. Aerial input: 300 ohms balanced. Multiplex decoder fitted. AFC. Inputs: mag PU 2.8 mV 50K, tape head 1.8 mV 250K, aux (1) 200 mV 250K, aux (2) 500 mV 1 megohm. Noise level: PU -60 dB, tape -55 dB, aux -65 dB. Controls: selector, tuning, volume, speaker on/off, mode, tape monitor, loudness, balance, bass (left and right), treble (left and right), mains on/off, local/distance. Output: 18W RMS into 8 ohms. HD 0.8% at rated output. FR 20 Hz-20 KHz ± 1 dB at full power. Output impedance: 4-16 ohms. Mains: 117-240V 50/60 Hz. Size: $15\frac{1}{4} \times 12\frac{3}{4} \times 4\frac{3}{8}$ in. Price: £98 (plus £23 17s 11d PT).

Nikko ST701-B ★

Transistor AM/FM. Range: VHF 88-108 MHz, MW 182-565 m. Variable tuning. Field effect transistor FM detector. Meter tuning indicator. Sensitivity: 1.8 μ V for 20 dB quieting. Multiplex decoder fitted. Switched AFC. Inputs: PU (mag) 2.8 mV 50K, tape head 1.8 mV 200K, aux 200

★ Indicates entry is illustrated

mV 250K, aux 500 mV 800K. Controls: mode, function, volume, balance, bass (one on each channel), treble (one on each channel), tape monitor, loudness, scratch filter, rumble filter, muting, AFC, speaker on/off, mains on/off. Output: 25W RMS per channel at 8 ohms. HD <0.3% at 20W, <0.8% at 25W. FR 15 Hz-50 KHz. Noise level: tape - 55 dB, mono - 60 dB, aux - 65 dB. Output impedance: 4-15 ohms. Mains: 117-250V 50/60 Hz. Automatic circuit breaker. Size: $15\frac{1}{2} \times 4\frac{1}{2} \times 12\frac{3}{4}$ in. Price: £109 10s (plus £26 13s 11d PT).

Nikko STA-301 ★

Stereo transistorised tuner/amplifier. Range: 88-108 MHz, 187-560 m. Variable tuning. Meter tuning indicator. Sensitivity (for 20 dB quieting): 2 μ V. Stereo decoder fitted. Output: 12W per channel, less than 0.8% distortion. FR (± 1 dB): 20 Hz-50 KHz. Output impedance: 4-16 ohms. Inputs: gram 2.8 mV 50K, noise level - 60 dB, tape 1.8 mV 200K, aux 200 mV 330K. Controls: tuning, volume, balance, loudness, function, mono/stereo, bass, treble. Size: $14\frac{1}{4} \times 12\frac{3}{4} \times 4\frac{1}{2}$ in. Mains: 110-120/220-240V AC. Price: £80 (plus £19 10s 2d PT).

Nikko STA-1101

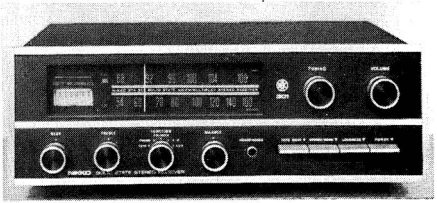
Stereo transistorised tuner amplifier. Range: 88-108 MHz and 187-560 m. Variable tuning. Meter tuning indicator. Sensitivity (for 20 dB quieting): 1.5 μ V. Stereo decoder fitted. AFC. Output: 37W per channel at 0.3% distortion. FR (± 1 dB): 10 Hz-70 KHz. Output impedance: 4-16 ohms. Inputs: gram 2 mV 50K, tape 200 mV 100K, mic 2 mV 100K. Controls: FM tuning, AM tuning, function, volume, loudness, balance, bass, treble, remote speaker selector, remote speaker volume control. Includes six FETs and 12 ICs. Size: $18\frac{1}{2} \times 14\frac{3}{8} \times 6\frac{1}{2}$ in. Mains: 120/220/240V AC. Price: £198 (plus £48 5s 7d PT).

NIVICO

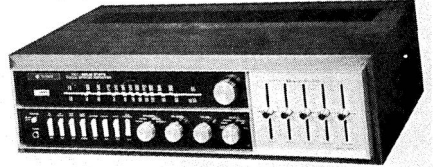
Distributors: Denham and Morley (Overseas) Ltd, 453 Caledonian Road, London, N7.
Tel: 01-607 6568.

5001 ★

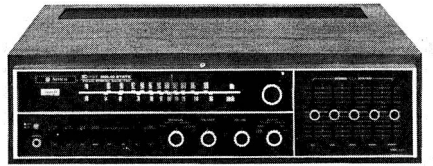
Stereo AM/FM tuner amplifier. Range: FM 88-108 MHz, AM 187-560 m. Sensitivity: FM 2 μ V, AM 30 μ V. Four FM IF stages. Stereo decoder fitted. Built-in ferrite rod for AM. Tuning meter. Automatic stereo beacon. Output: 25W RMS per channel. Output impedance: 4-16 ohms. HD: <0.8% at 1 KHz. FR: 20 Hz-20 KHz. Inputs: mag PU 1.8 mV, crystal PU 140 mV, tape head 1.9 mV, tape play 115 mV, aux 115 mV. Equalisation: mag PU RIAA. SN: mag PU - 65 dB, tape head - 65 dB, aux - 70 dB. S.E.A. system (sound effect amplifier). Centre frequencies: 60 Hz, 250 Hz, 1 KHz, 5 KHz, 15 KHz. Control range: ± 10 dB. Mains:



Nikko STA-301



Nivico 5001



Nivico 5040

100-240V 50/60 Hz. Consumption: 125W maximum. Size: $4\frac{3}{8} \times 20 \times 13\frac{1}{4}$ in. Weight: 28 $\frac{1}{2}$ lb. Price: £176 (including PT).

5040 ★

Stereo AM/FM tuner/amplifier. Range: FM 88-108 MHz, MW 187-560 m. Sensitivity: FM 1.8 μ V, AM 20 μ V. Five FM IF stages. Semi-variable inter-station muting. Stereo decoder incorporated. Automatic stereo switching. Stereo beacon. Ferrite rod aerial for AM. Output: 82.5W per channel into 4 ohms, 75W per channel into 8 ohms (both continuous power). Output impedance: 4-16 ohms. HD: <0.5% at rated output. FR: 10 Hz-20 KHz ± 1 dB. Inputs: mag PU 1.5 mV, crystal PU 250 mV, tape head 1.5 mV, tape play 150 mV, aux 115 mV. Equalisation: mag PU RIAA. SN: mag PU - 70 dB, tape head - 70 dB, aux - 80 dB. S.E.A. system (sound effect amplifier). Centre frequencies: 60 Hz, 250 Hz, 1 KHz, 5 KHz, 15 KHz. Control range ± 10 dB. Mains: 100-240V 50/60 Hz. Consumption: 280W maximum. Size: $5\frac{3}{8} \times 20\frac{3}{4} \times 15\frac{1}{2}$ in. Weight: 36 lb. Price: £240 12s (including PT).

NORDMENDE

Distributors: TAK Continental Importers, 16a High Street, Stone, Staffordshire.
Tel: Stone 3232, 3233.

5001

Slimline stereo tuner/amplifier. Ranges: VHF, 49-m band, MW, LW. Fitted with decoder and beacon. Switchable AFC. Illuminated tuning meter. Output: 6W RMS per channel. Includes mesa transistors. Finishes: walnut, teak, elm or Rio rosewood. Dimensions: 21 × 8 × 4in approx. Price: £93 9s (including PT).

5002

Stereo tuner/amplifier only 3in high. Ranges as 5001. Electronic mono/stereo switching with indicator, ICs, ceramic IF filters, panoramic scale. Output: 2½W RMS per channel. Finishes: as 5001. Dimensions: 22 × 8 × 3in approx. Price: £93 9s (including PT). With two LB31, LB32 or LB33 speakers.

7001

Bands and stereo facilities similar to 5002. Automatic precision tuning on VHF. Inbuilt aerials. Output: 17W RMS per channel. Finishes: as 5002. Dimensions: 24 × 8 × 5in approx. Price: £103 19s (including PT). With two LB31, LB32 or LB33 speakers.

PHILIPS ELECTRICAL LTD

Century House, Shaftesbury Avenue, London, WC2. Tel: 01-437 7777.

RH790 ★

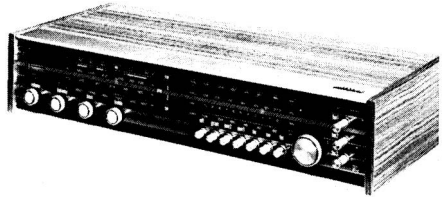
Solid state stereo AM/FM. Range: 87.5-104 MHz, 187-571 m, 1,154-2,000 m, 16.7-50.4 m. Tuning: AM variable; FM variable and pre-set. Ratio FM detector. Tuning indicator: meter. Sensitivity: FM 8 µV; AM 100 µV. Aerial: 300 ohms balanced. Multiplex decoder with indicator lamp. Switchable AFC. Touch tuning electronically switched presets on FM with varicap tuner unit. Power output: 20W per channel RMS into 8 ohms. HD <0.2% at 15W per channel. FR 20 Hz-50 KHz 3 dB below 20W. Noise-level: 80 dB below 20W. Output: 20W RMS at 1 KHz, 8 ohms (provision for 4 ohms at reduced power). Output transistors: four BDY20. Psn 110, 127, 220, 240V. Inputs: magneto/dynamic pickup 4 mV, 50K; crystal pickup 70 mV, 150K; tape 100 mV, 120K. Controls: volume, bass +16 to -14 dB at 50 Hz; treble ±14 dB at 10 KHz; scratch -12 dB/octave -3 dB at 4 KHz (switchable); low level bass compensation +12 dB max at 50 Hz (switchable). Dimensions: 4¾ × 20¾ × 10¼in. Price: £125 (including PT).

RH781 ★

Solid state stereo AM/FM. Range: 87.5-104 MHz, 185-580 m, 800-2,000 m, 30.6- 50.4 m. Tuning: AM variable; FM adjustable preset. Ratio FM detector. Tuning indicator: meter. Sensitivity: FM 7 µV; AM 70 µV. Aerial: 300 ohms balanced. Multiplex decoder, with indi-



Philips RH790



Philips RH781

cator lamp. AFC. Output: 4.8 ohms; 6.5W per channel RMS into 4 ohms. HD 2% at 4.5W per channel. FR 50 Hz-20 KHz -3 dB. Distortion: 10%. Noise level: 47 dB below 6.5W. Output transistors: two AD161/162. Psn 240V. Inputs: crystal pickup 150 mV, 300K; tape 70 mV, 200K, -47 dB noise level. Controls: volume (loudness) +12 dB at 80 Hz, +6 dB at 12 KHz; bass +15 to -5 dB at 80 Hz; treble +9 to -14 dB at 12 KHz; balance. Dimensions: 4¾ × 20¼ × 8¾in. Price: £60 2s 5d (plus £14 17s 1d PT).

RH882

Solid state stereo tuner/amplifier fitted with Compact cassette tape deck with recording and playback facilities. Five ranges: 87.5-108 MHz, 30.6-50.4 m, 185-214 m, 213-580 m, 800-2000 m. Tuning: variable with 3 presets on VHF. Ratio FM detector. Stereo decoder fitted. Tuning indicator: meter. Sensitivity: (20 dB quieting) FM 7 µV, AM 70 µV. AFC. Aerial: 300 ohms balanced. Power output: 6½W per channel into 4 ohms, 5½W into 8 ohms. HD <2% at 1 KHz for 4½W. FR: 50 Hz-20 KHz into 4 ohms, 35 Hz-20 KHz into 8 ohms. Noise level: >47 dB. Input voltage for stated output power: 130 mV at gram/tape input. Controls: tuning, input/waveband selector, volume, balance, bass, treble, on/off. Mains: 110-127, 220-240V AC. Consumption: 38W. Price: £79 7s 9d (plus £19 12s 3d PT).

PIONEER

Distributor: Shriro (UK) Ltd, Electronics Division, Lynwood House, 24-32 Kilburn High Road, London, NW6. Tel: 01-624 9102.

★ Indicates entry is illustrated

SX330 ★

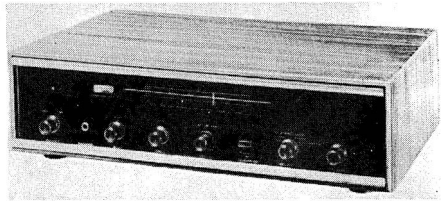
Stereo transistor tuner/amplifier. Range: FM 87.5-108 MHz, MW 187-570 m, SW 25-75 m. Variable tuning. Meter tuning indicator. Sensitivity: FM 3 μ V, MW 10 μ V, SW 28 μ V. Aerial input: FM 300 ohms balanced. Stereo decoder fitted. AFC. FET and three-gang front end. Inputs: mag PU 2.7 mV 50K, aux/tape 240 mV 75K. Noise level: better than 75 dB on PU, better than 85 dB on aux. Controls: mains on/off, bass +11 dB -16 dB at 50 Hz, treble +8 dB -9 dB at 10 KHz, volume left and right, loudness switch. Output: 6W RMS per channel into 8 ohms. FR: 40 Hz-100 KHz. Output impedance: 4-16 ohms. Headphone jack. Mains: 110, 117, 130, 220, 240V AC. Consumption: 25W. Size: $4\frac{3}{4} \times 17\frac{1}{4} \times 11\frac{1}{2}$ in. Price: £42 8s 5d (plus £14 19s 11d PT).

SX440 ★

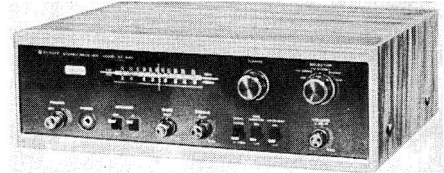
Stereo transistor tuner/amplifier. Range: FM 87-108 MHz, MW 187-570 m. Variable tuning. FM ratio detector. Meter tuning indicator. Sensitivity: FM 2.5 μ V, MW 8 μ V. Aerial input: FM 300 ohms balanced. MW ferrite rod. Stereo decoder fitted. AFC. FET front end. Inputs: mag PU 3 mV, tape monitor 130 mV, aux 130 mV. Noise level: better than 75 dB on PU, better than 85 dB on aux. Controls: mains on/off, bass +13 dB -11 dB at 50 Hz, treble +9.5 dB -10 dB at 10 KHz, volume left and right, mode, tape monitor, switchable loudness contour, speaker selector. Output: 12W RMS per channel. HD: <1% at rated output at 1 KHz. FR: 24 Hz-20 KHz +0.5 dB, -3 dB. Mains: 110, 117, 130, 220, 240V AC. Consumption: 60W maximum. Size: $5\frac{5}{8} \times 16 \times 15$ in. Price: £112 7s 5d (including PT).

SX770 ★

Stereo transistor tuner/amplifier. Range: 87.5-108 MHz, 187-570 m. Variable tuning. Ratio detector. Meter tuning indicator. Sensitivity: FM 1.8 μ V, AM 10 μ V. Aerial input: 300 ohms balanced. Stereo decoder fitted. Switchable AFC. Inputs: mag PU 2.5 mV 50K, ceramic PU 58 mV 100K, mic 5 mV 100K, aux 200 mV 100K, tape monitor 200 mV 100K. Noise level: better than -80 dB at rated output. Controls: mains on-off, bass +13 dB -14 dB at 50 Hz, treble +10 dB -9 dB at 10 KHz, high cut filter -9 dB at 10 KHz, balance, volume, tape monitor, loudness contour, mode, switchable headphone jack. Output: 20W RMS per channel. HD: <0.8% at 1 KHz at rated output. FR: 20 Hz-40 KHz ± 3 dB. Output impedance: 4-16 ohms. Two sets of speaker outlets, switchable to give different combinations. All silicon transistors. Mains: 110, 117, 130, 220, 240V 50/60 Hz. Consumption: 108W maximum. FET FM front end. Two monolithic integrated circuit IF



Pioneer SX330



Pioneer SX440



Pioneer SX770

amplifiers. Size: $5\frac{3}{4} \times 17 \times 13\frac{3}{4}$ in. Price: £127 19s 6d (plus £30 2s 9d PT).

SX990

Stereo transistor tuner/amplifier. Range: FM 87.5-108 MHz, AM 187-570 m. Variable tuning. Ratio detector. Two meters, one for signal strength, one centre zero tuning. Sensitivity: FM 1.7 μ V, AM 18 μ V. Built-in ferrite rod. Stereo decoder fitted. Aerial impedance: 300 ohms balanced. AFC. FET front end. Four monolithic ICs in IF amplifier. Separate AM and FM IF amplifiers. Inputs: mag PU 3.3 mV 50K, ceramic PU 24 mV 100K, aux 200 mV 100K, tape monitor 200 mV 100K, mic 3.3 mV 50K, main amp input 530 mV 100K. Controls: volume, bass +11 dB -16 dB at 50 Hz, treble +10 dB -9.5 dB at 10 KHz, balance, low filter -8 dB at 50 Hz, high filter -9.5 dB at 10 KHz, loudness contour, mains on-off and speaker selector, mode, quiet tuning, tape monitor switch. Centre channel output. DIN tape record/play sockets. Switchable headphone jack. Output: 35W RMS into 8 ohms (one channel driven). HD: <0.5% at rated output at 1 KHz. FR: 10 Hz-100 KHz ± 3 dB. Output impedance: 4-16 ohms. Damping factor: 50 at 8 ohms. Special switchable speaker outlets (two sets). Mains: 110, 117, 130, 220, 240V 50/60 Hz. Consumption: 190W maximum. Size: $5\frac{5}{8} \times 18\frac{1}{2} \times 14\frac{1}{2}$ in. Price: £157 12s 11d (plus £37 10s 9d PT).

SX1500TD

Stereo transistor tuner/amplifier. Range: FM 87.5-108 MHz, MW 187-570 m. Variable tuning. Ratio detector. Two meters, one for signal strength, one centre zero for tuning. Sensitivity: FM 1.7 μ V, AM 18 μ V. Aerial impedance: 300 ohms balanced. Stereo decoder fitted. AFC. FET front end. Four gang tuning condenser. Four integrated circuits in IF amplifier. Inputs: mag PU1 3.3 mV 50K, mag PU2 3.3 mV 50K, ceramic PU 24 mV 100K, mic 3.2 mV 30K, aux 200 mV 100K, tape monitor 200 mV 100K, main amplifier input 480 mV 80K. Noise level: better than 80 dB for high sensitivity inputs, better than 100 dB for low sensitivity inputs. Controls: volume, bass +11 dB -16 dB at 50 Hz, treble +10 dB -9 dB at 10 KHz, balance, microphone level, low filter -8 dB at 50 Hz, high filter -6 dB at 10 KHz, loudness contour, mains on-off and speaker selector, mode, tape monitor, quiet tuning. Centre channel output. Microphone mixing facility. Switchable headphone jack. All silicon transistors. DIN and standard tape record/playback sockets. Output: 58W RMS per channel at 8 ohms (one channel driven), HD: 0.5% at rated output at 1 KHz. FR: 10 Hz-100 KHz. Output impedance: 4-16 ohms. Damping factor: 50 at 8 ohms. Mains: 110, 117, 130, 220, 240V 50/60 Hz. Consumption: 230W maximum. Size: 5 $\frac{3}{4}$ \times 18 $\frac{1}{2}$ \times 14 $\frac{1}{2}$ in. Price: £173 15s 11d (plus £40 17s 11d PT).

ROTEL

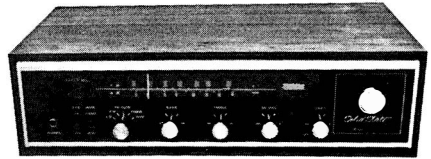
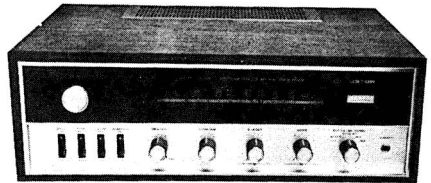
Distributors: Rank Audio Visual Ltd, Rank Aldis—Audio Products, P.O. Box 70, Great West Road, Brentford, Middlesex. Tel: 01-568 9222.

Rotel 130 ★

Stereo AM/FM tuner/amplifier. Range: 88-108 MHz, 187-560 m. Variable tuning. Meter tuning indicator. Sensitivity: FM 2.5 μ V, AM 15 μ V. Aerial input: balanced. Stereo decoder fitted. AFC. Automatic stereo switching on radio. Inputs: mag PU 3 mV, crystal PU 200 mV, aux 200 mV. Noise level: -60 dB on PU inputs, -75 dB on aux input. Controls: AFC on-off, stereo/mono, input selector, bass, treble, balance, loudness, tuning. Output: 8W RMS into 8 ohms at 1 KHz. HD: 0.3% at rated output. FR: 25 Hz-15 KHz -3 dB. Output impedance: 4-8 ohms. Mains: 117-240V AC. Size: 4 $\frac{3}{8}$ \times 16 $\frac{1}{4}$ \times 9 $\frac{7}{8}$ in. Price: £63 17s 6d. (plus £15 19s 8d PT).

FAX-330A ★

Stereo AM/FM tuner/amplifier. Range: FM 88-108 MHz, AM 187-560 m. Variable tuning. Meter tuning indicator. Sensitivity: FM 2.5 μ V, AM 15 μ V. Aerial input: balanced. Stereo decoder fitted. AFC. FET front end. Automatic

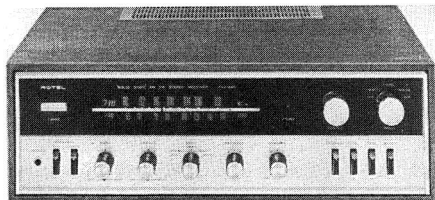
*Rotel 130**Rotel 330**Rotel FAX550*

mono/stereo radio switching. Stereo beacon. Inputs: mag PU 3 mV, crystal PU 200 mV, aux 200 mV. Controls: bass, treble, HF filter on-off, mono/stereo, tape on-off, loudness on-off, balance, tuning, input selector, volume and on-off. Output: 17W RMS per channel into 8 ohms at 1 KHz. HD: 0.3% at rated output. FR: 25 Hz-20 KHz \pm 1.5 dB. Noise level: -60 dB on PU inputs, -75 dB on aux input. Output impedance: 4-16 ohms. Mains: 117-240V. Size: 5 $\frac{1}{8}$ \times 16 $\frac{3}{4}$ \times 10 $\frac{3}{4}$ in. Weight: 11 lb. Price: £76 (plus £19 0s 5d PT).

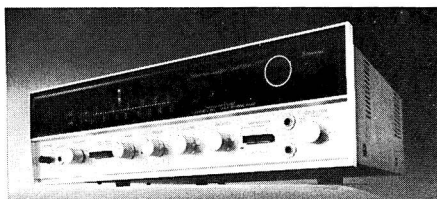
FAX-550A ★

Stereo AM/FM tuner/amplifier. Range: 88-108 MHz, 187-560 m. Variable tuning. Meter tuning indicator. AFC. Sensitivity: FM 2.5 μ V, AM 12 μ V. Aerial input: balanced. Stereo decoder fitted. FET front end. Inputs: mag PU 2 mV, crystal PU 200 mV, aux 200 mV. Noise level: PU inputs -60 dB, aux -75 dB. Controls: bass, treble, balance, volume on-off, input selector, loudness on-off, HF filter on-off, mono/stereo, tape on-off. Output: 22W RMS per channel into 8 ohms. HD: 0.2% at rated output. FR: 15 Hz-35 KHz \pm 1.5 dB. Output impedance: 4-8-16 ohms. Mains: 117-240V AC. Size: 5 $\frac{7}{8}$ \times 16 $\frac{5}{8}$ \times 13 $\frac{1}{2}$ in. Price: £95 10s (plus £23 18s PT).

★ Indicates entry is illustrated



Rotel FAX660



Sansui 5000A



Sansui 350



Sansui 800

FAX-660 ★

Solid state AM/FM stereo, with FET front end. Range: 88-108 MHz, 187-560 m. Sensitivity: FM 2.2 μ V; AM 25 μ V. S/N ratio 67 dB. Variable tuning with indicator meter. Signal to noise ratio: 67 dB. Stereo separation: 35 dB. Output power: 30W RMS per channel at 8 ohms. HD 0.2%. FR 15 Hz-35 KHz 1.5 dB. Input sensitivity: magnetic pickup, high 2 mV, low 5 mV; aux 270 mV. H and N: pickup 60 dB; aux 7.5 dB. Dimensions: 6 $\frac{1}{4}$ × 17 $\frac{3}{4}$ × 13 $\frac{1}{2}$ in. Weight: 17 $\frac{1}{2}$ lb. Price: £103 3s 7d (plus £25 6s 5d PT).

SANSUI

Sole UK importer: Brush Cle vite Co Ltd, Thornhill, Southampton SO9 1QX.

Tel: Southampton 45166.

Distributors for Scotland, North and Midlands: Audio Distributors Ltd, Oldington Trading Estate, Stourbury Road, Kidderminster, Worcs.

Tel: Kidderminster 3293.

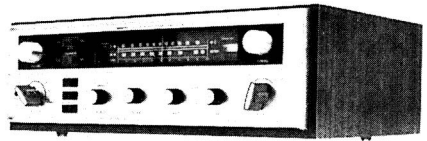
Sansui 350 ★

AM/FM multiplex stereo. Solid state. Range: 88-108 MHz, 535-1,605 KHz. Variable tuning with meter indicator. Sensitivity: 2.5 μ V \pm 3 dB (20 dB quieting) FM: 25 μ V \pm 3 dB at 1 MHz on AM. Inputs: pickup 2.2 mV \pm 3 dB; aux 150 mV \pm 3 dB; tape monitor 150 mV \pm 3 dB; H and N: pickup 60 dB, aux 65 dB. Power output: 18W per channel \pm 1 dB at 8 ohms. FR 30 Hz-20KHz. Distortion: 1%. Dual speaker system. Aerial: 75 and 300 ohms. Controls: tuning, bass, treble, volume, balance, selector, switches for speakers, multiplex noise canceller, loudness, mono mode and tape monitor. Psn 100, 117, 220 and 240V 50 or 60 Hz. Size: 4 $\frac{1}{2}$ × 15 $\frac{13}{16}$ × 13 $\frac{1}{8}$ in. Weight: 19.5 lb. Price: £103 14s 9d (plus £25 7s 1d PT).

Sansui 800 ★

AM/FM multiplex stereo. Solid state with a new FET front end. Range: 88-108 MHz, 535-1,605 KHz. Sensitivity: FM 2 μ V \pm 3 dB (20 dB quieting); AM 22 μ V \pm 3 dB at 1 MHz. Power output: 28W per channel RMS, \pm 1 dB at 4 ohms. HD

less than 1.0%. Inputs: pickup 2.2 mV \pm 3 dB; aux, tape monitor (pin and DIN) 150 mV \pm 3 dB. Damping factor: 60 at 8 ohms. Short-free output terminals for two speaker systems, new type of noise canceller, automatic FM mono/stereo switching with indication. Psn 100, 117, 220 and 240V, 50 or 60 Hz. Consumption: 18VA (zero signal) 110VA (max signal). Dimensions of case only: $4\frac{1}{2} \times 15\frac{13}{16} \times 13\frac{1}{8}$ in. Weight: 23 lb. Price: £117 6s 1d (plus £28 13s 6d PT).



Sanyo DC60E

Sansui 2000

AM/FM stereo. Range: VHF 88-108 MHz, MW 186-560 m. Variable tuning. Ratio detector. Meter tuning indicator. Sensitivity: 1.4 μ V for 20 dB quieting. Aerial input: 75 ohms coaxial. Multiplex decoder fitted. AFC. FET front end. Inputs: PU 2.2 mV 50K, tape head 2 mV 100K, aux 150 mV 100K, tape monitor 150 mV. Noise level: -70 dB on PU, -75 dB on other inputs. Controls: speakers A or B, bass/treble cut, bass (each channel), treble (each channel), loudness, muting, tape monitor, reverse stereo, mono. Output: 32W RMS per channel. FR 15 Hz-40 KHz \pm 1.5 dB. Output impedance: 4-16 ohms. Mains: 240V 50 Hz. Consumption: 150VA. Size: $16\frac{3}{8} \times 14\frac{7}{8} \times 13\frac{1}{4}$ in. Price: £130 6s 10d (plus £31 16s 2d PT).

Sansui 5000A ★

AM/FM multiplex stereo. Solid state with FET and IC circuitry. Range: 88-108 MHz, 187-561 m. Sensitivity: 1.4 μ V \pm 3 dB (20 dB quieting) on FM; 15 μ V \pm 3 dB at 1 MHz on AM. Power output: 75W per channel \pm 1 dB at 4 ohms. FR 15 Hz-30 KHz at 8 ohms. Distortion: less than 0.8%. Will handle three speaker systems and four tape recorders at same time. Inputs: pickup 2.5 mV \pm 3 dB; tape head 2 mV \pm 3 dB; aux 150 mV \pm 3 dB; tape monitor 200 mV \pm 3 dB. H and N (below rated output) volume minimum, better than 80 dB. Damping factor: 15 and 50 at 8 ohms. Psn 100, 117, 220 and 240V, 50 or 60 Hz. Dimensions: $4\frac{7}{8} \times 17\frac{1}{4} \times 14\frac{1}{2}$ in. Weight: 29 lb. Price: £167 15s 7d (plus £40 0s 5d PT).

SANYO

Sanyo Marubeni (UK) Ltd, Sanyo House, Bushey Mill Lane, Watford, Herts. Tel: Watford 25354/6.

Sanyo DC-60 ★

Transistorised stereo integrated tuner/amplifier. Range: 87.5-108 MHz, 186-550 m. Variable tuning. Ratio detector. Meter tuning indicator. Aerial input 300 ohms balanced. Multiplex decoder fitted. AFC. Inputs: PU (crystal) 400 mV 470K, PU (mag) 5 mV 50K, tape head 25 mV 50K, aux 200 mV 100K. Controls: bass \pm 8 dB at 100 Hz, treble \pm 8 dB at 10 KHz, noise filter -10 dB 10 KHz, rumble filter -10 dB at 50 Hz. Output: 30W RMS per channel. HD <1% at

rated output. FR 20 Hz-20 KHz \pm 1 dB. Output impedance: 4-16 ohms. AC mains. Size: $18 \times 11\frac{1}{2} \times 6$ in. Price: £77 19s 10d (plus £19 5s 2d PT).

DC-434

Transistorised stereo integrated tuner/amplifier. Range: 88-108 MHz, MW 186-550 m. Variable tuning. Ratio detector. Meter tuning indicator. Aerial input 75 ohms coaxial. Multiplex decoder fitted. AFC. Inputs: PU 5 mV 75K, tape head 2.5 mV 85K, aux 100 mV 90K, tape play 250 mV 150K. Controls: bass \pm 12 dB at 100 Hz, treble \pm 12 dB at 10 KHz, noise filter, rumble filter, loudness, separate controls for each channel. Output: 16W RMS per channel. HD 0.5% at total output. FR 20 Hz-20 KHz \pm 1 dB. Output impedance: 8 ohms. AC mains. Fitted transcription motor, pickup arm and cartridge. Size: $24\frac{1}{2} \times 16 \times 11\frac{1}{4}$ in. Price: £136 2s 4d (plus £33 2s 8d PT).

Sanyo DC-534

Transistorised stereo integrated tuner/amplifier. Range: VHF 87.5-108 MHz, MW 186-550 m, variable tuning. Ratio detector. Meter tuning indicator. Aerial input 75 ohms coaxial. Multiplex decoder fitted. AFC. Inputs: PU 5 mV 50K, tape head 3 mV 50K, tape play 1V 1K. Controls: bass \pm 10 dB at 100 Hz, treble \pm 10 dB at 10 KHz, noise filter -10 dB at 9 KHz, rumble filter -10 dB at 60 Hz. Output: 12W RMS per channel. FR 20 Hz-20 KHz \pm 1 dB. Output impedance 8 ohms. Includes transcription motor, pickup arm and cartridge. Price: £108 17s 4d (plus £26 17s 8d PT).

SCAN-DYNA

Distributors: Howland-West Ltd, 2 Park End, South Hill Park, London, NW3. Tel: 01-794 6666 and 6033.

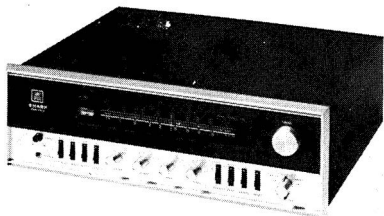
Scan-Dyna 3000

Solid state stereo AM/FM tuner/amplifier. Range: 87-108 MHz, 550-1,660 KHz. Variable tuning with indicator meter. Sensitivity: 1.2 μ V mono, 8 μ V stereo. Aerial impedance: 75 ohms unbalanced, 300 ohms balanced. Multiplex decoder. Power output: 30W into 8 ohms. 50W into 4 ohms. HD 0.2% at 40W. FR 20 Hz-20 KHz \pm 0.5 dB at 8 ohms. Noise level: 100 dB. Inputs: magnetic pickup, 3 mV, 47K ohms;

★ Indicates entry is illustrated



Sharp STA22D



Sharp STA31D



Sharp STA32L

crystal pickup, tape and aux, 200 mV, 1M ohm each. Controls: on-off volume, function, loudness, high and low filter, bass, treble, balance, speaker on-off or set A and B, monitor, muting, AFC. Psn mains. Price: New price to be announced.

SCOTT

Distributors: A. C. Farnell Ltd,
Farnell House, 81 Kirkstall Road, Leeds.
Tel: Leeds 35111.

342-C

Solid state with multiplex decoder. FM front end: FET. Sensitivity: 1.9 μ V. Tuner stereo separation: 40 dB. S/N ratio: 60 dB. Crystal filter. Balance control. Computer type push button switches. Four pairs of external stereo inputs. Pickup sensitivity: 4 mV. Chassis stereo threshold control. Inter-station muting. Loud-

ness volume compensation switch. Power output: 28W per channel RMS at 8 ohms. Distortion: 0.8%. FR 20 Hz-20 KHz \pm 1 dB. H and N -55 dB. Price: £199 (including PT).

382-C

Solid state, with multiplex decoder. AM and FM front end: FET. Sensitivity: 1.9 μ V. Tuner stereo separation: 40 dB. S/N ratio: 60 dB. Crystal filter. Wide range AM. Balance control. Computer type push button switches. Four pairs of external stereo inputs. Pickup sensitivity: 4 mV. Chassis stereo threshold control. Inter-station muting. Loudness volume compensation switch. Power output: 28W per channel at 8 ohms. Distortion: 0.8%. FR 20 Hz-20 KHz \pm 1 dB. H and N -55 dB. Price to be announced.

SHARP

Sharp Electronics (UK) Ltd, 48 Derby Street,
Manchester M8 8HN. Tel: 061-832 6115.

STA22D ★

Stereo AM/FM tuner/amplifier. Range: 88-108 MHz, 186-566 m. Variable tuning. Ratio detector on FM. Meter tuning indicator. AFC. Sensitivity: FM 3 μ V, AM 200 μ V. Aerial input: (FM) 300 ohms balanced. Stereo decoder fitted. FM and AM aerials incorporated. Inputs: mag PU 5 mV, crystal PU 300 mV, aux 200 mV, tape 250 mV. Controls: bass (\pm 10 dB at 100 Hz), treble (\pm 10 dB at 10 KHz), loudness (\pm 10 dB at 50 Hz, +5 dB at 10 KHz), noise filter, mode, tape monitor, AFC on-off, tuning. Output: 10W RMS per channel. HD: 0.3% at 1W. FR: 15 Hz-40 KHz. Noise level: 70 dB below rated output. Output impedance: 8 ohms and 16 ohms. Size: 6 \times 16 $\frac{1}{2}$ \times 13 $\frac{3}{4}$ in. Mains: 110, 220, 240V 50/60 Hz. Price: £76 18s 2d (plus £18 1s 10d PT).

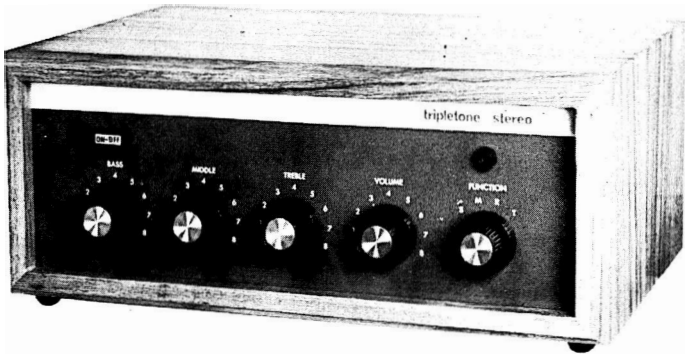
STA31D ★

Stereo AM/FM tuner amplifier. Range: 88-108 MHz, 186-566 m. Variable tuning. Ratio detector on FM. Meter tuning indicator. AFC. Sensitivity: 1 μ V \pm 3 dB. Aerial input: (FM) 300 ohms balanced. Stereo decoder fitted. Stereo beacon. Inputs: mag PU 2 mV, crystal PU 130 mV, tape head 1 mV, aux 140 mV. Controls: bass (\pm 10 dB at 100 Hz), treble (\pm 10 dB at 10 KHz), loudness (+10 dB at 50 Hz, +5 dB at 10 KHz), noise filter, mode, selector, volume, AFC on-off, muting, tuning. Output: 23W RMS per channel. HD: 1% at rated output. FR: 15 Hz-40 KHz \pm 1.5 dB. Noise level: 70 dB below rated output. Output impedance: 8 ohms and 16 ohms. Mains: 100, 110, 120, 220, 240V 50/60 Hz. Size: 6 \times 18 \times 13 $\frac{3}{4}$ in. Price: £93 1s 11d (plus £21 18s 1d PT).

STA32L ★

Stereo AM/FM tuner/amplifier. Range: 88-108 MHz, 187-566 m, 810-2000 m. Variable tuning. Ratio detector on FM. Meter tuning indicator.

tripletone **SERIES 3 MKII**



SOLID STATE 8+8 FET INPUT from £29 19 6

"We have long admired the Tripletone amplifiers and tuners, as representing exceptional value for outlay".

Audio & Record Review



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tripletone

138 Kingston Road, LONDON, S.W.19.

Telephone:- 01-542 1189

'It can be recommended without any reservations and definitely sets the standard just as the Rolls-Royce sets the standard for motor cars'...

Angus MacKenzie, *Hi-Fi News* May 1970

Model ST-5000F stereo tuner *Recommended retail price £183:0:6*

Circuit All-silicon transistor FM stereo tuner superheterodyne, 43 transistors (5 Field Effect Transistors), 34 diodes.

MONOPHONIC

Frequency range 87 – 108 MHz **Intermediate frequency** 10.7 MHz **Antenna input impedance** 300 ohms balanced, 75 ohms unbalanced **Frequency response** 20 Hz – 15 kHz \pm 0.5 dB **Usable sensitivity** 1.5 μ V (IHF) **Quieting sensitivity** 1 μ V (300 ohms) for 30 dB of quieting; 3 μ V (300 ohms) for 50 dB of quieting; 100 μ V (300 ohms) for 70 dB of quieting **Image rejection** Better than 90 dB (IHF) **IF rejection** Better than 100 dB (IHF) **Spurious rejection** Better than 100 dB (IHF) **Alternate channel selectivity** Better than 90 dB (IHF) **Capture ratio** 1.0 dB (IHF) **AM suppression** Better than 65 dB (IHF) **Harmonic distortion (100 μ V input)** Better than 0.2% at 100% modulation **Frequency drift (100 MHz)** Less than \pm 20 kHz at 23 – 131°F **Hum and noise** 70 dB **Muting operation level** 3 μ V – 26 μ V (continuously variable).

STEREOPHONIC

Stereo separation Better than 40 dB at mid frequency, 100% modulation. Better than 30 dB at 50 Hz, 100% modulation. Better than 30 dB at 10 kHz, 100% modulation. Better than 20 dB at 15 kHz, 100% modulation **Frequency response** 20 Hz – 15 kHz \pm 0.5 dB **Harmonic distortion** Less than 0.35% at 400 Hz, 100% modulation **Harmonic distortion (1000 μ V input)** Less than 0.35% at 400 Hz, 100% modulation **19 kHz (pilot), 38 kHz (subcarrier) suppression** Better than 70 dB **Audio outputs** Fixed: 700 mV, impedance 10k ohms (at 400 Hz, 100% modulation). Variable: 0 – 2V, impedance 1k ohm at maximum output (at 400 Hz, 100% modulation).

GENERAL

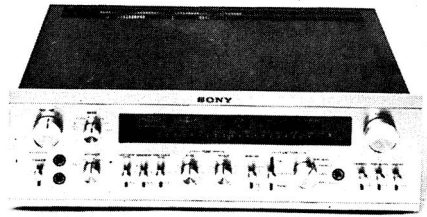
Power requirements AC 100, 117, 220, 240V, 50/60 Hz **Power consumption** 20 watts **Indicators** Tuner input level meter, Tuning meter, Stereo indicator (lamp) **Dimensions** 15 $\frac{3}{4}$ in. (w) \times 5 $\frac{3}{4}$ in. (h) \times 12 $\frac{1}{2}$ in. (d) **Weight** 20 lb, 14 oz. **Accessories** Ribbon antenna, Connecting cord RK-56, Spare fuse.



SONY[®]

RESEARCH MAKES THE DIFFERENCE SONY (U.K.) LIMITED Ascot Road, Bedfont, Feltham, Middlesex

AFC. Sensitivity: $5 \mu\text{V}$. Aerial input: (FM) 300 ohms balanced. Stereo decoder fitted. Inputs: mag PU 3 mV , crystal PU 150 mV , tape 200 mV , aux 200 mV . Controls: volume, balance, bass, treble, tuning, selector. Output: 40W RMS per channel into 4 ohms , 30W RMS per channel into 8 ohms . HD: 0.1% at 5W . FR: 30 Hz-50 KHz . Noise level: 4 mV at minimum volume, 50 mV at maximum volume. Output impedance: 4 ohms , 8 ohms , 16 ohms . Size: $4\frac{3}{8} \times 18\frac{1}{4} \times 14\text{in}$. Price: £117 7s 8d (plus £27 12s 4d PT).



Sony STR6120

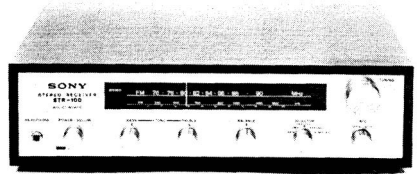
SONY (UK) LTD

11 Ascot Road, Bedfont, Middx.

Tel: Ashford 50021.

STR-6040

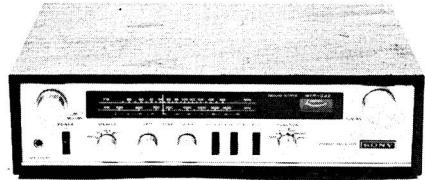
Stereo. HD $<0.5\%$ of rated output. FR 20 Hz-50 KHz . $4, 8, 16 \text{ ohms}$ output 15W per channel. Psn $100, 117, 220, 240\text{V } 50/60 \text{ Hz}$. Range $87\text{-}108 \text{ MHz}$, $195\text{-}550 \text{ m}$. Tuning meter. $2 \mu\text{V}$ input/ 20 dB quieting. Multiplex decoder. Tape, pickup, and auxiliary inputs. Size: $15\frac{3}{4} \times 5\frac{15}{16} \times 12\frac{1}{4}\text{in}$. Price: £90 4s 6d (plus £22 5s 6d PT).



Sony STR-122

STR-6050

Stereo. HD $<0.2\%$ of rated output. FR 20 Hz-50 KHz . $4, 8, 16 \text{ ohms}$ output, 30W per channel. Psn $100, 117, 220, 240\text{V } 50/60 \text{ Hz}$, 220W . Range $87\text{-}108 \text{ MHz}$, $195\text{-}550 \text{ metres}$. Tuning meter. $2 \mu\text{V}$ input/ 20 dB quieting. Multiplex decoder. Tape, phono, and auxiliary inputs. Size: $17\frac{1}{8} \times 5\frac{13}{16} \times 13\frac{9}{16}\text{in}$. Price: £117 13s 4d (plus £28 18s 8d PT).



Sony STR-222

STR-6060FW

Stereo. HD $<0.2\%$ of rated output. FR 20 Hz-60 KHz . $4, 8, \text{ or } 16 \text{ ohms}$, 45W per channel. Psn $100, 110, 220, 240\text{V } 50/60 \text{ Hz}$. Range $87\text{-}108 \text{ MHz}$, $195\text{-}550 \text{ m}$. Tuning meter. $1.8 \mu\text{V}$ input/ 20 dB quieting. Multiplex decoder. Tape, tape head, pickup and auxiliary inputs. Size: $17\frac{3}{8} \times 5\frac{13}{16} \times 13\frac{9}{16}\text{in}$. Price: £150 16s (plus £37 5s 6d PT).

STR-6120 ★

Integrated stereo tuner/amplifier. Wavebands: FM $87\text{-}108 \text{ MHz}$ $187\text{-}565 \text{ m}$ (MW). Power output: 50W RMS per channel into 8 ohms . HD $<0.2\%$ at 50W RMS . FR $15 \text{ Hz-}120 \text{ KHz } \pm 0.5 \text{ dB}$. H and N 70 dB below 50W RMS on PU. Sensitivities: FM $1.5 \mu\text{V}$, MW $20 \mu\text{V}$. Aerial impedance 300 ohms balanced. Multiplex decoder. AFC. Tuning: variable. Features: FET devices in RF unit and crystal filters. Inter-station quieting. Psn $100\text{-}117\text{V } 60 \text{ Hz}$ or $220/240\text{V } 50 \text{ Hz}$. Dimensions: $19 \times 16 \times 15\frac{7}{8}\text{in}$. Price: £260 (plus £63 10s 6d PT).

STR-122 ★

Stereo. Ranges: $87\text{-}108 \text{ MHz}$, $187\text{-}566 \text{ m}$. Variable tuning. Sensitivity: FM (for 20 dB quieting) $5.6 \mu\text{V}$. Decoder fitted. Switchable AFC. Aerial: 300 ohms balanced. Output: 3W per channel.

HD less than 5% . Output impedance: 8 ohms . Inputs: PU $23 \text{ mV } 10\text{K}$ (noise level better than 55 dB), tape $100 \text{ mV } 40\text{K}$ (noise level better than 60 dB), DIN socket $500 \text{ mV } 80\text{K}$. Mains: $110, 117, 220, 240\text{V } 50/60 \text{ Hz}$. Dimensions: $16\frac{1}{2} \times 12\frac{1}{2} \times 4\frac{3}{8}\text{in}$. Price: £42 2s 3d (plus £10 7s 9d PT).

STR-222 ★

Stereo. Range: $87\text{-}108 \text{ MHz}$. Variable tuning. Sensitivity (for 30 dB quieting): $2 \mu\text{V}$. Decoder fitted. AFC. Tuning meter. Aerial: 300 ohms balanced. Output: 8W per channel into 8 ohms . Outlets: tape record $480 \text{ mV } 10\text{K}$ at PU socket, $36 \text{ mV } 80\text{K}$ at DIN socket. Inputs: aux $250 \text{ mV } 100\text{K}$, tape $480 \text{ mV } 100\text{K}$ (noise better than 65 dB), DIN socket as for tape, PU1 magnetic $3.4 \text{ mV } 47\text{K}$ (noise level better than 55 dB), PU2 ceramic $250 \text{ mV } 2.7\text{M}$ (better than 40 dB). Controls: volume, loudness, tuning, function, mode, speaker selector, bass, treble, high filter. Mains: $100, 117, 220, 240\text{V } 50/60 \text{ Hz}$. Dimensions: $16\frac{3}{8} \times 12\frac{5}{16} \times 4\frac{3}{8}\text{in}$. Price: £67 15s 3d (plus £16 14s 9d PT).

★ Indicates entry is illustrated

TANDBERG

Distributors: Farnell-Tandberg Ltd,
Farnell House, 81 Kirkstall Road, Leeds.
Tel: Leeds 35111.

Hi-Fi FM

Range: 87.5-108 MHz. Variable tuning and presets. Sensitivity: $2 \mu\text{V}$. Decoder optional. AFC. Meter tuning indicator. Output: 15W per channel at 4 ohms. Features: PU and tape inputs. Mains: 220, 240V AC. Dimensions: $16\frac{1}{2} \times 8\frac{1}{2} \times 5\frac{1}{2}$ in. Price: £60 plus £9 for decoder (plus £14 7s PT).

Huldra 9 ★

Ranges: 87.5-108 MHz, 10.9-27.3 m, 27.3-66.5 m, 66.5-187 m, 187-580 m, 1,000-2,000 m. Variable tuning and presets. Sensitivity: $2 \mu\text{V}$. Decoder fitted. AFC. Aerial: 300 ohms balanced/80 ohms unbalanced. Output: 15W per channel at 4 ohms. Features: PU and tape inputs, band-spreading on lowest SW range. Mains: 220, 240V AC. Dimensions: $21\frac{1}{4} \times 10\frac{3}{8} \times 5\frac{1}{2}$ in. Price: teak £111 1s 4d (plus £27 8s 8d PT); rosewood extra £1 12s 3d (plus 7s 9d PT).

TELEFUNKEN

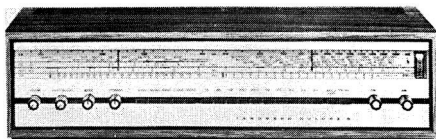
Distributor: A.E.G. (Great Britain) Ltd,
A.E.G. House, Chichester Rents,
Chancery Lane, London, WC2.
Tel: 01-242 9944. Cables: Allgem, London.

Operette 201 ★

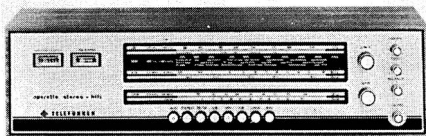
Four waveband transistorised stereo tuner/amplifier. Ranges: 87.5-104 MHz, 5.9-16 MHz, 515-1630 and 150-350 KHz. Separate FM and AM tuning. Sensitivity: FM $1.3 \mu\text{V}$ (for 26 dB signal/noise ratio at 40 KHz deviation), AM $10 \mu\text{V}$ for 50 mW output. Stereo decoder fitted. Output: 10W per channel RMS. FR (± 1.5 dB): 35 Hz-20 KHz. Output impedance: 4 ohms. Swivel ferrite rod for MW/LW, aux aerial for FM/SW, sockets for 240 ohms FM aerial, sockets with attenuator for FM dipole (local), sockets for AM aerial. Sockets for PU (high impedance), tape recorder (recording and playback) and two extension speakers. Controls: volume, balance, bass, treble. Push buttons for wavebands, stereo, PU/tape, on/off. Mains: 110/117, 220/240V 50 Hz. Price: £74 19s 9d (plus £17 8s 3d PT).

Concertino 201 ★

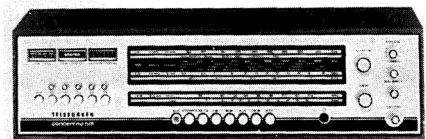
Four waveband transistorised stereo tuner/amplifier with five FM station buttons. Ranges: FM, SW, MW, LW. Separate flywheel FM and AM tuning. AFC by VU meter. Separate VU meter for station tuning control. Automatic stereo indicator. Sensitivity: FM $1 \mu\text{V}$ for 26 dB signal/noise ratio at 40 KHz deviation. Output: 15W per channel RMS. HD not greater than 1%. FR (± 1.5 dB) 20 Hz-20 KHz. Sockets for



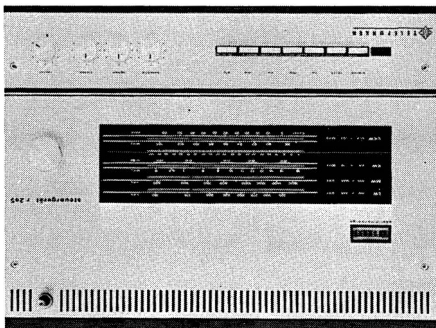
Tandberg Huldra 9



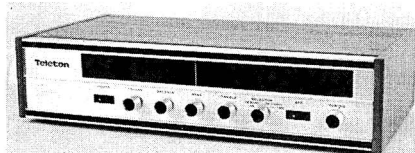
Telefunken Concertino Hi-Fi 201



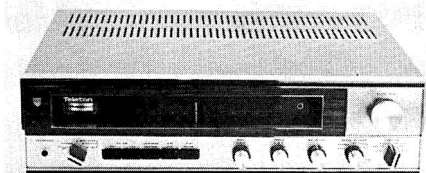
Telefunken Hi-Fi 201



Telefunken R205



Teleton F2000



Teleton 7AT1

240 ohms FM dipole, local FM dipole (attenuator fitted), AM aerial, PU (high impedance), tape recorder (record and playback), two extension speakers. Controls: volume, balance, bass, treble. Push buttons: on/off, stereo, PU/tape, wavebands, 5 FM stations, AFC. Mains: 110/127, 220/240V 50 Hz. Price: £88 12s 5d (plus £20 11s 7d PT).

R205 ★

Four waveband radio with stereo amplifier. Ranges: FM, SW, MW, LW. VU meter. AFC. Output: 6W per channel RMS. Output impedance: 4 ohms. Sockets for 240 ohms FM dipole, local FM dipole (attenuator fitted), AM aerial, high-impedance PU, tape recorder (record and playback), two extension speakers. Controls: volume on/off, balance, bass, treble. Push buttons for stereo, PU/tape, AFC, four wavebands. Mains: 110/127, 220/240V 50 Hz. Price: £62 15s 7d (plus £14 6s 11d PT).

TELETON

Teleton Electro (Distributors) Ltd,
Teleton House, Robjohns Road, Widford,
Chelmsford, Essex.
Tel: Chelmsford 62442. Telex: 99338.

R.4300

AM/FM stereo tuner/amplifier with silicon transistors throughout. Ranges: 88-108 MHz, 540-1,600 KHz. Sensitivity: FM 14 µV (30 dB quieting), AM 180 µV/m. Signal/noise: AM better than 30 dB. Aerial: internal and sockets, 300 ohms balanced. Output: 4W RMS per channel. Impedance: 8 ohms. Inputs: gram 200 mV, aux 200 mV. Outlets: stereo tape recording; speakers. Controls include loudness and tone. Mains: 110, 220V 50/60 Hz. Dimensions: 15 × 10¼ × 4¼in. Price: £49 (including PT).

F.2300

AM/FM stereo solid-state tuner/amplifier. Ranges: 88-108 MHz, 535-1,605 KHz. Sensitivity: FM 10 µV, AM 150 µV/m. IF bandwidth: FM 300 KHz, AM 7 KHz. Image rejection: FM 45 dB, AM 36 dB. Signal/noise: AM 30 dB. Aerials: FM 300 ohms balanced, AM ferrite rod. Output: 4.5W RMS per channel. FR: 30 Hz-15 KHz. Signal/noise: 50 dB 1 KHz. Mains: 220V 50 Hz. Dimensions: 16½ × 10 × 4½in. Price: £50 (including PT).

F.2000 ★

AM/FM stereo solid-state tuner/amplifier with stereo beacon and AFC. Ranges: as F.2300. Sensitivity: FM 15 µV (30 dB quieting), AM 150 µV/m. Multiplex separation: 30 dB at 1 KHz. Aerials: as F.2300. Output: 7.5W RMS per channel. FR: 40 Hz-15 KHz. Inputs: gram 200 mV 1 megohm, tape 100 mV 0.5 megohm. Signal/noise: 50 dB at 1 KHz. Outlet: 8 ohms

per channel. Mains: 110, 220V 50/60 Hz. Price: £51 (including PT).

R.4200

AM/FM stereo solid-state tuner/amplifier featuring fully automatic FM stereo reception with lamp indication. Ranges: 88-108 MHz, 540-1,600 KHz. Sensitivity: FM 14 µV (30 dB quieting), AM 180 µV/m. Aerials: internal and external 300 ohms balanced. Output: 4W RMS per channel at 8 ohms. Inputs: gram 200 mV, aux 200 mV. Controls: input selector, tuning, mono/stereo, volume, loudness, AFC, on/off. Mains: 110, 220V 50/60 Hz. Dimensions: 15 × 10¼ × 4¼in. Price: £51 15s (including PT).

TFS.50

AM/FM stereo solid-state tuner/amplifier. Ranges: 87-108 MHz, 530-1,600 KHz. Sensitivity: FM 5 µV (30 dB quieting), AM 200 µV/m (S/N 20 dB). Multiplex separation: 35 dB at 1 KHz. Image rejection: FM 50 dB, AM 60 dB. Aerials: ferrite rod and 300 ohms balanced input. Output: 15W RMS per channel at 8 ohms. Controls: six rotary and 10 push keys. Mains: 115, 230V AC. Dimensions: 19½ × 12½ × 4in. Price: £74 (including PT).

7 at 1 ★

AM/FM stereo solid-state tuner/amplifier with silicon transistors and featuring: complementary SEPP-OTL circuitry giving 25W RMS per channel, FETs for FM front end, auto stereo FM switching with MPX beacon, tuning meter, output to two sets of stereo speakers if required and direct tape monitor switch for recording/playback operations plus programme monitoring. Ranges: 88-108 MHz, 535-1,605 KHz. Sensitivity: FM 16 µV, AM 100 µV/m. FR: 20 Hz-50 KHz. Cross-talk: 46 dB at 1 KHz. Mains: 115, 230V 50/60 Hz. Dimensions: 16¾ × 9½ × 4¾in. Price: £103 19s (including PT).

7 at 20

AM/FM stereo solid-state tuner/amplifier. Sensitivity: 10 µV and 200 µV/m. Output: 20W RMS per channel. Dimensions: 17¾ × 11 × 4¼in. Price: £103 19s (including PT).

CR 55

AM/FM stereo solid-state tuner/amplifier featuring ICs, FETs and silicon transistors with auto FM mono/stereo switching, auto stereo beacon, in-built FM and AM aerials and outstanding audio section. Output: 25W RMS per channel at 8 ohms. Mains: 110, 220-240V 50 Hz. Dimensions: 22¾ × 9¾ × 4in. Price: £118 13s (including PT).

10 at 1

Basically similar to 7 at 1 model but with double the output power. Price: £158 11s (including PT).

★ Indicates entry is illustrated

TOSHIBA

Distributors: Hanimex (UK) Ltd,
Hanimex House, 15-24 Great Dover Street,
London, SE1. Tel: 01-407 8161.

SA15

Stereo tuner/amplifier. Range: FM 88-108 MHz, 187-555 m. FET front end. AFC. Stereo decoder fitted. Automatic switching to stereo on multiplex transmission. Quiet tuning. Controls: mono/stereo, tape monitoring, input selector, speaker switches, balance, bass, treble, volume, loudness, AFC on-off, high-pass filter, low-pass filter, tuning. Outlets: main speakers, auxiliary speakers, headphones, tape. Output: 30W RMS per channel into 8 ohms. HD: 0.1% at 1W, 0.4% at 30W. Two FETs, 49 transistors, 29 diodes. FR: 20 Hz-60 KHz ± 3 dB. Circuit breaker protects both outputs against overload. Finish: oiled American walnut with black and silver facia. Price: £159 (including PT).

SA20

Stereo tuner/amplifier. Range: FM 88-108 MHz, 187-555 m. FET front end. AFC. Stereo decoder fitted. Automatic switching to stereo on multiplex transmission. Quiet tuning. Controls: mono/stereo, tape monitor, input selector, speaker switches, balance, bass, treble, volume, loudness, quiet tuning on-off, high-pass filter, low-pass filter, AFC on-off, tuning. Outlets: main speakers, auxiliary speakers, headphones. Output: 50W RMS per channel into 8 ohms. HD: 0.1% at 1W and 25W. Two FETs, 55 transistors, 32 diodes. FR: 20 Hz-60 KHz ± 3 dB. Fully protected output circuits. Finish: oiled American walnut cabinet with black and silver facia. Price: £189 (including PT).

SA2600

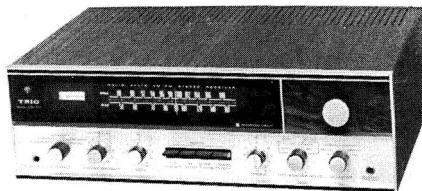
Stereo tuner/amplifier. Range: 88-108 MHz, 187-555 m. Stereo decoder fitted. 23 transistors, 15 diodes. FR: 50 Hz-25 KHz. Controls: mains on/off, volume, balance, bass, treble, input selector, tuning. DIN sockets for speakers, auxiliary input, AM and FM aerials. Size: $3 \times 15\frac{3}{4} \times 12\frac{1}{4}$ in. Finish: Eurasian teak with brushed silver panel and black dial. Output: 15W per channel. Price: £63 10s (including PT).

TRIO

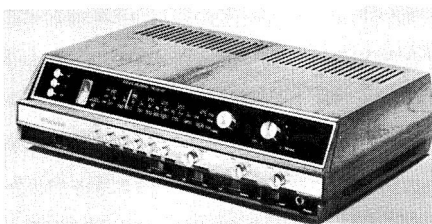
Distributors: B. H. Morris & Co (Radio) Ltd,
84-88 Nelson Street, Tower Hamlets,
London E1 2DY. Tel: 01-790 4824.

TK-20T

Solid state automatic AM/FM multiplex stereo. Range: FM 88-108 MHz, MW 187-556 m. Sensitivity: (IHF standard): FM 2.5 μ V, AM 10 μ V. FR FM 20 Hz-40 KHz ± 2 dB; amplifier 25 Hz-50 KHz. S/N ratio: 60 dB. HD 0.7% (1 KHz 100% mod). FET 3-gang tuning condenser front end. Automatic stereo/mono silent



Trio NR77



Wharfedale 100.1

switching circuit with stereo light indicator. Output: 4, 8, 16 ohms, 24W RMS (0.5% THD). Inputs: PU 2 mV, aux 140 mV, tape play 140 mV. Damping factor: 20. High filter: 6 KHz roll-off. Bass control: ± 10 dB at 100 Hz. Treble: ± 10 dB at 10 KHz. Psn 110, 120, 220-230V. Consumption: 60W at full power. Circuit breaker protects power transistors. Finish: walnut. Dimensions: $4\frac{3}{4} \times 14\frac{1}{8} \times 11\frac{1}{4}$ in. Weight: 15 $\frac{1}{2}$ lb. Price: £85 (inc. PT).

TK-40LT

Solid state FET stereo. Range: FM 88-108 MHz, LW 860-2,000 m, MW 187-556 m. Multiplex decoder with automatic stereo/mono silent switching circuit with stereo light indicator. Variable tuning with illuminated meter. Sensitivity (IHF): FM 2.5 μ V; MW 10 μ V; LW 20 μ V. FR: FM 20 Hz-20 KHz ± 2 dB; amplifier 20 Hz-50 KHz. S/N ratio: 60 dB. Output: 4, 8 and 16 ohms; 32W total RMS (0.5% THD). Inputs: PU 2 mV; aux 150 mV, tape 150 mV. Damping factor: 20. Noise filter: 6 KHz roll-off. Bass control: ± 10 dB at 50 Hz. Treble control: ± 10 dB at 10 KHz. Psn 220-230V 50 or 60 Hz. Dimensions: $5 \times 16\frac{1}{2} \times 12$ in. Weight: 19.8 lb. Price: £110 (inc. PT).

TK-140X

Solid state stereo. Range: FM 88-108 MHz, MW 187-556 m. Sensitivity (IHF): FM 1.7 μ V; AM 15 μ V at 1 KHz. HD: 0.5% at 400 Hz 100% mod. S/N ratio: better than 65 dB. Four ICs IF circuit, three FETs, 4-gang tuning condenser front end. Inter-station muting circuit. Heavy flywheel tuning dial. Tuning meter with stereo indicator. Aerial: 300 ohms and 75 ohms. Power

transistor protection circuit. Low and high filters. Power consumption: 250W at full power, 34W at no signal. Output: 4, 8 and 16 ohms, 53W RMS per channel at 8 ohms. Inputs: magnetic pickup 2 mV; tape head 2.2 mV; aux 160 mV; tape (pin or DIN) 160 mV; main 100 mV. H and N: pickup 65 dB, tape head 63 dB, aux and tape 75 dB. Damping factor: 28 at 8 ohms. Bass control: ± 10 dB at 100 Hz. Treble control: ± 10 dB at 10 KHz. High filter: 3 KHz cut-off. Low filter: 200 Hz cut-off. Loudness control: +6 dB at 100 Hz. Outputs: two pairs of speaker terminals, centre channel output (low level), pre-amp, tape recording, headphone jack, AC outlet. Dimensions: $5\frac{1}{2} \times 16\frac{1}{2} \times 12\frac{1}{4}$ in. Weight: 28 $\frac{1}{2}$ lb. Price: £149 (including PT).

KR-77 ★

Solid state stereo tuner/amplifier. Range: FM 88-108 MHz, AM 187-555 m. Aerial input: (FM) 300 ohms balanced and 75 ohms unbalanced. Sensitivity: FM 1.9 μ V, AM 15 μ V. Two FET front end, four-gang tuning capacitor on FM. Quiet tuning. Output: 33W RMS per channel into 4 ohms, 18W RMS per channel into 8 ohms. HD: 0.5% at rated output. FR: 15 Hz-50 KHz ± 1.5 dB. Inputs: mag PU 2 mV, tape play 200 mV, tape head 2.3 mV, aux 200 mV, main 100 mV. Recording outlet: 200 mV, 3.5 mV. H and N: tape head and mag PU -60 dB, aux and tape play -70 dB. Output impedance: 4, 8, 16 ohms. Bass control: ± 10 dB at 100 Hz. Treble control: ± 10 dB at 10 KHz. High filter: cut-off at 3 KHz. Low filter: cut-off at 200 Hz. Loudness control: +8 dB at 100 Hz, +3 dB at 10 KHz. Mains: 220-230V AC. Consumption: (at full output) 113W; (no signal) 20W. Size: $5\frac{1}{2} \times 16\frac{1}{2} \times 12\frac{1}{4}$ in. Weight: 23 lb. Price: £125 (including PT).

WHARFEDALE

Rank Wharfedale Ltd, Bradford Road, Idle, Bradford, Yorkshire. Tel: Bradford 612552.

Wharfedale 100.1 ★

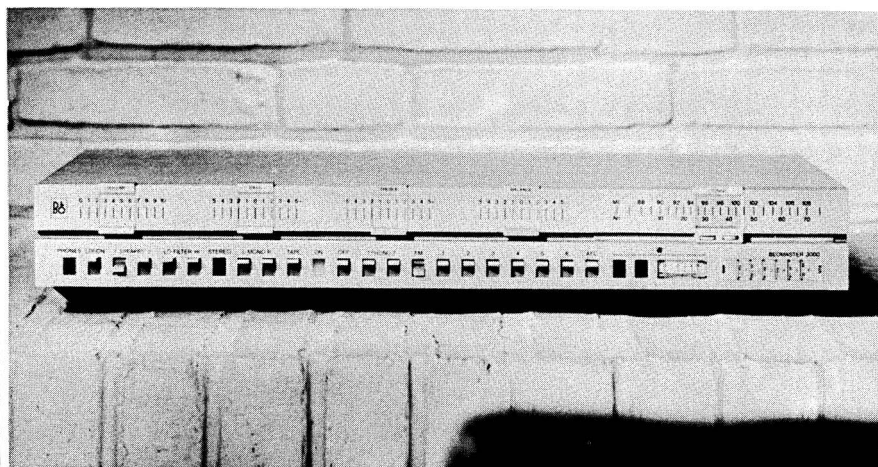
Stereo tuner/amplifier. Range: FM 87.5-108 MHz, 182-585 m, 1090-2000 m. Variable tuning. Meter tuning indicator. Stereo beacon. Sensitivity: FM 1.2 μ V for 30 dB quieting, AM 25 μ V for 20 dB S/N. Multiplex decoder fitted. Inputs: tape and aux 100 mV 50K, mag PU 3.5 mV, ceramic PU 20 mV 33K. Controls: push button waveband selectors, tuning, volume on-off, treble, bass, balance, push button selectors for stereo, mono, aux input, radio input, PU input, tape input, rocker switches for quiet tuning on-off, low pass filter on-off, remote speakers on-off, local speakers on-off. Output: 35W RMS into 8 ohms, 35W RMS into 4 ohms, 25W RMS into 15 ohms. HD: <0.07% into 8 ohms, <0.14% into 4 ohms, <0.05% into 15 ohms, all

powers up to maximum rated output. FR: 12.5 Hz-50 KHz ± 3 dB. Built-in ferrite rod aerial for AM, also aerial socket. FM tuner stereo crosstalk better than 35 dB at 1 KHz. Low pass filter: -6 dB at 7 KHz. Headphone socket. Wood veneer cabinet. Sloping dial with fibre optics pointer illumination. Mains: 110, 117, 127, 220-240V, 50-60 Hz. Size: $4\frac{3}{8} \times 17\frac{5}{8} \times 12\frac{5}{8}$ in. Weight: 20 $\frac{1}{2}$ lb. Price: £131 5s (including PT).

New brilliance from Bang & Olufsen

BEOMASTER 3000

stereo amplifier and FM tuner



The Beomaster 3000 – a stereo amplifier and FM tuner which is the heart of a unique high fidelity system. Unique because of the beautiful Scandinavian design in which Bang & Olufsen have built this instrument combining function with style. Unique because a simple yet professional 'switch bank' keyboard plays this instrument; and transparent slide controls slip over the volume, bass, treble, balance and tuning scales with slide rule accuracy. 2 x 30 watts R.M.S. output and 2 x 60 watts of music power are provided and sockets take gramophone, tape recorder, stereo headphone, speakers, speaker extensions for another room or even TV sound.

The radio tuner section of the Beomaster includes new ceramic filters for the clearest programme separation and Field Effect Transistors overcome weak signal

conditions. Pre-tuning is available for up to 6 FM stations and accuracy is seen as well as heard by balancing the strength of two red lights.

As an amplifier or a tuner the Beomaster needs to play with matching speakers. Beovox 3000 speakers balance perfectly in performance and quality. Made in matching teak or rosewood they include a newly developed dome type mid-range/treble unit.

To complete the system into a perfect musical arrangement add a Beogram 1000 record playing deck and Beocord tape recorder.

You will get a master performance from Bang & Olufsen on equipment made *for those who consider design and quality before price.*



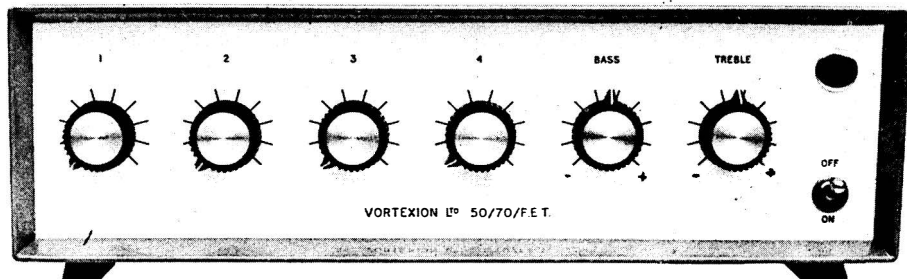
Write for leaflets giving full information or see your selected B & O dealer.

Bang & Olufsen U.K. Ltd. Eastbrook Road, Gloucester, GL4 7DE. Telephone: 0452 21591
London Showroom: 70, Welbeck Street, London, W.1. Telephone: 01-486 2144

Bang & Olufsen – The first name in Europe for design and quality

Vortexion

**THE VORTEXION 50/70 WATT ALL SILICON AMPLIFIER WITH BUILT-IN
4 WAY MIXER USING F.E.T.s.**



Size 14" × 11" × 4½"

Weight 20lb.

100 μ V on 30/60 ohm mic. input
100 mV to 100 volts on gram/auxiliary
input 100 K Ω

This is a high fidelity amplifier (0.3% intermodulation distortion) using the circuit of our 100% reliable—100 Watt Amplifier (no failures to date) with its elaborate protection against short and overload, etc. To this is allied our latest development of F.E.T. Mixer amplifier, again fully protected against overload and completely free from radio breakthrough. The mixer is arranged for 3-30/60 Ω balanced line microphones, and a high impedance line or gram. input followed by bass and treble controls. Since the unit rectification distortion of ordinary transistors, this unit gives that clean high quality that has tended to be lost with most solid state amplifiers.

CP50 AMPLIFIER. An all silicon transistor 50 watt amplifier for mains and 12 volt battery operation, charging its own battery and automatically going to battery if mains fail. Protected inputs, and overload and short circuit protected outputs for 8 ohms—15 ohms and 100 volt line. Bass and treble controls fitted.

Models available with 1 gram and 2 low mic. inputs. 1 gram and 3 low mic. inputs or 4 low mic. inputs.

100 WATT ALL SILICON AMPLIFIER. A high quality amplifier with 8 ohms—15 ohms and 100 volt line output for A.C. Mains. Protection is given for short and open circuit output over driving and over temperature. Input 0.4 V on 100 K ohms.

ELECTRONIC MIXERS. Various types of mixers available. 3-channel with accuracy within 1 dB Peak Programme Meter. 4-6-8-10 and 12-way mixers. Twin 2,3,4 and 5 channel stereo. Built-in screened supplies. Balanced line mic. input. Outputs: 0.5 V at 20 K or alternative 1 mW at 600 ohms, balanced, unbalanced or floating.

VORTEXION LIMITED, 257-263 The Broadway, Wimbledon, S.W.19

Telephone: 01-542 2814 and 01-542 6242/3/4 Telegrams: "Vortexion London S.W.19"

Listen

bryan offers

Amplifiers that have a power output of either 15 watts or 25 watts RMS into 8 ohms.

With a signal to noise ratio of better than -70 dB.

And a frequency response of ± 1 dB from 20 HZ to 50 KHZ.

Total harmonic distortion for the 15 watt version of better than .25% at all levels, and for the 25 watt model, better than .1% from $\frac{1}{4}$ watt to 20 watt (typically .07%).

60 dB negative feedback.

Tuners that match the amplifier in appearance.

Cover from 87.5 MHZ to 108 MHZ.

Have Multiplex Stereo decoding capability.

IHFV sensitivity of better than 3 LVS.

Crosstalk on stereo 30 dB to 40 dB.

Variable local distant attenuation.

AFC ensures complete freedom frequency draft.

Tuner Amplifiers This model combines the facilities both the tuner and amplifier in one attractive unit. It offers a flexibility of control and a quality of sound reproduction only equalled in far more expensive equipment.

The above specifications are being continually revised as new advances in technology become available. Send for up to date literature, with location of the nearest dealer where demonstrations of this equipment are held, and listen to high quality sound.

bryan amplifiers limited

18 GREENACRES RD., OLDHAM, LANCS.

Tel. 061-624 4074

Directory of Amplifiers and Control Units

The following abbreviations are used in this directory section: **HD**=Harmonic Distortion; **<**=less than; **H and N**=Hum and Noise; **Pat**=Power supplies available for tuner; **RMS**=root mean square; **NL**=Noise level; **Sel**=Selector switch; **Psn**=Power supply needed.

★ indicates model is illustrated.

ACOUSTIC RESEARCH

Bell & Howell Ltd, Audio Products Division, Alperton House, Bridgewater Road, Wembley, Middlesex. Tel: 01-902 8812.

AR Amplifier

Stereo transistorised integrated amplifier. Inputs: mag PU 2.5 mV 50K, tape 200 mV 150K, aux 200 mV 150K. Noise: mag PU 57 dB, other inputs 75 dB. Controls: treble, bass, balance, volume, selector. Output: 60W RMS per channel into 4 ohms. Output impedance: 4-16 ohms. HD: <0.5% any frequency 20 Hz-20 KHz. FR: 20 Hz-20 KHz ± 1 dB at full output. Mains: 100, 120, 220, 240V. 50-60 Hz. Size: (with wood cover) $4\frac{1}{2} \times 15\frac{3}{4} \times 10$ in. Price: £174.

ACOUSTICAL MANUFACTURING CO LTD

See Quad.

AKAI

UK distributors: Pullin Photographic (Rank Organization), P.O. Box 70, Great West Road, Brentford, Middx. Tel: 01-568 9222.

AA5000S ★

Solid state stereo amplifier. Power output: 35W per channel RMS, 8 ohms. HD 1%. FR 20 Hz-35 KHz ± 1 dB. Psn: 100-240V, 50 or 60 Hz, 160VA. Inputs: tape head, 1.5 mV; pickup 3 mV; aux, tape monitor and tuner, each 400 mV. Controls: bass +10 dB; treble +9 dB to -14 dB; low filter -8 dB; high filter -8 dB; loudness +8 dB. Dimensions: $17 \times 5\frac{3}{8} \times 10\frac{1}{8}$ in. Price: £85.

A/R/D

Audio Research and Development Ltd, P.O. Box 73, Hounslow, Middlesex. Tel: 01-570 0471.

2000 ★

Solid state stereo amplifier. Power output: 10W RMS into 15 ohms. HD: 0.4% at 10W RMS. FR: 20 Hz-20 KHz ± 0.5 dB. Controls: bass ± 12 dB at 50 Hz; treble ± 12 dB at 10 KHz; volume, balance. Push-buttons for on/off, radio tape record. Inputs: PU sockets with DIN duplicates for tape and radio: tape record, tape play, radio tuner, ceramic pickup, magnetic pickup, with RIAA equalisation. Psn: 190/255V 50 Hz or 110-120V 60 Hz. Dimensions: $7 \times 4\frac{1}{4} \times 12$ in. Price: £46 4s; in teak veneered case £47 10s.

ARENA

Distributed by: Highgate Acoustics Ltd, 184-188 Great Portland Street, London, W1. Tel: 01-636 2901.

Arena F210 ★

Transistorised integrated stereo amplifier. Inputs: PU 0.3 mV 50K, PU 35 mV 500K, radio 1.2 mV 18K, tape 14 mV 200K. Controls: balance ± 6 dB, volume, bass ± 10 dB at 100 Hz, treble ± 15 dB at 10 KHz, selector. Output: 10W RMS per channel. Output impedance 4 ohms. Size: $10\frac{1}{2} \times 2\frac{3}{4} \times 7\frac{3}{4}$ in. Module construction. Price: £36 15s.

ARMSTRONG AUDIO LTD

Warlens Road, London, N7. Tel: 01-607 3213.

Model 521 ★

Integrated stereo transistor amplifier. Inputs: PU(1) 60 mV 100K, PU(2) 3.5 mV 50K, radio 100 mV 100K, tape play 400 mV 100K. Noise level: PU -55 dB, radio -60 dB, tape -70 dB. Controls: balance (maximum to zero each channel), bass ± 10 dB, treble ± 10 dB, loudness (two different volume levels with loudness contours at low level), rumble filter -5 dB at 30 Hz, treble filter (1) 6.5 KHz -3 dB, 10 KHz -25 dB, treble filter (2) 4.5 KHz -3 dB, 9 KHz -40 dB. Output: 25W RMS per channel. Output impedance: 4-16 ohms. Output transistors: AL102. FR 20 Hz-20 KHz -1 dB at 25W RMS. Mains: 100-125V and 200-250V AC. Size: $11\frac{1}{2}$ in wide, $10\frac{3}{4}$ in deep, 4 $\frac{5}{8}$ in high. Price: £52.

ASTRONIC

Associated Electronic Engineers Ltd, Dalston Gardens, Stanmore, Middlesex HA7 1BL. Tel: 01-204 2125.

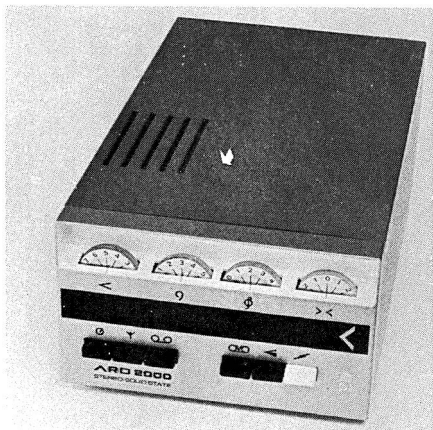
Series 1700

Modular amplifying equipment, enables a special system to be built up from standard units.

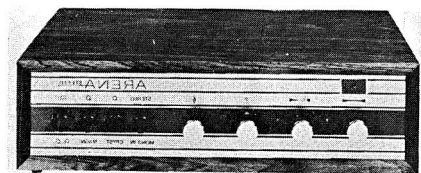
★ Indicates entry is illustrated



Akai AA-5000



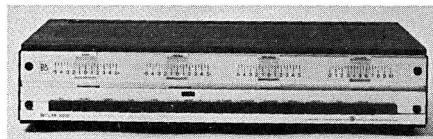
ARD 2000



Arena F210



Armstrong Audio 521



Bang & Olufsen Beolab 5000

Type 1701

Basic 10W amplifier with 8 ohms output. Source impedance: 1 ohm. Inputs: impedance 1,000 ohms; sensitivity: 0.5V. FR: 40 Hz-40 KHz +1 dB, 40 Hz-12 KHz +2 dB. Noise: -75 dB. Distortion: 1%. Psn: 200-250V 40-60 Hz, 30VA. Dimensions: 5 x 7 x 6½ in. Weight: 7 lb. Input connections by single coax plug/socket. Output connection by terminal block. Price: £16 13s 4d. Various types of pre-amplifier modules available. Full details on request.

BANG & OLUFSEN UK LTD

Eastbrook Road, Gloucester GL4 7DE.

Tel: Gloucester 21591.

Beolab 5000 ★

Integrated stereo amplifier. 60W per channel, 4 ohms. HD 0.2% at 1 KHz, 0.6% at 20 Hz-20 KHz 60W. FR 20 Hz-20 KHz ±1.5 dB. Noise 90 dB below 60W with volume control at minimum. Four 2N3055 output transistors. Inputs: mic 150 μV 200 ohms, gram 200 mV 1 Meg, gram 1.3 mV 47K, tuner 200 mV 470K, tuner 6 mV 47K, Aux 200 mV 470K, tape 200 mV 470K. Controls: bass, treble, balance, volume, mic, gram, tuner, aux, tape, mono, low filter, hi filter, loudness, speakers, test buttons, on/off. Mains consumption: 4W-325W. Size: 18½ x 4 x 9¾ in. Teak or rosewood. Price (teak): £148; (rosewood) £149.

Beolab 6006 Spread Unit ★

Provides connection for a centre speaker from Beolab amplifier. Connects between amplifier and speaker. Single control to vary width of stereo effect. Can also be used as headphone output from Beolab amplifier. Price: £7 10s.

BRADMATIC LTD

338 Aldridge Road, Streetly, Sutton Coldfield, Warwickshire. Tel: 021-353 3171.

Solid state power amplifiers, mixers, control units and associated equipment designed and built to order. Quotations given. Full details of services on application.

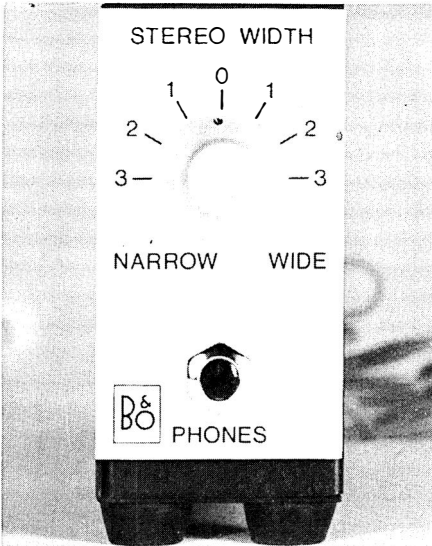
BRYAN AMPLIFIERS LTD

18 Greenacres Road, Oldham, Lancs.

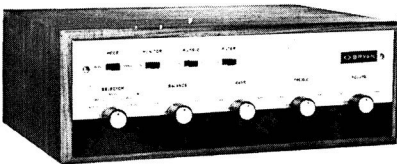
Tel: 061-624 4074.

9000

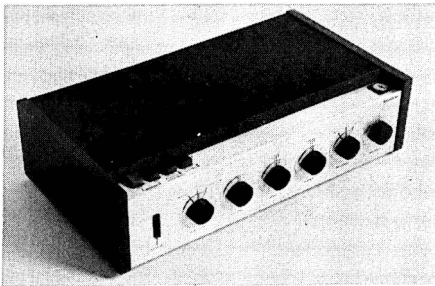
Integrated stereo amplifier and control unit. Output: 10W RMS per channel into 15 ohms, 18W per channel into 8 ohms. HD: <0.25% at 10W, 0.1% at 6W. FR: 20 Hz-50 KHz ±1 dB. Feedback -60 dB. Output impedance 8 or 15 ohms. Inputs: mag PU 3 mV 50K, ceramic PU 40 mV 100K, radio 75 mV 50K, tape 75 mV 50K, aux 75 mV 50K. Pickup inputs equalised to RIAA. SN -70 dB or better on all inputs.



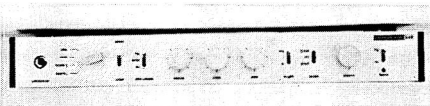
Beolab 6006



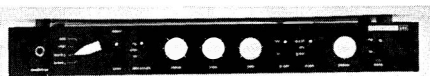
Bryan 9000/50



Bush A746



Cambridge Audio P40



Cambridge Audio P100

Controls: input selector, mode, rumble filter, tape monitor, low pass filter (6 KHz turnover), bass (± 15 dB at 50 Hz), treble (± 15 dB at 10 KHz), balance (zero to max on either channel), volume on/off. AC mains. Size: (chassis) $13 \times 4\frac{1}{4} \times 10$ in., (cabinet) $13\frac{3}{4} \times 5\frac{1}{4} \times 10\frac{3}{8}$ in. Weight: (chassis) 10 lb 7 oz, (in cabinet) 14 lb 3 oz. Price: (chassis) £46; (in cabinet) £50.

9000/50 ★

Integrated stereo amplifier and control unit. Output: 20W per channel into 15 ohms. HD: better than 0.1%. FR: 35 Hz-33 KHz ± 1 dB at 1W. Feedback -60 dB. Output impedance 4-15 ohms. Inputs: magnetic pickup, 3 mV, 50K, noise level -60-70 dB; ceramic pickup, 40 mV, 100K, noise level -52 to -60 dB; radio, tape and aux, 75 mV, 50K, noise level -60 to -70 dB. Controls: volume and on-off; balance; bass; treble; selector; mode; monitor; rumble filter. Mains powered. Dimensions: $13\frac{3}{4} \times 5\frac{1}{4} \times 10\frac{3}{8}$ in. Price: (chassis) £56; (in wood cabinet) £60.

BUSH

Rank Bush Murphy Ltd, Power Road, Chiswick, London, W4. Tel: 01-994 6491.

Bush Sound System A746 ★

Output: 15W music power each channel into 4 ohm load, 11W RMS each channel into 4 ohm load. Load impedance up to 16 ohms with reduced power output. HD <0.5%. Feedback: 30 dB. Noise: -36 dB ref to 50 mW. Sensitivity: 5.5 mV at 1 megohm. Damping factor: 80 at 8 ohms. FR 40 Hz-20 KHz ± 3 dB. Size: $4\frac{3}{8} \times 16 \times 9\frac{3}{8}$ in. Price: £36 15s.

BUSH NELSON LTD

Bush House, 6 Yattendon Road, Horley, Surrey. Tel: Horley 5983.

Integrated transistor stereo amplifier

Controls: on/off, mono/stereo, volume, balance, bass, treble. Output: 35W music (total). FR: 15 Hz-30 KHz ± 1 dB at 1W. Size: $12 \times 6 \times 2$ in. Price: £31.

CAMBRIDGE AUDIO LABORATORIES LTD

The River Mill, St. Ives, Huntingdon. Tel: St. Ives (Hunts) 2901.

Audio P40 ★

Solid-state stereo amplifier. 20W per channel. HD 0.1% at full power. Noise level <90 dB unweighted s/c. Output impedance: 8 ohms. Novel design complementary output. Inputs: pickup I, 3 mV 47K <-60 dB; pickup II, high-level gain, 100 mV 100K <-65 dB; aux 100 mV 100K <-65 dB; radio 300 mV <-70 dB. Input overload >60 dB. Damping factor

★ Indicates entry is illustrated

>80 into 8 ohms. Test certificate with each amplifier. Price: £75.

Audio P100 ★

As P40 but output power 50W per channel. Impedance 8 ohms. Price: £105.

CROWN

Crown Radio Co Ltd, 137-149 Goswell Road, London, EC1. Tel: 01-253 1971/2.

SHC-51 ★

Integrated stereo amplifier, with cassette tape recorder. Output: 15W RMS per channel into 8 ohms. FR: 30 Hz-20 KHz. Controls: volume, balance, bass, treble. VU meters and digital tape counter provided. Two dynamic microphones and cassette tape provided. Push-button operation of tape unit. Headphone jack and speaker button. Dimensions: $4\frac{1}{8} \times 15\frac{3}{16} \times 10\frac{1}{2}$ in. Weight: $14\frac{3}{4}$ lb. Price: £81 9s 3d (plus £20 2s 4d PT).

CROWN INTERNATIONAL

Distributor: Carston Electronics Ltd, 71 Oakley Road, Chinnor, Oxon. Tel: Kingston Blount 8561.

D-40 ★

Stereo power amplifier. Output: 45W RMS into 4 ohms, 30W into 8 ohms, 20W into 16 ohms (per channel); 80W RMS into 8 ohms (mono). HD <0.5% at rated output. FR 5 Hz-50 KHz ± 1 dB at rated output. Damping factor >200. H and N 100 dB below 30W. Input 0-6V for full output. Psn: 117-240V, 50/60/400 Hz. Size: $19 \times 1\frac{3}{4} \times 7\frac{5}{8}$ in. Weight: $8\frac{1}{2}$ lb. Fully protected against short circuit or mismatch. Headphone monitor socket. Price: £110.

DC-300 ★

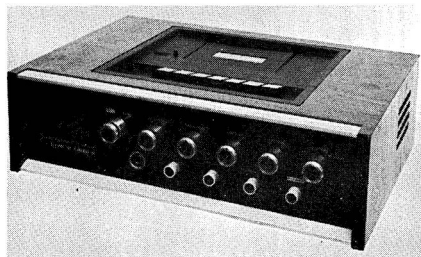
Stereo power amplifier. Output: 340W RMS into 4 ohms, 190W RMS into 8 ohms. FR 0-30 KHz. HD <0.2%. H and N > 100 dB below 150W. Size: $19 \times 7 \times 9\frac{3}{4}$ in. Weight: 38 lb. Price: £320.

DUAL

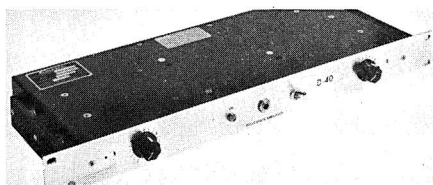
Dual Electronics Ltd, Paramount Industrial Estate, Mill Road, Stokenchurch, Bucks. Tel: Radnage 3467/8.

CV40 ★

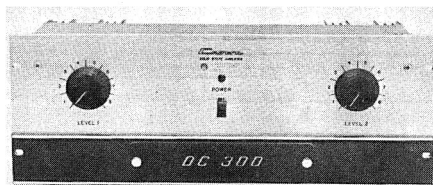
Solid state integrated amplifier. Power output: 12W RMS per channel, 18W music. HD: 0.3% at 15W RMS. Power bandwidth: 15 Hz-40 KHz (DIN). FR: 10 Hz-45 KHz ± 1.5 dB. Input jacks: magnetic pickup, equalised to CCIR, 4 mV at 47K; mic 3 mV at 47K flat; tape 350 mV at 470K flat; tuner 350 mV at 470K flat. Controls: volume/loudness, balance, selector, on/off, bass (± 17 dB at 40 Hz), treble (± 17 dB at 18 KHz).



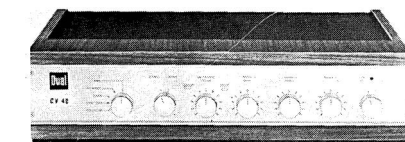
Crown Radio SHC-51



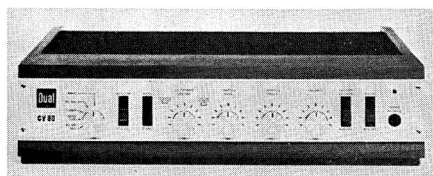
Crown International D-40



Crown International DC300



Dual CV40



Dual CV80



Duetto SA616

Outputs: two separate speaker outputs, 4-16 ohms. S/N: > 50 dB below 50 mW. Psn: 110-240V 50 Hz. Dimensions: $16\frac{1}{2} \times 11\frac{1}{4} \times 4\frac{1}{2}$ in. Weight: 14.3 lb. Price: £73 10s

CV80 ★

Solid state integrated amplifier. Power output: 32W RMS per channel, 45W music. HD: < 0.2% at 25W RMS. Power bandwidth: 15 Hz-60 KHz. FR: 10 Hz-80 KHz ± 1.5 dB. Input jacks: magnetic PU (equalised to CCIR) 4 mV at 47K; mic 3 mV at 47K flat; tape 350 mV at 470K flat; tuner 350 mV at 470K flat. Controls: volume/loudness, balance, selector, on/off switch, mono/stereo switch, monitor switch L.S. switch, bass (± 17 dB at 40 Hz), treble (± 17 dB at 18 KHz). PU socket. Outputs: two separate speaker outputs, 4-16 ohms. S/N: better than 52 dB below 50 mW. Psn: 110-240V 50 Hz. Dimensions: $16\frac{1}{2} \times 11\frac{1}{4} \times 4\frac{1}{2}$ in. Weight: 17 lb. Price: £89 10s.

DUETTE

Distributors: J. J. Silber Ltd,
11 Northburgh Street, London, EC1.
Tel: 01-253 8031.

SA16 ★

Stereo transistor amplifier. Output: 6W RMS per channel. HD: < 0.1% at rated output. FR: 30 Hz-20 KHz ± 1 dB. Noise level: -55 dB. Inputs: pickup 100 mV, radio 100 mV, aux 100 mV. Output impedance: 4, 8, 16 ohms. Mains: 240V AC. Size: $4\frac{3}{4} \times 11 \times 8\frac{1}{4}$ in. Price: £19 19s.

SA400 ★

Stereo transistor amplifier. Output: 6W RMS per channel. FR: 30 Hz-20 KHz ± 1.5 dB. Noise level: better than 60 dB. Inputs: mag PU 3 mV, radio 150 mV, crystal PU 150 mV. Output impedance: 4, 8, 16 ohms. Mains: 240V AC. Size: $4 \times 13\frac{1}{2} \times 10\frac{1}{2}$ in. Price: £32 19s 6d.

SA500 ★

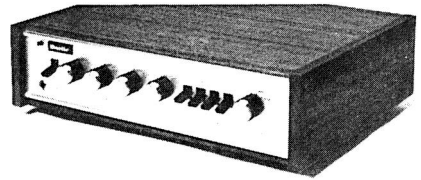
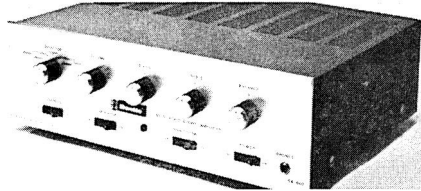
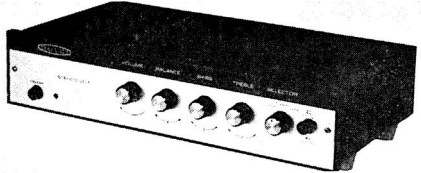
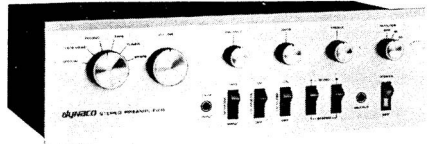
Stereo transistor amplifier. Output: 10W RMS per channel. FR: 20 Hz-20 KHz ± 1 dB. HD: < 1% at rated output. Noise level: better than 60 dB. Inputs: mag PU 3 mV, ceramic PU 30 mV, radio 150 mV. Output impedance: 4, 8, 16 ohms. Tape outlet. Mains: 240V AC. Size: $4\frac{1}{4} \times 13\frac{1}{2} \times 10\frac{3}{4}$ in. Price: £39 19s 6d.

DULCI

Lee Products (Great Britain) Ltd,
10-18 Clifton Street, London, EC2.
Tel: 01-247 6711.

Dulci 207 ★

Transistor integrated amplifier. Inputs: radio 100 mV 500K, tape 100 mV 500K, PU 100 mV 500K. Controls: on/off, volume, balance, bass, treble, selector, mono/stereo. Output: 7W RMS per channel. HD 2% at 7W. FR 45 Hz-20 KHz

*Duette SA400**Duette SA500**Dulci 207**Dynaco PAT-4*

± 2 dB. Feedback: 15 dB. Noise level: 58 dB at 7W output. Output imp. 4 ohms for rated power, 15 ohms at reduced power. Two matched pairs AD161/2. Mains: 110-240V 50/60 Hz. Dimensions: $13\frac{3}{4} \times 2\frac{3}{4} \times 7$ in. Price: £25.

Dulci 207M

Similar specification to 207 but with additional magnetic pickup input. PU2 5 mV. Price: £30.

DYNACO

Distributors: Howland-West Ltd,
2 Park End, South Hill Park, London, NW3.
Tel: 01-794 6666.

PAT.4 ★

Transistorised stereo control unit. Inputs: PU (low level), PU (high level), tape head, tape amplifier, radio, aux (high level), aux (high level) to socket on front panel. Noise level: -70 dB on low level inputs, -85 dB on high level inputs. Controls: selector, volume, balance, bass (left and right), treble (left and right), filter, loudness, tape monitor, bass filter, mode, on/off.

★ Indicates entry is illustrated

Mains: 120-240V 50-60 Hz. Designed for use with Dynaco Stereo 120 or other similar high quality amplifiers. Size: $13\frac{1}{2} \times 4\frac{1}{4} \times 9$ in. Price: (assembled) £69; (kit) £56.

Stereo 120 ★

Transistor stereo power amplifier. Output: 35W RMS per channel. HD less than 0.25% up to 60W 20 Hz-20 KHz. FR 5 Hz-100 KHz ± 0.5 dB. Noise: 95 dB below stated output (unweighted). Input: 1.5V for stated output. Output impedance: 4-16 ohms. Output transistors: selected RCA 2N3055. Mains: 220-240V AC. Size: $13 \times 10\frac{1}{2} \times 4$ in. Designed for use with Dynaco PAT.4 or any other similar high quality stereo control unit. Price: (assembled) £109; (kit) £93.

SCA-80 ★

Solid state stereo amplifier. Power output: 50W per channel RMS, 4-16 ohms. HD less than 0.5%. FR 15 Hz-50 KHz ± 1 dB. NL: better than -60 dB. Inputs: pickup, 3 mV, 47K. Controls: tape monitor switch, blend, treble for each channel, rumble filter, bass for each channel, balance, volume, loudness. Mains powered. Dimensions: $13\frac{1}{2} \times 4\frac{1}{4} \times 10$ in. Price: (assembled) £142; (kit) £110.

ST-80 ★

Solid state stereo amplifier. Power output: 50W per channel RMS. 4-16 ohms. HD less than 0.5%. FR 15 Hz-50 KHz ± 1 dB. NL: better than -60 dB. Mains powered. Dimensions: $13\frac{1}{2} \times 4\frac{1}{4} \times 9$ in. Control unit: Dynaco PAT.4, or others. Price: (assembled) £89; (kit) £73.

DYNATRON RADIO LTD

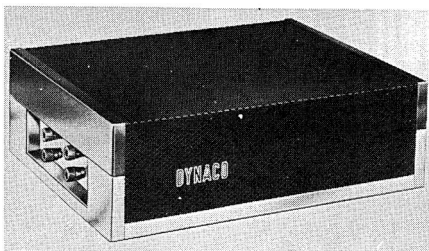
St. Peters Road, Furze Platt, Maidenhead, Berks. Tel: Maidenhead 23331.

SA 90 ★

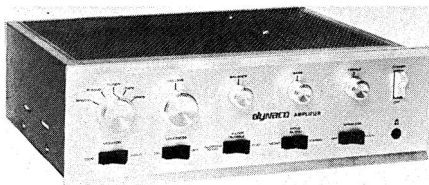
Integrated stereo transistorised amplifier. Output: 45W per channel into 3 ohms. HD: 0.2% at $\frac{1}{2}$ dB below rated output. FR: radio/tape 30 Hz-20 KHz (± 1 dB), magnetic PU (RIAA correction) 35 Hz-20 KHz (± 1.5 dB). H and N: radio/tape, better than 70 dB; PU, better than 66 dB. Output impedances: speakers 4-16 ohms, ear-phones 8 ohms or greater. Inputs: radio 150 mV 68K or greater, tape 150 mV 68K or greater, crystal PU (with special impedance match) 75 mV, magnetic PU 23 mV 47K. Controls: input selector, volume, balance, loudness, stereo/mono, bass, treble, high filter, low filter, tape monitor, speakers (A, A+B, B), channel reverse, on/off. Teak veneer case. Size: $19\frac{1}{4} \times 16 \times 5\frac{3}{8}$ in. Mains: 110/130, 220/240V. Price: £62.

EAGLE PRODUCTS

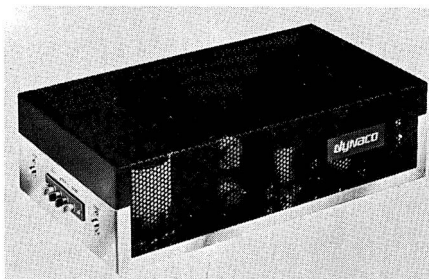
Distributors: B. Adler & Sons (Radio) Ltd, Coptic Street, London, WC1.
Tel: 01-636 9606/7. Cables: Reldab, London.



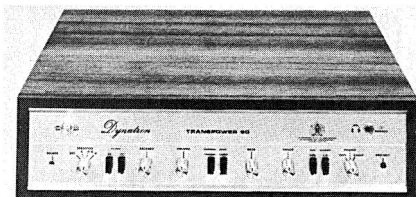
Dynaco ST-120



Dynaco SCA-80



Dynaco ST-80



Dynatron SA90



Eagle SA 100

SA 100 ★

Integrated stereo amplifier. Output: 5W RMS per channel. FR 40 Hz-20 KHz ± 1 dB. HD $< 1\%$ at full output. HN -58 dB. Inputs: PU 300 mV, radio 300 mV, aux 300 mV. Separation at 1 KHz better than 40 dB. Controls: input selector, mode, left channel volume, right channel volume, left channel tone (-14 dB at 10 KHz), right channel tone (-14 dB at 10 KHz). On-off switch. Output imp 4, 8, 16 ohms each channel. Mains: 240V AC. Size: $9\frac{1}{4} \times 4\frac{1}{2} \times 7$ in. Price: £22 11s 6d.

SA 200

Integrated stereo amplifier. Inputs: mag PU 5 mV, crystal PU 100 mV, radio 100 mV, tape 5 mV, mic 5 mV. Output: 7.5W per channel. Controls: selector, mode, volume, bass, treble, loudness, speaker/phones, on/off. Distortion less than 1% at 15W at 1 KHz, less than 0.25% at 1W at 1 KHz. FR 50 Hz-20 KHz ± 2 dB. Output impedance: 4, 8, 16 ohms. Valves. Size: $12\frac{1}{4} \times 4\frac{3}{4} \times 8\frac{1}{4}$ in. Price: £33 1s 6d.

TSA.20

Integrated transistor stereo amplifier. Output: 10W RMS per channel at 8 ohms, 20W RMS per channel at 3 ohms. FR 30 Hz-20 KHz ± 2 dB. HD $< 1\%$ at 5W. Output imp 4-16 ohms. Inputs: PU(mag) 3 mV (RIAA), PU(cer/crystal) 100 mV (RIAA), radio 150 mV, aux 250 mV. SN better than 50 dB (mag PU), better than 60 dB (aux). Crosstalk better than -45 dB. 12 transistors, two diodes. Silicon transistors in pre-amplifier. Size: $10 \times 4\frac{1}{2} \times 8\frac{1}{2}$ in. Price: £27 11s 3d.

TSA.60 ★

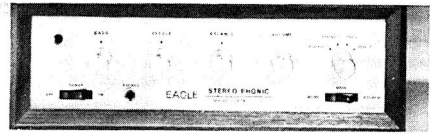
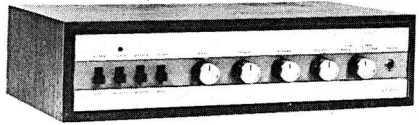
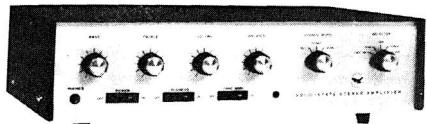
Transistorised stereo integrated amplifier. Inputs: PU(1) 5 mV 47K, PU(2) 100 mV 1 megohm, tape(1) 250 mV 100K, tape(2) 150 mV 50K, radio 100 mV 100K. Bass control ± 10 dB at 100 Hz, treble control ± 10 dB at 10 KHz. FR 30 Hz-20 KHz ± 2 dB. HD $< 1\%$ at 9W RMS. Output: 15W RMS per channel at 8 ohms. Output impedance: 4-16 ohms. 14 transistors, 4 diodes. Mains: 220/240V AC. Size: $12\frac{3}{4} \times 4\frac{1}{2} \times 9\frac{1}{2}$ in. Price: £41 9s 6d.

VTA.40

Integrated stereo amplifier. Output: 10W RMS per channel. FR 20 Hz-20 KHz, ± 2 dB. HD 1% at 8W. S/N ratio: better than 54 dB. Inputs: tape head 2 mV NARTB; phono 3 mV RIAA; tuner 100 mV; aux 300 mV; tape 160 mV. Controls: function selector, volume, bass, treble, balance, loudness, mono/stereo tape monitor, speaker on/off. Price: £41 9s 6d.

TSA.150 ★

Integrated stereo amplifier. Output: 7W RMS per channel. FR 30 Hz-18 KHz. Inputs: mag PU 3.5 mV, ceramic PU 100 mV, radio 100 mV, aux 100 mV. S/N better than 50 dB. Remote

*Eagle TSA60**Eagle TSA150**Eagle TSA250**Eagle TSA500*

speaker outlet and switch. Size: $3\frac{1}{8} \times 13 \times 8\frac{1}{2}$ in. Price: £29 10s.

TSA.250 ★

Integrated stereo amplifier. Output: 12.5W RMS per channel. FR 25 Hz-22 KHz. Inputs: mag PU 3 mV, ceramic PU 200 mV, radio 200 mV, aux 200 mV. S/N better than 50 dB. Size: $4\frac{1}{4} \times 13 \times 10$ in. Price: £39 10s.

TSA.500 ★

Integrated stereo amplifier. Output: 25W RMS per channel. FR 20 Hz-25 KHz. Inputs: mag PU 3 mV, ceramic PU 200 mV, tape head 1.6 mV, radio 280 mV, aux 280 mV. S/N better than 50 dB. Size: $4\frac{3}{8} \times 13\frac{5}{8} \times 10\frac{1}{4}$ in. Price: £59 10s.

E. K. ELECTRONICS (IA) LTD
Brotherton Hall, Brotherton, Knottingley,
Yorks. Tel: Knottingley 2081.

★ Indicates entry is illustrated

Hi-Fi 20

Integrated mains operated valved mono power amplifier, 20W (music); 15W RMS, 8 or 16 ohms. HD < 10%. FR: 30 Hz-17 KHz ± 3 dB. 12 dB feedback. S/N -70 dB (input 1); -60 dB (input 2). Inputs: 300 mV (input 1); 2.5 mV (input 2). Output stage: 2 \times EL 34. Psn: 200/240V. Dimensions: 12 \times 9 $\frac{1}{4}$ \times 6in. Price: £25.

FERROGRAPH CO LTD

The Hyde, Edgware Road, Colindale, London, NW9. Tel: 01-205 2241.

F307 ★

Stereo amplifier styled to match Ferrograph Series 7 recorder. Per channel: 20W into 8 ohms or 15W into 15 ohms. Total HD less than 0.25% at 1 KHz all levels. FR: (± 1 dB): 20 Hz-25 KHz, (± 1 dB-3 dB) 15 Hz-30 KHz. Inputs: ceramic PU, tuner and aux, 100 mV-5V at 2 megohms; magnetic PU (RIAA), 3 mV at 100K, 68K or 47K; tape, 150 mV at 50K. Outputs: speaker 8-16 ohms; phones 8 ohms or greater; tape 50K or greater. H and N: less than -65 dB (except magnetic PU which is less than -60 dB). Bass control ± 17 dB at 50 Hz, treble control ± 13 dB at 15 KHz. Push-button low-pass filters -3 dB at 10, 7 and 5 KHz. Mains: 117/220/240V 50/60 Hz. Size: 16 $\frac{1}{2}$ \times 5 \times 9 $\frac{5}{8}$ in. Price: £59.

FISHER RADIO CORPORATION

Long Island City 1, New York, U.S.A.
Distributors: Getz Bros and Co Inc,
2 Harewood Place, London W1R 0DD.
Tel: 01-499 6901.

X100-A ★

Integrated stereo amplifier. 20W per channel. HD 0.8%. Response 20 Hz-20 KHz ± 1 dB. NL better than -90 dB with vol control at minimum. Inputs for mono and stereo PU, tape head, tuner, aux, tape monitor. High-pass filter. Independent tone controls for each channel. Output stages EL184s. Psn 200-240V AC. Price (in chassis form): £64 1s. Also available in cabinet form.

TX-1000 ★

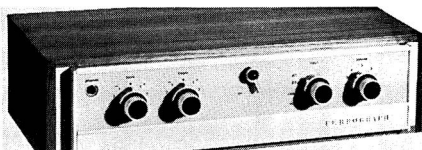
Transistorised stereo amplifier and control unit. Output: 50W RMS per channel. HD 0.8% at rated output. H and N: 90 dB below rated output. FR 20 Hz-40 KHz ± 1.5 dB. Mains: 105-250V 50/60 Hz. Size: 15 $\frac{1}{8}$ \times 4 $\frac{3}{4}$ \times 12 $\frac{3}{4}$ in. Walnut cabinet optional extra. Price: £159 12s.

Spacexpander K-10 ★

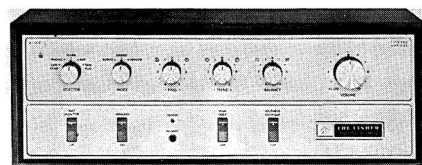
Reverberation amplifier for use with radio, records or tape. Mono or stereo. 3 valves, single control. Price: £38 17s.

A. R. FRANKLIN

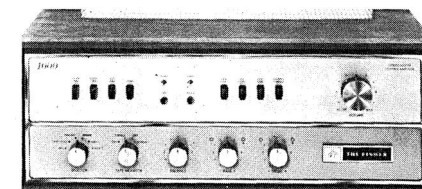
(Audio engineer), 4 Birch House, Penge, London, SE25. Tel: 01-659 0912.



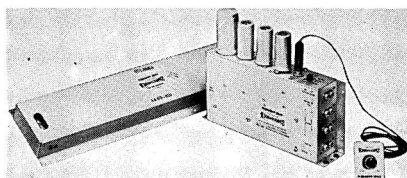
Ferrograph F307



Fisher X-100 A integrated stereo amplifier



Fisher TX1000



Fisher K-10 reverberation amplifier



Goodmans Maxamp

Control unit/mixer

Transistorised three-channel stereo mixer/amplifier. Inputs: (1) mic 200 μ V and PU 4 mV 47K RIAA, (2) mic 200 μ V and 100mV 800K, (3) mic 200 μ V and 100 mV 800K. Balance and mono switch on each input (enables panning). Controls: Bass, treble and master fade. Noise: better than -60 dB. Outputs: 1V 10K, 6.5V at 8 or 15 ohms. Filters: 10 KHz and 6 KHz filters on RIAA position. Provision for speaker or headphone monitoring. Designed as mixer or as control unit for larger installations. HD <0.2%. FR 40 Hz-30 KHz \pm 3 dB. Output transistors: AD161, AD162. Mains: 110, 240V AC. Size: 3 \times 13 $\frac{1}{2}$ \times 6in. Price: £54. Special models made to order.

GOLDRING MANUFACTURING CO (Great Britain) LTD

486-488 High Road, Leytonstone, London, E11. Tel: 01-539 8343.

Goldring/Lenco VV7

Stereo pre-amplifier. All transistor. Input: magnetic cartridge, 1 mV sensitivity, 47K, NL -60 dB. Output: 100 mV RMS. Psn 200-240V 50 Hz. Dimensions: 4 $\frac{3}{4}$ \times 2 \times 1 $\frac{1}{2}$ in. Price: £8 10s (plus £2 0s 6d PT).

GOODMANS LOUDSPEAKERS LTD

Axiom Works, Wembley, Middx. Tel: 01-902 1200. Cables: Goodaxiom, Wembley.

Maxamp 30 ★

Integrated stereo transistorised amplifier. Inputs: pickup 3.5 mV 47K or 50 mV 100K, radio 100 mV 100K, tape 140 mV 50K, aux 3 mV 50K. Controls: input selector, volume, balance, bass, treble, P-B tape play, P-B LF filter, P-B HF filter, P-B mono/stereo mode, P-B on/off. Indicator light when on. Output: 30W RMS (15W per channel) into 8 ohm load, 20W RMS (10W per channel) into 4 or 15 ohm load. HD less than 0.3% for 15W per channel into 8 ohm load at 1 KHz. FR 20 Hz-20 KHz \pm $\frac{1}{2}$ dB. Output impedance: 4, 8, 15 ohms. High level signal for tape recorder. Mains: 105, 120, 200, 220, 240V AC 40-60 Hz. Size: 10 $\frac{1}{2}$ \times 5 $\frac{1}{2}$ \times 7 $\frac{1}{4}$ in. Price: £54.

GRAMPIAN REPRODUCERS LTD

19 Hanworth Trading Estate, Feltham, Middx. Tel: 01-894 9141.

Grampian 666 Ambiphonic unit

Enables one to four small speakers to be fed with amplified and delayed signal from main amplifier output. Delay device consists of two parallel springs and transducers as used in Grampian reverberation unit. Provides echoes similar to those produced by room 32 \times 42ft. Volume of delayed signals controllable by

**Grundig SV140**

listener. Twin high-impedance line-bridging input connections. Output: 2 $\frac{1}{2}$ W push-pull power amplifier with 5 ohms and twin 600-ohm outputs. Fully transistorised. Mains: 100-125V or 200-250V. Consumption: 8W. Size: 18 \times 4 $\frac{3}{4}$ \times 5 $\frac{1}{4}$ in. Weight: 7 lb. Price: £60 10s.

GRUNDIG (Great Britain) LTD

Hi-Fi Division, 15 Orchard Street, London, W1. Tel: 01-935 4898.

SV85

Transistor integrated stereo amplifier and control unit. 31 transistors, 14 diodes. Inputs: mic 7 mV at 100K, PU (mag) 3.5 mV 47K, PU (crystal) 220 mV-3V 1 megohm, radio/tape 250 mV 470K. Controls: volume, stereo balance, bass \pm 18 dB at 30 Hz, treble \pm 18 dB at 15 KHz, push-button selector, scratch filter, rumble filter, tape monitoring, slope 1, slope 2, presence. Output: 30W RMS per channel. Distortion <0.5%. Outlets: two speakers 4-16 ohms, two 300-ohm phone sockets. Stabilised supply to pre-amplifier stages. Mains: 110, 130, 220, 240V 50-60 Hz. Consumption 120W maximum. FR 20 Hz-20 KHz \pm 1 dB. Size: 20 \times 6 \times 12in. Finish: teak. Price: £147 3s 9d.

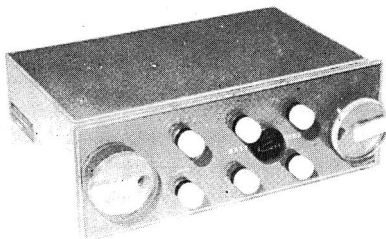
SV140 ★

Transistorised integrated stereo amplifier. Slider controls for balance, volume and five tone ranges. Full overload and mismatch protection. Moving coil meters. 50 silicon transistors, 23 diodes. Inputs: mic 7.5 mV 100K, PU (2) 3.7 mV 47K for magnetic cartridge, aux 250 mV 470K, tuner 250 mV 470K, tape 250 mV 470K. Tape monitor. Outputs: 1V 600 ohms line, headphones, speakers. Push-buttons for: tape monitoring, scratch/rumble filters, slope 1, slope 2. Output: 50W RMS per channel. HD: less than 0.5%. Speaker impedance: 4-16 ohms. FR: 20 Hz-20 KHz \pm 1 dB. Mains: 110-240V 50-60 Hz. Finish: oiled teak (matt walnut to special order). Size: 6 \times 20 \times 12in. Price: £198 15s.

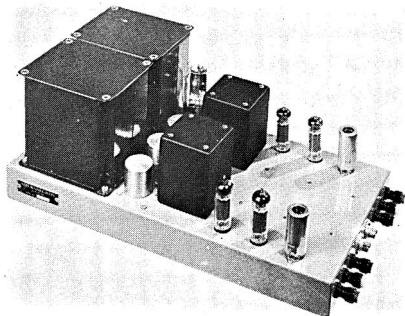
HART ELECTRONICS

321 Great Western Street, Manchester 14. Tel: Rusholme 2212-3. Cables: Alloys, Manchester.

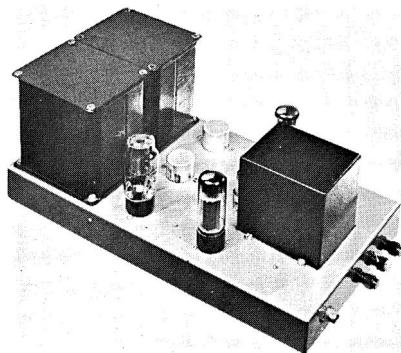
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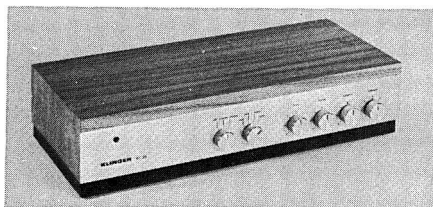
Kerr, McCosh DSI stereo control unit



Kerr, McCosh CWA 2/12 stereo amplifier



Kerr, McCosh CWA 40 amplifier



Klinger K35

Bailey 20W amplifier

See Constructional Kits Section for full details.

Dinsdale 10W amplifier

See Constructional Kits Section for full details.

KERR McCOSH & CO LTD

435 Sauchiehall Street, Glasgow, C2.

Tel: 041-332 0988.

DSI ★

Stereo control unit. Inputs: pickup and tape head 4 mV; crystal pickup and tape 140 mV; mic 1.5 mV. Controls: sel. switch, on/off, separate vol, treble, bass for each channel, flat/tone control. Tape record sockets. Size: $12\frac{1}{2} \times 4\frac{1}{2} \times 10\frac{1}{4}$ in. Price: £34.

CWA 2/12 ★

12W per channel. Distortion 0.1% at 12W. Noise level -95 dB. Response 25 Hz-30 KHz ± 0.2 dB. Output imp 7.5 and 15 ohms. Input sensitivity 1V. Designed to operate with DSI pre-amplifier. Size: $20 \times 7 \times 8$ in. Price: £48.

CWA 40 ★

Mono amplifier. 40W peak continuous sine wave. Distortion 0.1% at 38W. Noise level -98 dB. FR: 25 Hz-30 KHz ± 0.2 dB. Output imp 7.5 and 15 ohms. Input sensitivity 1V. Designed to operate with DSI pre-amplifier. Size: $20 \times 9 \times 8$ in. Price: £45.

KLINGER CONTROLS LTD

10 Friar Street, Carter Lane, London, EC4.

Tel: 01-236 1811.

K.C.35 ★

Integrated power amplifier. Transistorised. Power output: 6W RMS per channel. HD: <1%. FR: 40 Hz-18 KHz ± 3 dB at 6W. S/N 52 dB. Output impedance: 15 ohms. Controls: volume, balance, bass, treble, selector, on/off, stereo/mono. Bass: ± 15 dB at 40 Hz. Treble: $+15$ dB to -20 dB at 14 KHz. Inputs: PU1, 4 mV at 47K RIAA. PU2, 40 mV 47K. Radio and tape, 100 mV 10K flat response. Psn: 200-250V 50 Hz. Dimensions: $17\frac{1}{2} \times 4 \times 7\frac{1}{2}$ in. Weight: 10 lb. Price: £30 9s.

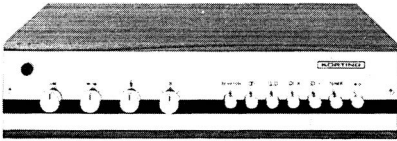
KORTING

Europa Electronics Ltd, Howard Place, Shelton, Stoke-on-Trent ST1 4NW.

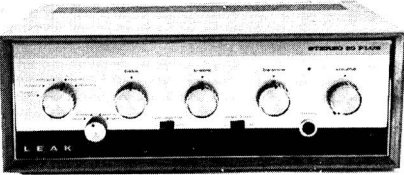
Tel: Stoke-on-Trent 29316.

A500, Type 29833 ★

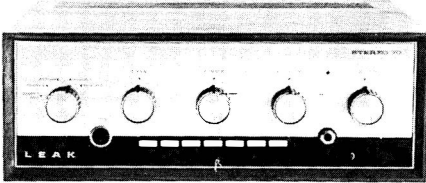
Stereo amplifier with 21 transistors. Push-buttons for stereo, scratch, tape, pickup 1 and 2, tuner and on/off. Controls: treble, bass, balance and volume, with indicator lamp. Sockets: diode output for tuner; crystal, ceramic or magnetic pickup; tape recorder; speakers. Output: 10W per channel. Drift power transistors and triple



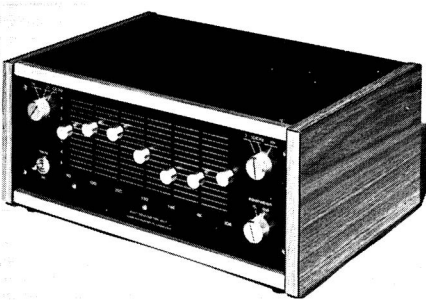
Korting A500



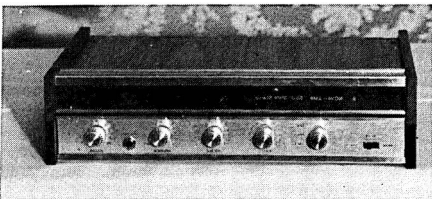
Leak Stereo 30 Plus



Leak Stereo 70



Leever-Rich A501



LL Electronics Nova-Amp

negative feedback. Cabinet in natural walnut colour, satin finish. Size: $3\frac{1}{2} \times 14 \times 9$ in. Price: £42 15s.

LAFAYETTE

Barnet Factors Ltd, 147 Church Street, London, W2. Tel: 01-723 5328.

Lafayette LA85T

Solid state stereo amplifier. Power output: 3-16 ohms; 60W total RMS at 4 ohms. HD less than 1%. FR 22 Hz-20 KHz ± 1 dB. NL: tape head and pickup -57 dB; aux and tuner -75 dB. Input voltage RMS: aux and tuner 270 mV; tape head and pickup 2.5 mV. Psn 220-240V. Dimensions: $3\frac{3}{8} \times 13 \times 9\frac{1}{4}$ in. Price: £49 10s.

Lafayette

Solid state stereo amplifier. Output: 12W RMS per channel. FR 20 Hz-20 KHz ± 1.5 dB. Output impedance: 4-16 ohms. HD: 0.7% at 1 KHz at 1W. Inputs: PU (mag) 2.3 mV, PU (ceramic) 80 mV, radio 500 mV, aux 250 mV. Controls: volume/balance, treble, bass, input selector, mode switch, main/remote speaker switch, on-off. Outlet jack for headphones (8 ohms) on front panel. Size: $3\frac{1}{2} \times 10\frac{5}{8} \times 8\frac{3}{8}$ in. Finish: simulated walnut vinyl-clad metal case. Black and brushed aluminium front panel. Price: £28.

H. J. LEAK & CO LTD

Brunel Road, East Acton, London, W3. Tel: 01-749 1641. Cables: Sinusoidal, Ealux, London.

Stereo 30 Plus ★

Transistorised integrated amplifier. Inputs: PU(1) 2 mV 47K; PU(2) Hi sensitivity 10 mV 33K; Lo sensitivity 30 mV 100K; tuner/mic 25 mV 47K; tuner(2) Hi sensitivity 60 mV 50K; Lo sensitivity 250 mV 50K; replay 400 mV 47K. Output: 15W per channel 8 ohms. 10W per channel 15 ohms. 20W per channel 4 ohms. Controls: input, bass, treble, balance, filter, volume, tape monitor. 6 KHz filter. Headphone socket. H and N 87 dB. HD 0.1% up to 12W at 1 KHz into 8 ohms. Mains: 110-250V 40-60 Hz. Size: $13 \times 4\frac{1}{4} \times 8\frac{3}{4}$ in. Price: Chassis Model £53, Cabinet Model £59 10s.

Stereo 70 ★

Transistorised integrated amplifier. Inputs: PU(1) 2 mV 47K RIAA, PU(2) 10 mV 33K RIAA, radio 25 mV 47K or 2 mV 47K, aux 60 mV 50K or 250 mV 50K, tape replay 400 mV 47K. Controls: bass ± 16 dB at 50 Hz, treble +16 dB at 14 KHz, volume, balance (zero to max on each channel), input selector, push-buttons for mode, tape monitor, treble filter, speaker, on/off. Output: 35W RMS per channel into 8 ohms, 28W RMS per channel into 15 ohms. HD 0.1% all powers up to 25W RMS.

★ Indicates entry is illustrated

FR 30 Hz-20 KHz ± 1 dB. Mains: 110, 117, 130, 210, 230, 250V 40/60 Hz. Consumption: 150 volt-amps. Size: (chassis) $13 \times 4\frac{1}{4} \times 8\frac{3}{4}$ in.; (cabinet) $13\frac{1}{2} \times 4\frac{3}{4} \times 9\frac{3}{4}$ in. Panel cut-out $12\frac{1}{2} \times 4$ in. Price: (chassis model) £63; (cabinet model) £69 10s.

LEEVEES-RICH EQUIPMENT LTD

319 Trinity Road, Wandsworth,
London, SW18. Tel: 01-874 9054/6.
Cables: Leemag, London, SW18.

7 Band Audio Equaliser Model A501 ★

Wide range equaliser covering spectrum in 7 separately adjustable and overlapping bands, suitable for use in transcription to match widely differing recordings to a common quality standard. Price: £195.

L. L. ELECTRONICS LTD

9 Brydges Road, London, E15.
Tel: 01-534 3800.

Nova-Amp ★

Solid state integrated stereo amplifier. Output: 10W per channel RMS. 4 ohms. HD $< 1\%$. FR 40 Hz-20 KHz ± 3 dB at 1W. Noise level: -55 dB at 10W. Psn mains. Size: $14 \times 9 \times 3\frac{1}{2}$ in. Has inputs for magnetic pickup 3 mV 47K; ceramic pickup 150 mV 500K; radio 60 mV 47K; tape 60 mV 47K; each -55 dB. Controls: bass, treble, balance, mono-stereo, and selector for disc-radio-tape. Price: £30 9s.

LOWTHER MANUFACTURING CO

Lowther House, St. Mark's Road,
Bromley, Kent BR2 9HQ.
Tel: 01-460 5225. Cables: Lowther, Bromley.

Mk V control unit

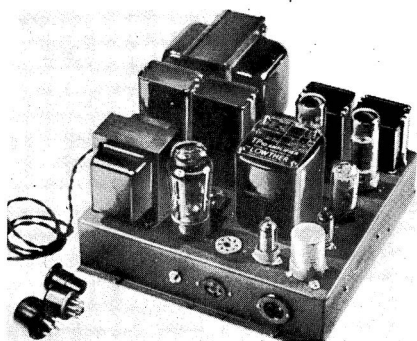
Inputs: mic 3 mV; pickup 3 mV-300 mV; radio and aux 100 mV. 5-pos sel, vol, bass, treble, filter, equalisation. Filters: 4.5, 7 and 9 KHz. HD $< 0.5\%$. H and N -65 dB. Output cathode follower 1V RMS. To operate with Lowther L18 amplifier. With A-B test facility. Size: $10\frac{1}{4} \times 4\frac{3}{8} \times 7$ in. Price: £25.

L18 amplifier

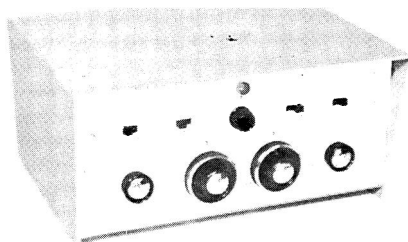
18W. Distortion $< 0.1\%$. Input for specified output 0.75V. Response 20 Hz-40 KHz ± 1 dB. Feedback 20 dB. Noise level -85 dB. Output impedance 16 ohms with adjustment. Output: EL506 distributed load circuitry. Pat. Size: $12 \times 6 \times 6$ in. To operate with Mk V control unit. Price: £25 10s.

LL26 Mk II amplifier ★

26W. Dist $< 0.1\%$. Input for spec output 0.75V. Response 20 Hz-70 KHz ± 1 dB. Feedback 22 dB. NL -90 dB. Output imp 16 ohms with adjustment. Output: EL34s. Lowther Linear.



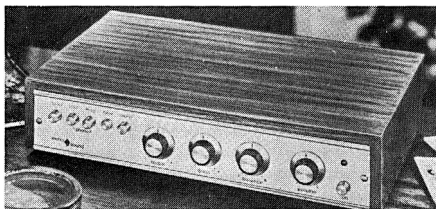
Lowther LL26 amplifier



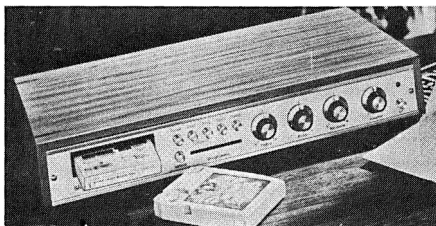
Lowther stereo control unit



Lux SQ77



Metrosound ST20



Metrosound SS30

Size: $11 \times 12 \times 7\frac{1}{2}$ in. Weight: 33 lb. To operate with Mk IV control unit. Price: £47.

Mk II stereo control unit ★

Input as for master control unit Mk V. Tape input sockets. HD 0.1%. Dual low-pass filters. Dual output balanced and balance controls between channels. Size as Mk V. To operate with L18S power amp. Price: £45.

L18S stereo amplifier

18W output on each channel. Distortion 0.1%. Input for specified output 0.75V. Response 20 Hz-40 KHz ± 1 dB. Noise level -85 dB. Output imp 8.4 or 16 ohms. Output EL506 ultra linear. Size: $11 \times 12 \times 7\frac{1}{2}$ in. To operate with Mk II control unit. Price: £47.

LUX

Distributors: Howland-West Ltd,
2 Park End, South Hill Park, London, NW3.
Tel: 01-794 6666.

SQ77T ★

Integrated stereo amplifier. Power output: 30W RMS per channel into 8 ohms. HD: $< 0.5\%$ at 20W. FR: 10 Hz-50 KHz, +0 to -3 dB. HN: better than -65 dB. Inputs: tape, 1.8 mV 100K; phono, 1.8 mV 50K; aux(1), 200 mV, aux(2), 800 mV. Controls: volume, balance, bass, treble, selector, mode, phones, speaker/phones switch. Dimensions: $15 \times 8\frac{3}{4} \times 6$ in. Price: £67 7s 6d.

SQ1220

Integrated stereo amplifier. Output: 50W RMS per channel into 8 ohms. HD: $< 0.1\%$ at 40W at 1 KHz. FR: 10 Hz-50 KHz ± 1 dB. NL: -60 dB (pickup); -75 dB (aux 1 and 2); -60 dB (tape). Inputs: pickup 2 mV 50K; or with plug-in transformer, 0.2 mV, 30K, 50K or 100K. Aux 1, 110 mV 50K. Aux 2, 750 mV 100K. Tape, 2 mV 100K. Controls: volume, balance, bass, treble, selector, mode, phones, L.S. switch, tape monitor, frequency selector. Dimensions: $18\frac{3}{4} \times 7 \times 7\frac{1}{8}$ in. Price: £124 10s.

SQ505

Integrated stereo amplifier. Output: 30W RMS per channel into 8 ohms. HD: $< 0.2\%$ at 30W at 1 KHz. FR: 10 Hz-50 KHz ± 1 dB. NL: -60 dB (pickup); -60 dB (tape head); -70 dB (aux 1 and 2). Inputs and controls as for SQ1220. Dimensions: $17\frac{3}{4} \times 10\frac{9}{16} \times 5\frac{9}{16}$ in. Price: £97 10s.

METROSOUND

Metrosound Manufacturing Co Ltd,
Audio Works, Cartersfield Road,
Waltham Abbey, Essex.
Tel: Waltham Cross 31933.

Metrosound ST20 ★

Transistorised stereo amplifier. Output: 10W RMS per channel. HD: less than 1% at rated

output. FR: 30 Hz-30 KHz ± 2 dB at rated output. Noise level: -70 dB. Inputs: mag PU 2.5 mV, ceramic PU 150 mV, radio 150 mV. Output impedance: 8 ohms. Mains: 200-250V AC. 20 transistors, 2 diodes. Controls: push-button controls for mains on/off, mono/stereo, tape, tuner, mag PU, ceramic PU. Rotary controls for treble, bass, balance and volume. Bass control: ± 12 dB at 40 Hz. Treble control: ± 12 dB at 14 KHz. Tape outlet: 300 mV per channel at 5K. Finish: anodised brushed silver facia with polished trim and knobs, teak veneer cabinet. Size: $3\frac{1}{2} \times 15\frac{1}{4} \times 10$ in. Price: £32.

Metrosound SS30 ★

Transistorised stereo amplifier with tape cartridge playing facility incorporated. 24 transistors, 5 diodes. Output: 10W RMS per channel. HD: less than 1% at rated output. FR: 30 Hz-30 KHz ± 2 dB at rated output. Noise level: -70 dB. Inputs: mag PU 2.5 mV, ceramic PU 150 mV, radio 150 mV. Output impedance: 8 ohms. Mains: 200-250V 50-60 Hz. Controls: push-button controls for mains on/off, mono/stereo, tape, tape programme selector, tuner, magnetic PU, ceramic PU. Rotary controls for treble, bass, balance and volume. Bass control: ± 12 dB at 40 Hz. Treble control: ± 12 dB at 14 KHz. Balance control: either channel may be faded to zero without affecting the other. Tape output: 300 mV at 5K. Tape cartridge system. Speed $3\frac{3}{4}$ i/s. W and F: less than 0.3%. FR: 40 Hz-12 KHz ± 3 dB. H and N: -45 dB. Eight-track stereo tape cartridge. Size: $3\frac{1}{2} \times 20\frac{3}{4} \times 10$ in. Price: £81 1s 2d (including PT).

MIDLAND

Distributors: E. R. Factors Ltd,
378 Harrow Road, Paddington, London, W9.
Tel: 01-286 9530.

19-325

Solid state integrated stereo amplifier. Inputs: mag PU 3 mV, ceramic PU 300 mV, radio 250 mV, aux 250 mV. H and N: better than 50 dB mag PU, better than 60 dB aux. Output: 9W music per channel. FR: 30 Hz-30 KHz ± 2 dB. Output impedance: 4-16 ohms. HD: $< 1\%$ at normal listening level. 12 transistors, two diodes. AC outlet socket for record deck. Size: $4\frac{1}{2} \times 10 \times 8$ in. Weight: 9 lb. Price: £29 8s.

19-350

Solid state integrated stereo amplifier. Inputs: mag PU 3 mV, ceramic PU 300 mV, radio 200 mV, aux 200 mV. H and N: better than 50 dB mag PU, better than 60 dB aux. Output: 20W music per channel. FR: 40 Hz-30 KHz ± 2 dB. Output impedance: 4-16 ohms. HD: $< 1\%$ at normal listening level. Bass control: ± 10 dB at 70 Hz. Treble control: ± 10 dB at 15 KHz. 14 transistors, two diodes. AC outlet for record

★ Indicates entry is illustrated

deck. Size: $4\frac{1}{2} \times 11 \times 8$ in. Weight: 10 lb. Price: £39 10s.

19-375

Solid state integrated stereo amplifier. Inputs: mag PU 3 mV, tape head 2 mV, ceramic PU 300 mV, radio 250 mV, aux 250 mV. H and N: better than 50 dB mag PU, better than 60 dB aux. Output: 25W music per channel. FR: 20 Hz-30 KHz ± 2 dB. Equalisation: (tape) NARTB, (mag PU) RIAA. Output impedance: 4-16 ohms. Bass control: ± 10 dB at 100 Hz. Treble control: ± 10 dB at 10 KHz. Loudness switch: +6 dB at 100 Hz, +6 dB at 10 KHz. AC outlet for record deck. 14 transistors, four diodes. Price: £46.

MILLBANK ELECTRONICS

The Square, Forest Row, Sussex.
Tel: Forest Row 2288.

MTA301

Transistorised mono power amplifier. Output: 30W RMS. HD: 0.3%. FR: 30 Hz-20 KHz -3 dB. Noise level: -90 dB for stated output. Input: 4.5 mV. Output impedance: 4, 8, 16 ohms. Mains: 220-250V AC. Size: $19\frac{1}{2} \times 14\frac{1}{8} \times 4\frac{1}{2}$ in. Price: £62 11s.

MTA501

Transistorised mono power amplifier. Output: 50W RMS. HD: 0.3%. FR: 30 Hz-20 KHz -3 dB. Noise level: -90 dB for stated output. Input: 4.5 mV. Output impedance: 4, 8, 16 ohms. Mains: 220-250V AC. Size: $19\frac{1}{2} \times 14\frac{1}{8} \times 4\frac{1}{2}$ in. Price: £76 11s.

MTA1001

Transistorised mono power amplifier. Output: 100W RMS. HD: 0.3%. FR: 30 Hz-20 KHz -3 dB. Noise level: -90 dB for rated output. Input: 4.5 mV. Output impedance: 4, 8, 16 ohms. Mains: 220-250V AC. Size: $19\frac{1}{2} \times 14\frac{1}{8} \times 4\frac{1}{2}$ in. Price: £103 17s.

Module 070

Magnetic cartridge preamplifier. Two inputs: 5 mV 47K. Two outlets: 3.5V max. Gain control. Power requirements: 24V 6 mA. Size: 4×2 in. Price: £7 9s 7d.

Module 071

Tape head preamplifier. Two inputs: 3.5 mV 47K. Two outlets: 500 mV. Gain control. Power requirements: 24V 6 mA. Size: 4×2 in. Price: £7 9s 7d.

Various other input preamplifier modules available. Full details on request.

MULLARD LTD

Mullard House, Torrington Place,
London, WC1. Tel: 01-580 6633.

Unilux

See Constructional Kits Section for details of

Mullard preamplifier and amplifier modules for the home constructor.

NATIONAL

Distributors: Unamec Ltd, P.O. Box 1,
United Africa House, Blackfriars Road,
London, SE1. Tel: 01-928 2070.

National SA-73

Solid-state stereo amplifier. Output: 16W RMS per channel. FR: 10 Hz-50 KHz ± 1 dB. S/N: 88 dB aux, 74 dB PU. Controls: bass, treble, loudness, low filter, high filter, selector switch, volume. Full specification on request. Price: £73 10s.

NIKKO

Nikko Electric Mfg Co Ltd,
Distributors: Howland-West Ltd,
2 Park End, South Hill Park, London, NW3.
Tel: 01-794 6666 and 6033.

Nikko TRM-30 ★

Integrated stereo transistorised amplifier. Output: 10W per channel. FR (± 1 dB): 15 Hz-20 KHz. Output impedance: 4-16 ohms. Noise level: 60 dB. Inputs: tape 1.8 mV, magnetic PU 2.8 mV 50K, tuner 300 mV, aux 200 mV. Controls: function, volume, balance, loudness, bass, treble, tape/source, mono-stereo reverse, rumble, scratch. Size: $12 \times 9\frac{1}{2} \times 3\frac{1}{2}$ in. Mains: 110-120, 210-240V AC. Price: £35 10s.

TRM-40B ★

Integrated stereo transistor amplifier and control unit. Inputs: tape head 2 mV, PU (mag) 4 mV, radio 500 mV, PU (crystal) 300 mV. Controls: function, volume, bass (each channel), treble (each channel), balance, mode, tape monitor, loudness, rumble filter, scratch filter, on/off, stereo headphone jack. Output: 15W RMS at 8 ohms. HD $< 1\%$ at stated output. FR 15 Hz-20 KHz ± 1 dB. Noise level better than 60 dB. Output impedance 4-15 ohms. Mains supply. Size: $11\frac{1}{2} \times 9\frac{1}{2} \times 3\frac{3}{8}$ in. Price: £46 10s.

TRM-50 ★

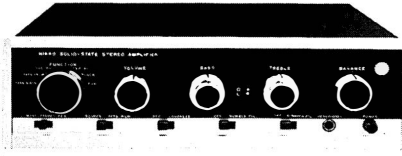
Solid state stereo amplifier. Power output: 4-16 ohms, 17W per channel RMS. HD less than 0.9%. FR 10 Hz-50 KHz $\pm 1\frac{1}{2}$ dB. Noise level -65 dB. Mains powered. Dimensions: $8.4 \times 6.5 \times 2.4$ in. Price: £59.

TRM-120 ★

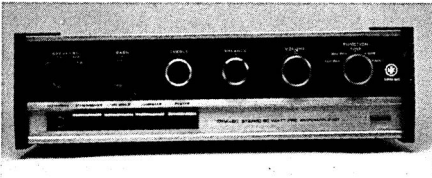
Integrated transistor stereo amplifier. Inputs: mic 3 mV 50K, tape head 1.7 mV 200K, radio 200 mV. PU(1) 2.8 mV 50K, PU(2) 2.8 mV 50K, aux 500 mV 500K. Noise level: mic -60 dB, tape -55 dB, PU -60 dB, others -65 dB. Controls: function, volume, balance, tone controls in/out, low filter, high filter, speaker switching, mode, tape monitor on/off, bass right, bass left, treble right, treble left, on/off,



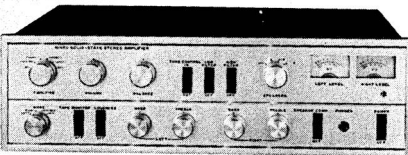
Nikko TRM-30



Nikko TRM-40B



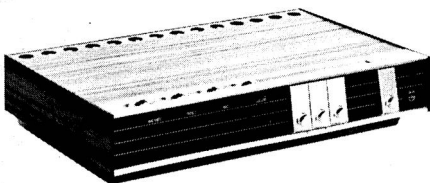
Nikko TRM-50



Nikko TRM-120



Peak Sound SA8-8



Philips RH580

meter level control, loudness. Output: 45W RMS into 8 ohms. HD 0.9% at rated output. FR 15 Hz-35 KHz ± 1 dB at 30W. Output impedance: 4-16 ohms. Mains: 117-240V 50/60 Hz. Size: $15\frac{1}{2} \times 4\frac{3}{4} \times 12\frac{3}{4}$ in. Price: £95.

ST301

Solid state stereo amplifier. Power output: 4-16 ohms, 10W per channel RMS. FR 20 Hz-50 KHz ± 1 dB. NL: -60 dB. Mains powered. Inputs: magnetic pickup 2.8 mV, 50K; tape, 1.8 mV, 200K; aux, 200 mV, 33K. Price: £80 (plus £19 10s 2d PT).

PEAK SOUND (Harrow) LTD

32 St Judes Road, Englefield Green, Egham, Surrey. Tel: Egham 5316.

Olympus

Stereo amplifier. 25W into 15 ohms. HD: 0.1%. FR 20 Hz-20 KHz -1 dB at 20W. NL -80 dB. Inputs: PU (mag) 2.5 mV RIAA equalised 68K 70 dB NL, PU (ceramic) 5 mV low impedance equalised 68K 70 dB NL, tuner 60 mV 80K 70 dB NL, tape 60 mV 80K 70 dB NL, Controls: Volume, balance, treble, bass, filter, push-button selector. Matches Olympus tuner. Size: $16 \times 10 \times 4$ in. Price on application.

SA/8-8 ★

Stereo amplifier. 8.5W per channel into 5 ohms. HD: 0.5%. FR ± 3 dB at 1W, 15 Hz-30 KHz; ± 3 dB at 8.5W, 20 Hz-14 KHz. Inputs: 50 mV 1M. Controls: volume, treble, bass, on/off, select. Size: $12 \times 8 \times 3$ in. Also available in kit form. Price: £21.

SA/10-10

Stereo amplifier. 10W per channel into 8 ohms. HD: 0.5%. FR ± 3 dB, 12 Hz-30 KHz at 1W, 12 Hz-15 KHz at 10W. NL -50 dB. Inputs: 80 mV 1M at -50 dB NL. Controls: volume, treble, bass, on/off, selector. Size: $12 \times 8 \times 3$ in. Also available in kit form. Price: £24 3s.

PHILIPS ELECTRICAL LTD

Century House, Shaftesbury Avenue, London, WC2. Tel: 01-437 7777.

RH-580 ★

Solid state stereo amplifier. Power output: 6W per channel RMS into 8 ohms; provision for 4 ohms (reduced power). HD $< 1.5\%$ at 5W per channel. FR 50 Hz-20 KHz 3 dB down for 6W. Noise level: 55 dB below 6W (overall). Input voltage: magnetic pickup 3 mV; other inputs 100 mV; for 6W at 1 KHz. Output transistors: two AD161/162. Psn 110, 127, 220, 240V. Inputs: magneto/dynamic pickup 3 mV, 47K; crystal pickup 100 mV, 60K; tuner and tape 100 mV 140K; all -55 dB overall for 6W. Controls: volume (with bass compensation + 8

★ Indicates entry is illustrated

dB max at 65 Hz); bass ± 13 dB at 65 Hz; treble +11 to -10 dB at 10 KHz; balance. Dimensions: $2\frac{7}{8} \times 13\frac{3}{8} \times 8\frac{1}{2}$ in. Price: £26.

RH590 ★

Solid state stereo amplifier. Power output: 10W per channel RMS into 8 ohms (4 ohms at reduced power). HD <1%. FR 25 Hz-15 KHz 3 dB down. Distortion: 1%. NL: 80 dB below 10W. Output transistors: four AD149. Psn 110, 127, 220, 240V. Dimensions: $3\frac{3}{8} \times 14\frac{1}{8} \times 10$ in. Inputs: magneto/dynamic pickup 3 mV, 47K; crystal pickup, tape and tuner 100 mV, 100K each, -80 dB overall for 10W out. Controls: volume (with bass compensation +8 dB max at 50 Hz); treble +14 dB at 10 KHz; bass +16 to -14 dB at 50 Hz; balance; rumble 12 dB/octave 3 dB down at 100 Hz; scratch 12 dB/octave 3 dB down at 6 KHz. Dimensions: $3\frac{3}{8} \times 14\frac{1}{8} \times 10$ in. Price: £49.

RH591 ★

Solid state stereo amplifier. Power output: 20W per channel RMS at 8 ohms (4 ohms at reduced power). HD 0.2% at 15W per channel. FR 20 Hz-50 KHz 3 dB below 20W. NL: 80 dB below 20W. Output transistors: four BDY20. Psn 110, 127, 220, 240V. Inputs: tape monitor, magneto/dynamic pickup 3 mV, 50K; tape, tuner, aux/ceramic pickup 100 mV, 500K. Output: 20W RMS at 1 KHz. Controls: volume (2-position loudness); bass ± 16 dB at 50 Hz; treble +14 to -16 dB at 10 KHz; rumble 12 dB/octave -3 dB at 10 KHz. -3 dB at 5 KHz; loudness 1, 3 dB at 10 KHz, 7 dB at 50 Hz; loudness 2, 7 dB at 10 KHz, 16 dB at 50 Hz; presence (switchable) +3 dB at 3 KHz. Psn 110, 127, 220, 240V. Dimensions: $3\frac{3}{8} \times 16\frac{1}{2} \times 10\frac{3}{8}$ in. Price: £73.

PIONEER

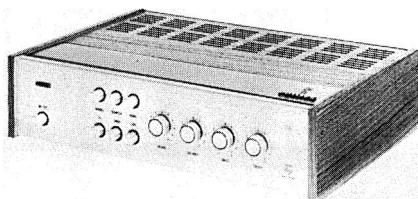
Distributors: Shiro (UK) Ltd,
Electronics Division, Lynwood House,
24-32 Kilburn High Road, London, NW6.
Tel: 01-624 9102.

SA-500 ★

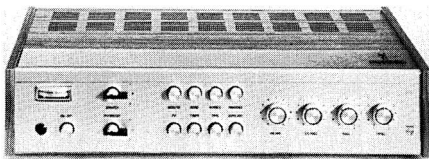
Silicon transistor stereo amplifier. Power output: 4-16 ohms, 13W RMS per channel at 8 ohms. HD 0.5% at 1 KHz. FR 20 Hz-50 KHz ± 1 dB. S/N ratio: 90 dB (aux). Damping factor: 40 dB. Inputs: magnetic pickup, 2.5 mV 47K; tuner 200 mV 100K; tape monitor, 200 mV 100K. Aux, 200 mV 100K. Controls: bass ± 13 dB 50 Hz; treble -11 dB +5.5 dB, 10 KHz; loudness; tape monitor (stereo/4-track mono). Headphone jack. Residual noise: 0.7 mV at 8 ohms. Size: $4\frac{3}{8} \times 13 \times 12\frac{1}{4}$ in. Price: £62 1s 11d.

SA-700 ★

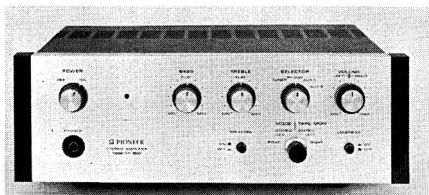
Silicon transistor (inc. FET) stereo amplifier. Power output: 4-16 ohms, 34W RMS per chan-



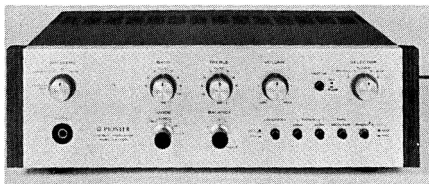
Philips RH590



Philips RH591



Pioneer SA-500



Pioneer SA-700



Pioneer SR202



Quad 33 control unit

nel at 8 ohms. HD 0.08% at 10 KHz. FR 20 Hz-40 KHz ± 1 dB. Damping factor: 40. Residual noise: 0.7 mV at 8 ohms. S/N ratio: 85 dB. Inputs: pickup 1, 3 mV; pickup 2, 0-12 mV; main 500 mV; tuner, tape monitor and aux, 200 mV. Controls: bass (3 dB steps); -9 dB to +12 dB at 100 Hz; treble (3 dB steps) -12 dB to +9 dB at 10 KHz. Filters: low -8.4 dB at 50 Hz; high -7.8 dB at 10 KHz; loudness +13 dB (50 Hz) +4 dB (10 KHz). Crosstalk: 49 dB (magnetic). Main/extra speakers. Headphone jack. Pre-amp and centre channel outputs Mains outlets. Size: $4\frac{5}{8} \times 14\frac{5}{8} \times 12\frac{3}{8}$ in. Psn 110-240V. Price: £98 4s 1d.

SR-202 ★

Double scatter transistorised reverberation amplifier. Suitable for studios, musicians, tape recorders and hi-fi systems. Output: 330 mV at 1 KHz for 200 mV input (reverb. min.). Max. input: 3V (reverb. min.). HD 0.2% at 1 KHz, 330 mV output. FR 20 Hz-35 KHz ± 2 dB (min.). 20 Hz-50 KHz ± 10 dB (max.). S/N ratio: 65 dB, 330 mV output. Reverberation time: 1.9-3.2 sec, 1 KHz. Input impedance: 300K. Reverberation indicator on front panel. Facilities for two tape recorders and immediate reverberation defeat. Psn 110-240V, 8W. Size: $4\frac{1}{2} \times 11\frac{3}{4} \times 9\frac{3}{4}$ in. Price: £45 9s 11d.

QUAD

Acoustical Manufacturing Co Ltd,
St. Peter's Road, Huntingdon, Hunts.
Tel: Huntingdon 2561/2. Cables: Acoustical.

Quad 33 control unit ★

Transistorised mono/stereo control unit. Inputs: PU from 2 mV, radio(1) 100 mV 100K, radio(2) 100 mV 100K, tape from 100 mV 40K. Signal-to-noise level: -70 dB on PU, -85 dB on all other inputs. Output: 0.5V. Controls: volume, balance, bass, treble, filter slope, filter frequency. Mains powered. Designed for use with Quad 303 amplifier but suitable for operation with other high quality equipment. Size: $10\frac{1}{4} \times 3\frac{5}{8} \times 6\frac{1}{2}$ in. Price: £43.

Quad 50/E ★

High quality transistor power amplifier primarily intended for professional and industrial use. Input: 500 mV RMS into 14 to 50K according to gain control setting for 50W output, or standard 600 ohm line bridging input. Output: 50W RMS. Output transformer secondaries linked by output connector to provide for 4 to 300 ohm loads. Damping factor 10. Total harmonic distortion: 0.1% at 1 KHz at any level up to 50W output. Hum better than 80 dB. Consumption: 24-150W depending on power output. Mains: 100-127V or 200-250V 50-60 Hz. Size: $12\frac{3}{4} \times 6\frac{1}{2} \times 4\frac{3}{4}$ in. Weight: 24 lb. Price on application.



Quad 50E power amplifier



Quad 303 power amplifier

Quad 303 power amplifier ★

Transistorised stereo power amplifier. Output: 45W into 8 ohms. HD: 0.03% at 70 Hz and 700 Hz, 0.1% at 10 KHz. FR -1 dB 30 Hz-35 KHz into 8 ohms, -1 dB 20 Hz-35 KHz into 16 ohms. Noise level: -100 dB. Sensitivity: 0.5V. Output impedance: 4-16 ohms. Output transistors: High voltage 2N3055. Mains. Designed for use with Quad 33 control unit but can be used with other high quality equipment. Size: $4\frac{3}{4} \times 6\frac{1}{2} \times 12\frac{3}{4}$ in. Price: £55.

RADFORD

Radford Audio Ltd, Ashton Vale Road,
Bristol BS3 2HZ. Tel: Bristol 662301.

SC-22

Stereo control unit employing valves and tran-

★ Indicates entry is illustrated

sistors. Inputs: PU1 2 mV 50K, PU2 2 mV 100K, radio 150 mV 100K, aux 1 150 mV 100K, aux 2 150 mV 100K, tape monitor 150 mV 100K. Noise: (PU inputs) — 65 dB; (other inputs) — 70 dB. Output: 1V RMS for stated inputs. Controls: selector, bass, treble, balance, volume, filter 4, 7 and 10 KHz at 12 dB/octave. Designed for use with Radford STA-25 power amplifier. Size: $4\frac{1}{4} \times 10\frac{3}{4} \times 13\frac{1}{2}$ in. Power requirements: 6.3V AC, 300V DC; or AC mains (SC-22P). Price: £36 10s.

SC-24

Stereo control unit. Transistors. Inputs: PU 2 mV 50K, aux 1 2 mV 50K, aux 2 80 mV 100K, radio 80 mV 100K, tape monitor 80 mV 100K. Noise: (2 mV inputs) — 70 dB; (80 mV inputs) — 75 dB. Output: 1V RMS. Controls: balance, bass, middle, treble, selector, filter 4, 7 and 10 KHz at 12 dB/octave. Designed for use with Radford SPA-50 amplifier but suitable for any power amplifier. AC mains. Size: $4\frac{1}{2} \times 16\frac{1}{2} \times 9\frac{3}{4}$ in. Price: £80.

STA-25

Stereo power amplifier. Valves. Output: 25W RMS per channel. HD: 0.1%. FR: 20 Hz-60 KHz — 1 dB at 1W. Noise: — 90 dB. Input: 0.5V for stated output. Output impedance: 4, 8, 16 ohms. Mains: 110, 125, 140, 220, 235, 250V AC. Size: $8\frac{3}{4} \times 14 \times 1$ in. Price: £60.

SPA-50

Stereo power amplifier. Transistors. Output: 50W RMS per channel. HD: 0.02% at rated output. FR: 5 Hz-500 KHz — 3 dB at 50W output. Noise: — 90 dB. Input: 1V RMS for rated output. Output impedance: 8 ohms. Mains: 110, 120, 130, 220, 230, 240V AC. Size: $10\frac{3}{4} \times 4\frac{1}{2} \times 12\frac{1}{2}$ in. Price: £85.

PA-50

Mono power amplifier. Transistors. Output: 50W RMS. HD: 0.02% at rated output. Noise: — 90 dB. Input: 1V RMS. FR: 5 Hz-500 KHz — 3 dB at 50W. Output impedance: 8 ohms. Mains: 110, 120, 130, 220, 230, 240V AC. Size: $4\frac{1}{2} \times 12\frac{1}{2} \times 8$ in. Price: £55.

RADON

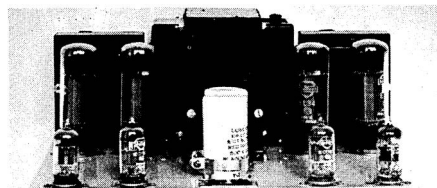
Radon Industrial Electronics Co Ltd,
Orme Road, Worthing, Sussex.
Tel: Worthing 34904.

System 60

Integrated stereo transistor amplifier. Inputs: PU1 180 mV, PU2 45 mV, radio 150 mV, aux 150 mV. Output: 4W RMS per channel. Controls: bass, treble, volume, balance, selector, mode. HD: better than 0.2% at rated output. FR: 40 Hz-20 KHz. Noise: — 60 dB. Output impedance: 15 ohms. Mains: 240V AC. Price: £21.



Revox A50



Richardson Power Amplifier

System 500

Integrated stereo transistor amplifier. Inputs: mag PU 2.5 mV RIAA equalised, ceramic PU 25 mV RIAA equalised, radio 60 mV, tape 60 mV. Output: 10W RMS per channel. Controls: volume, balance, treble (± 12 dB), bass (± 12 dB), scratch filter, rumble filter (cut-off 50 Hz). HD: 0.1% at rated output. Noise: — 65 dB. Output impedance: 8-15 ohms. Mains: 240V 50 Hz. Price: £39.

REVOX

Distributors: C. E. Hammond & Co Ltd,
90 High Street, Eton, Windsor, Berks.
Tel: Windsor 63388. Telex: 84316.

Revox A50 ★

Stereo amplifier. Output: 40W RMS per channel into 4-8 ohms, 25W RMS per channel into 16 ohms. HD: less than 0.1% at 1 KHz, 0.3% 40 Hz-15 KHz. FR: 20 Hz-20 KHz ± 1 dB. Inputs: mag PU 3 mV, ceramic PU 230 mV, tape 100 mV, aux 100 mV, radio 100 mV, tape monitor 250 mV. Treble control: ± 12 dB at 12 KHz. Bass control ± 12 dB at 60 Hz. Mains: 110, 130, 150, 220, 240, 250V 50/60 Hz. 30 silicon transistors, 3 rectifiers, 14 diodes. Size: $6\frac{1}{4} \times 16\frac{3}{8} \times 9\frac{3}{8}$ in. Weight: 18 lb. Price: £106 1s.

RICHARDSON ELECTRONICS LTD

57 Jamestown Road, London, NW1.
Tel: 01-267 0723.

SCP 2P

Stereo self-powered control unit. Modular construction with pluggable circuits. FET high Z input. Silicon semiconductors. Stabilised power supply. Low noise and distortion 0.01% for IV output. Bass ± 20 dB. Treble ± 16 dB. Rumble filter on disc. Quiet listening tape monitor. Mag pickup 2 mV inputs (two); high Z 2M ohms 50 mV; aux 250 mV (two). Size: 14.375 \times 4.375 \times 10.5in. Psn 200-250V 50 or 60 Hz. Price: £50 with metal case. Teak case available.

SIA 100

Integrated silicon amplifier. Output: 40W RMS per channel for 0.01% distortion at 400 Hz into 8 ohms. Complementary output. Short circuit proof. Stable for any load. Controls and size as SCP 2. Psn 200-250V 50 or 60 Hz. Price: £120 with metal case. Teak case available.

MA 135 II ★

Mono power amplifier. Output: 4, 8 or 16 ohms; 30W RMS for 0.1% distortion; 35W RMS for 0.25% distortion at 1 KHz. Power bandwidth 25 Hz-20 KHz for <0.5% distortion at 30W. Frequency response at half power: +0.5 dB. 15 Hz-25 KHz. Damping factor greater than 20. S/N ratio: 90 dB. Size: 12 \times 7 \times 8.5in. Price: £40.

MA 135B II

Mono power amplifier with balanced input and volume control as MA 135 II. Price: £47 10s.

SA 170 II

Stereo power amplifier as MA 135 with two channels. Size: 12 \times 12 \times 7in. Price: £65.

ROGERS DEVELOPMENTS (Electronics)

LTD

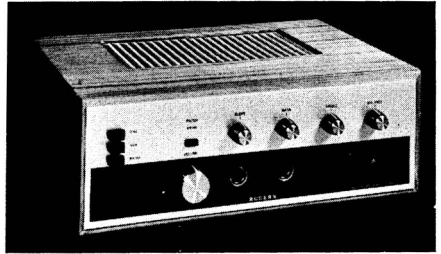
4-14 Barmeston Road, Catford, London, SE6. Tel: 01-698 7424/4340. Cables: Rodevco, London, SE6.

Ravensbourne ★

Solid state stereo amplifier and control unit. Power output: 4, 8 and 16 ohms; 25W per channel RMS. HD 0.1% average (0.06% at 15W). FR 25 Hz-25 KHz ± 1 dB at 25W. Feedback: 36 dB. N/L: -80 dB. Output transistors: 2N3055. Power consumption: quiescent 40W; at 25W + 25W into 15 ohms 110W. Inputs: disc, sensitivity 4/8/100/200 mV, impedance 50K, noise level -60/65 dB; aux, radio and tape, sensitivity 200 mV, impedance 100K, N/L: -75 dB. Controls: push-button input selector, volume, bass and treble, balance, low pass filter and slope, function, headphone. Dimensions: case 14 $\frac{3}{4}$ \times 10 $\frac{1}{4}$ \times 5 $\frac{1}{4}$ in; chassis 13 $\frac{3}{4}$ \times 10 $\frac{3}{8}$ \times 4in. Price: (chassis model) £59 10s; (cabinet model) £64; (case alone) £5 (plus 10s 1d PT).

Ravensbrook ★

Solid state stereo amplifier and control unit.



Rogers Ravensbourne



Rogers Ravensbrook

Power output: 10W per channel into 15 ohms. 15W per channel into 8 ohms. HD less than 0.1% at 10W into 15 ohms. FR 20 Hz-50 KHz -3 dB. Noise level: disc -53 dB, radio -8 dB. Power consumption: quiescent 22W; 10W/15 ohms 50W. Inputs: disc, sensitivity 2/4/25/50 mV, impedance 47K, noise level: -53 dB. Controls: push-button input selector, function, bass and treble, balance, high pass filter switch, low pass filter/slope. Dimensions: cabinet 14 $\frac{3}{8}$ \times 9 $\frac{7}{8}$ \times 5in; chassis 13 \times 9 $\frac{3}{4}$ \times 3 $\frac{1}{4}$ in. Price: (cabinet model) £49; (chassis model) £44; (case alone) £5 (plus 10s 1d PT).

ROTEL

Distributors: Rank Audio Visual Ltd, Rank Aldis—Audio Products, P.O. Box 70, Great West Road, Brentford, Middlesex. Tel: 01-568 9222.

Rotel 100-AMP

Stereo integrated transistor amplifier. Inputs: mag PU 4 mV, radio 100 mV, aux 200 mV. Controls: bass +11 dB -14 dB, treble +13 dB -10 dB, balance, volume, input selector, HF filter -7 dB at 10 KHz, loudness +10 dB at 50 Hz and +3 dB at 10 KHz, mono/stereo, speakers remote/local switch. Output: 17W RMS per channel into 8 ohms. HD: 0.3%. FR: 25 Hz-15 KHz ± 1.5 dB at maximum output. Output impedance: 4-16 ohms. Mains: 117-240V AC. Size: 3 $\frac{3}{4}$ \times 12 $\frac{1}{4}$ \times 8 $\frac{3}{4}$ in. Price: £45 10s.

★ Indicates entry is illustrated

SANSUI

Sole UK importer: Brush Cleviste Co Ltd,
Thornhill, Southampton SO9 1QX.

Tel: Southampton 45166.

Distributors for Scotland, North and
Midlands: Audio Distributors Ltd,
Oldington Trading Estate, Stourbury Road,
Kidderminster, Worcs.

Tel: Kidderminster 3293.

Sansui AU70 ★

Stereo integrated amplifier. Valves and transistors. Inputs: PU (mag) 1.1 mV 50K, PU (crystal) 36 mV 100K, tape 0.9 mV 50K, mic 0.9 mV 50K, aux 50 mV 500K, radio 50 mV 500K. Controls: balance, blend (continuous mono to stereo), bass boost and cut (independent left and right) treble boost and cut (independent left and right), volume, selector, mode, speaker on-off, presence, loudness, low-pass filter, high-pass filter, tone circuits on-off, tape monitor. Output: 25W RMS per channel. HD 0.15% at 20W per channel. FR 10 Hz-80 KHz ± 1 dB at 1W. Feedback 26 dB. Noise level -60 dB. Output impedance: 8 or 16 ohms. Damping factor: 18. Size: $15\frac{7}{8} \times 12\frac{5}{8} \times 5\frac{3}{8}$ in. Price: £76 1s 4d.

Sansui AU777 ★

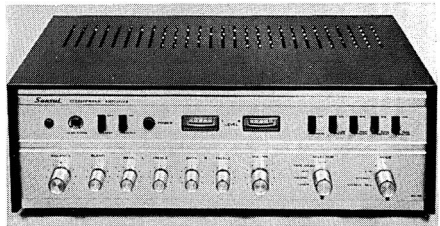
Transistorised stereo integrated amplifier. Inputs: PU(1) 2 mV 47K, PU(2) 2 mV 100K, tape head (fast) 1.5 mV 200K, tape head (slow) 1.3 mV 200K, aux(1) 140 mV 100K, aux(2) 140 mV 100K, tape monitor 140 mV 100K. Output: 25W RMS per channel. HD <0.5% at rated output. FR 20 Hz-100 KHz. Output impedance: 8-16 ohms. AC mains. Consumption 165 VA. Size: $17\frac{1}{8} \times 6\frac{1}{2} \times 13\frac{1}{2}$ in. Price: £115 15s 3d.

Sansui AU222 ★

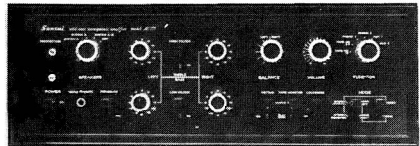
Solid state stereo amplifier. Power output: 18W per channel ± 1 dB at 8 ohms. HD: less than 0.8%. Distortion: less than 0.8%. FR 20 Hz-20 KHz at 8 ohms. Damping factor: 20 at 8 ohms. H and N, volume at minimum, -80 dB. Inputs: pickups 2 mV (47K and 100K); tape head 1.5 mV (200K); aux (two) 150 mV (100K); tape monitor 150 mV (40K). Psn 100, 117, 220 and 240V, 50 or 60 Hz. Dimensions: $4\frac{3}{8} \times 11\frac{1}{2} \times 10\frac{1}{2}$ in. Weight: 12.8 lb. Price: £62 17s 7d.

Sansui AU555 ★

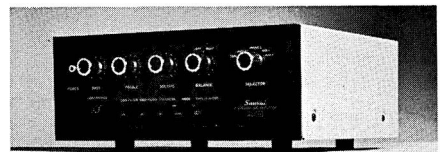
Solid state integrated stereo amplifier. Power output: 25W per channel ± 1 dB at 4 ohms. HD less than 0.5%. Distortion: less than 0.8%. FR 20 Hz-30 KHz. H and N: better than -100 dB. Damping factor: 12 and 45 at 8 ohms. Inputs: pickup 2 mV (47K and 100K); tape head 1.5 mV 200K; aux 200 mV (100K), mic 3.8 mV (10K) and 140 mV (100K); tape monitor 150 mV (100K). Psn 100, 117, 220 and 240V, 50 or 60 Hz. Dimensions: $4\frac{3}{8} \times 15 \times 10\frac{1}{8}$ in. Weight: 17.4 lb. Price: £80 9s 7d.



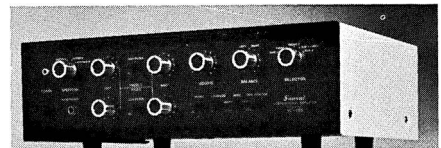
Sansui AU-70



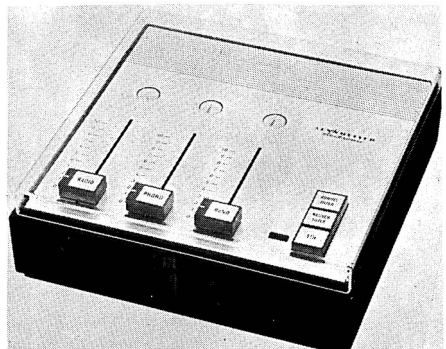
Sansui AU-777



Sansui AU-222



Sansui AU-555



Sennheiser VRS303

SCOTT

Distributors: A. C. Farnell Ltd, Farnell House,
81 Kirkstall Road, Leeds, LS3 1HR.
Tel: Leeds 35111.

299-F

Solid state stereo amplifier. Power output: 22W per channel at 8 ohms. Distortion: 0.8% FR 18 Hz-25 KHz ± 1 dB. H and N: -55 dB. Dual loudness control. Four pairs of external stereo inputs. Phono sensitivity: 4 and 8 mV. Loudness volume compensation switch. Mono stereo plus stereo balance switches. Price: £97 15s.

260-B

Solid state stereo amplifier. Power output: 40W per channel at 8 ohms. Distortion: 0.8% FR 15 Hz-30 KHz ± 1 dB. H and N (phono): -55 dB. Balance control, computer type push-button switches; tone control by-pass, rumble filter; six pairs of external stereo inputs. Phono sensitivity: 3, 5 and 9 mV. Stereo mike front panel input jacks. Loudness volume compensation switch. Seven position stereo selector. Price: £140 10s.



Sennheiser VMS303

SENNHEISER ELECTRONIC

Distributors: Audio Engineering Ltd,
33 Endell Street, London WC2H 9BA.
Tel: 01-836 9373.

VRS.303 Philharmonic ★

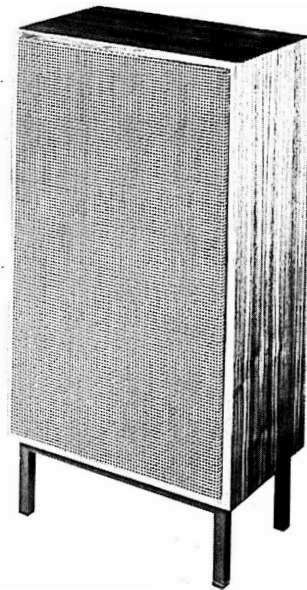
Armchair control unit. Transistorised stereo pre-amplifier designed to operate with VKL.303 main amplifier and VMS.303 mixer. Controls: bass, treble, balance, volume, stereo width. Power supplied from power amplifier. Size: 4 x 9 x 3in. Price: see VKL.303.

VMS.303 Philharmonic ★

Stereo transistorised mixer unit for use with VRS.303 armchair control unit and VKL.303 amplifier/speaker units. Inputs: mic (1) 2 mV 50K, mic (2) 2 mV 50K, pickup (crystal), pickup (magnetic) 2.5 mV 50K, radio (1) 2 mV 50K, radio (2) 500 mV 120K, equalised tape 220 mV 100K. Outlets: tape 2 x 15 mV low Z, tape 2 x 300 mV high Z, headphones 2 x 1V 100 ohms. Controls: HF filter 15 dB/octave (3 dB at 6 KHz), LF filter 15 dB/octave (3 dB at 60 Hz), sensitivity control for each of three channels. Power drawn from main amplifier VKL.303. Size: 9 x 9 x 3in. Price: see VKL.303.

VKL.303 Philharmonic ★

Transistorised power amplifiers built-into speaker enclosures. Designed to operate with VMS.303 mixer and VRS.303 armchair control unit. Power output: 30W RMS per channel. HD 0.1% at 20W 30 Hz-10 KHz. FR (including speakers) 50 Hz-15 KHz +3 dB. Feedback >65 dB for all inputs. Noise level <85 dB



Sennheiser VKL 303



Shure Solo-phone SA-2E

★ Indicates entry is illustrated

(power amplifier only). Mains: 220-240V AC. Infinite baffle enclosures with LF and HF units. Variable equalisers to compensate for speaker position, room acoustics and stereo symmetry. Price (VRS.303, VMS.303, two VKL.303): £484.

SHURE ELECTRONICS LTD

84 Blackfriars Road, London, SE1.

Tel: 01-928 3424.

Solophone SA-2E ★

Provides personal stereo listening for one or two people. Gives sufficient amplification to accept output from any high quality cartridge (for example Shure Stereo Dynetic range), tape deck or FM tuner. There are input selector switch, separate volume controls for each channel and two headphone jacks mounted on the front panel. Size: $10\frac{1}{4} \times 3\frac{1}{2} \times 3$ in. Weight: 2 lb. Mains: 240V 50 Hz. Price: £21.

M61 Series ★

Stereo pre-amplifiers designed to permit magnetic cartridges and tape heads to be used with amplifiers not having the necessary input sensitivity. M61 Series amplifiers provide amplification and equalisation for tape and discs, also suitable for mic. FR 25 Hz-15 KHz ± 2.5 dB. Input impedance: 47K at 1 KHz. Output impedance: low $< 1K$ at 10 KHz. Separation > 50 dB at 1 KHz. H and N $- 50$ dB. Size: $5 \times 5\frac{1}{4} \times 2$ in. Price: (M61-2 mains operated) £14; (M61-3 battery operated) £12.

SINCLAIR RADIONICS LTD

22 Newmarket Road, Cambridge.

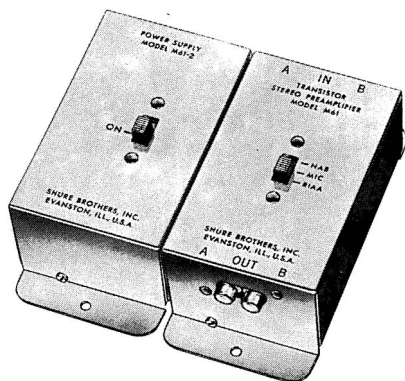
Tel: Cambridge 52996.

Neoteric 60 ★

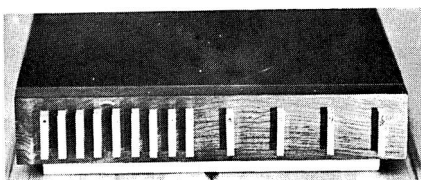
Transistorised stereo integrated amplifier. Inputs: PU(1) 2.7 mV 47K, PU(2) 2.7-160 mV 10K, radio 17 mV 1 megohm, tape head 2.5 mV 47K. Noise level: better than -60 dB all inputs. Controls: 10 KHz HF filter, 4 KHz HF filter, LF filter 12 dB/octave below 50 Hz, HF filter at 6 KHz. Volume, balance, bass, treble, on/off. Output: 15W RMS per channel into 8 ohms. HD 0.08% into 15 ohms at rated output. FR 20 Hz-100 KHz ± 1 dB. Output impedance: 5-15 ohms. 28 transistors. Mains: 110-240V AC. Size: $8\frac{1}{2} \times 2\frac{1}{8} \times 9\frac{1}{4}$ in. Price: £57 15s.

System 2000 ★

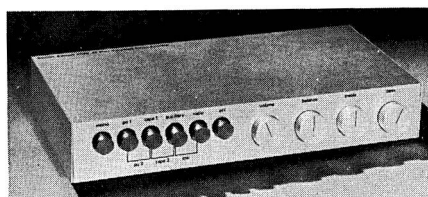
Transistorised stereo integrated amplifier. Inputs: PU(1) 3 mV 68K, PU(2) 30 mV 220K, tape(1) 1.5 mV 100K, tape(2) 1 mV 100K, aux 500 mV 100K, radio 100 mV 100K, mic 2.5 mV 50K. Controls: push-button input selector, volume, balance, treble ± 14 dB at 15 KHz, bass ± 13 dB at 70 Hz. Output: 35W RMS total. Output impedance 3-15 ohms. HD $< 0.5\%$ at all powers. FR 15 Hz-30 KHz ± 1 dB. 18 transistors



Shure M61/2



Sinclair Neoteric 60



Sinclair System 2000



Sinclair Filter



Sony 1080

(12 silicon). Transformerless output. Mains: 200-250V 50 or 60 Hz (100-120V version available). Finish: cabinet and control knobs solid aluminium. Size: 12 × 6 × 2in. Price: £30 9s.

Stereo 60

Stereo preamplifier designed for Sinclair Project 60 range but suitable for other amplifiers. Inputs: mag PU 3 mV, radio 3 mV, ceramic PU 3 mV, aux 3 mV. Output: 250 mV. SN: better than 70 dB. Channel matching: within 1 dB. Treble control: ±15 dB at 10 KHz. Bass control: ±15 dB at 100 Hz. Silicon epitaxial planar transistors. Push-button input selection. Consumption: 5 mA. Finish: brushed aluminium panel with black knobs. Size: 1½ × 8¼ × 4in. Price: £9 19s 6d.

Active Filter Unit ★

Designed for Project 60 Series but suitable for other systems. For connection between a Stereo 60 preamplifier and two Z-30 or Z-50 power amplifiers. Two filter stages, one a rumble (high pass) filter the other a scratch (low pass) filter. Supply required: 15-35V at 3 mA. Gain at 1 KHz: 0.98 (-0.2 dB). HF filter slope: 12 dB/octave. LF filter slope: 12 dB/octave. FR: 35 Hz-20 KHz -1 dB. Finish: brushed aluminium panel with black knobs. Price: £5 19s 6d.

See Constructional Kits Section for details of Sinclair Radionics Z-12, Z-30, Z-50, PZ-5, PZ-6 and PZ-8 modules.

SONY (UK) LTD

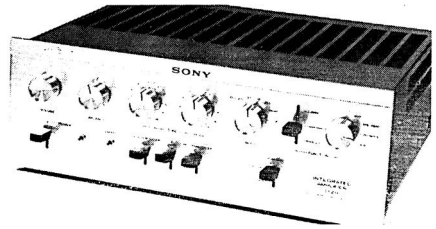
Ascot Road, Bedfont, Feltham, Middx.
Tel: Ashford 50021.

TA-1080 ★

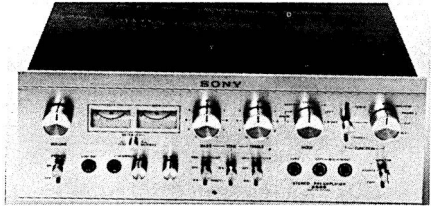
Transistor stereo integrated amplifier. Inputs: tape 0.7 mV 100K. PU(2) 2.3 mV 47K, tuner 120 mV (variable) 100K, aux 120 mV 100K. Controls: volume, balance, treble ±10 dB at 10 KHz, bass ±10 dB at 100 Hz, mode, input selector, tone control cut-out to give flat response, monitor. Output: 30W per channel. FR 30 Hz-100 KHz ±2 dB. HD <0.15% at rated output. Damping factor: >40. Noise: <0.05 µV with 8 ohms load. Signal/noise: >70 dB average. 30 silicon transistors, 21 diodes. Output impedance: 8-16 ohms. Mains: 100, 117, 220, 240V 50/60 Hz. Consumption: 25W at no signal, 200W at maximum output. Mounting bracket and oiled stained case optional extras. Size: 15¾ × 12¼ × 5¾in. Price: £120.

TA-1120 ★

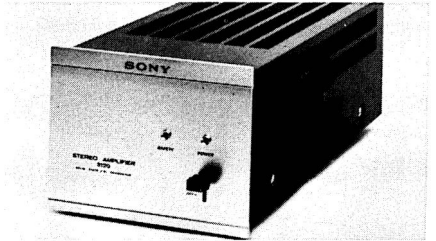
Transistor stereo integrated amplifier. Inputs: PU(1) 5 mV 47K, PU(2) 1 mV 47K, tuner 200 mV 100K, tape head 1 mV 500K, mic 2 mV 500K. Noise level: tuner -90 dB, PU 70-80 dB, tape -70 dB, mic -65 dB. Controls: volume, balance, bass ±20 dB at 100 Hz, treble ±20 dB at 10 KHz, tone control cancel switch, mode,



Sony 1120



Sony TA2000



Sony TA3120

selector, low-pass filter, high-pass filter, monitor switch. Output: 50W per channel. Output impedance: 8-16 ohms. HD 0.1% at rated power. FR 10 Hz-100 KHz -1 dB at rated output. 46 silicon transistors, 23 diodes. Mains: 100, 117, 220, 240V 50/60 Hz. Consumption: 30W at no signal, 200W at maximum output. Oiled stained case optional extra. Size: 15¾ × 12¼ × 5¾in. Price: £160.

TA-2000 ★

Control preamplifier. Inputs: tape 1.2 mV 500K, tuner 120 mV 100K, phono 1.2 mV 47K, tape 120 mV 100K. Controls: bass (100 Hz ±10 dB), treble (10 KHz ±10 dB), high filter (12 dB/oct. above 9 KHz), low filter (12 dB/oct. below 50 Hz). Mains: 110, 117, 220, 240V 50/60 Hz. Size: 15¾ × 5¾ × 12¼in. Price: £129.

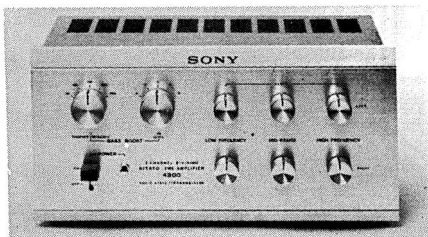
TA-3120 ★

Transistorised amplifier. Output: 8 or 16 ohms; 50W per channel at 8 ohms. HD <0.1% at rated output. FR 30 Hz-100 KHz -1 dB at rated output. Noise -110 dB. Mains: 100, 117, 220, 240V 50/60 Hz, 250W. Size: 7½ × 5¾ × 17½in. Price: £90.

★ Indicates entry is illustrated

TA-4300 ★

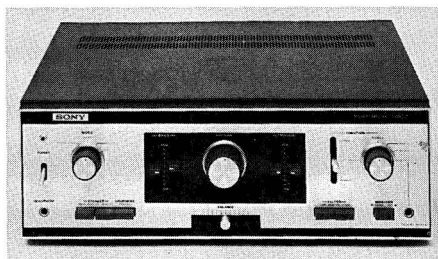
Transistor 3 channel frequency divider. Stereo. Divides the audio signal into 3 frequency ranges for a 3-way amplifier/speaker system. 4-step selection of two crossover frequencies per channel. Controls: bass turnover, bass boost level, on/off, low frequency level (2), mid-range level (2), high frequency level (2). Output impedance: <math>< 5K</math>. Distortion: <math>< 0.1\%</math> at 3V output, <math>< 0.5\%</math> at 5V output (for signals within the passband). Mains: 100, 110, 220, 240V 50/60 Hz. Size: $5\frac{3}{8} \times 11\frac{5}{8} \times 6\frac{1}{2}$ in. Price: £72 10s.



Sony TA4300

TA-1144 ★

Transistor stereo integrated amplifier. Inputs: PU1 and PU2 1.2 mV 47K (noise level better than 70 dB), tuner and DIN socket 150 mV 100K (noise level better than 90 dB), aux 1, 2 and 3 and tape 150 mV 100K. Output: 30W per channel into 8 ohms. HD: less than 0.2%. Noise level: 90 dB. Outlets: DIN socket 30 mV 80K, tape outputs 150 mV 10K. Controls: volume, loudness, balance, input selector, mode, independent right and left bass and treble, high filter, low filter, speaker switches. Mains: 100, 117, 220, 240V 50/60 Hz. Dimensions: $16\frac{5}{8} \times 12\frac{5}{8} \times 5\frac{3}{4}$ in. Price: £94 15s.



Sony TA1144

TA-1010 ★

Transistor stereo integrated amplifier. Inputs: PU1 and PU2 1.2 mV 47K (noise level better than 70 dB), tuner and aux 1, aux 2, tape and DIN socket 250 mV 100K (noise level better than 90 dB). Output: 15W per channel into 8 ohms. HD less than 0.5% at 1 KHz. FR (+0, -2 dB): 20 Hz-60 KHz. Outlets: record out 250 mV 10K, DIN socket 36 mV 80K. Controls: volume, balance, loudness, mode, input selector, tape monitor, bass, treble, high filter (6 dB per octave above 5 KHz). Mains: 100, 117, 220, 240V 50/60 Hz. Dimensions: $16\frac{9}{16} \times 4\frac{1}{8} \times 9\frac{3}{4}$ in. Price: £59 15s.



Sony TA1010

STENTORIAN

Whiteley Electrical Radio Co Ltd,
Victoria Street, Mansfield, Notts.
Tel: Mansfield 24763.

Stereo 30

Stereo integrated amplifier. Power output: 15W per channel RMS into 15 ohms. Inputs: tape (3-pin DIN socket) 100 mV, 50K; microphone (2-pin jack socket) 15 mV, 50K; crystal pickup, 100 mV, 120K; magnetic pickup, 10 mV, 50K; radio, 150 mV, 50K. Output: tape (3-pin DIN socket) 1V. FR 20 Hz-20 KHz ± 1 dB. Distortion: less than 0.2% at 1 KHz. Damping factor: 100. Hum: 50 Hz -70 dB; 100 Hz -65 dB. Noise: -65 dB. Crosstalk: -65 dB. Tone controls: bass (50 Hz) +11 dB, -7 dB; treble (10 KHz) +10 dB -13 dB. Push-button selection, on/off, mono stereo, reverse, microphone,



J.E. Sugden A21



J.E. Sugden A51

tape, disc, radio. Price: (chassis) £68 11s 2d; (with teak veneer sleeve) £72 18s 7d.

J. E. SUGDEN & CO LTD

Bradford Road, Cleckheaton, Yorks.

Tel: Cleckheaton 2501.

A21 SERIES TWO ★

Transistor stereo integrated amplifier with Class A output stages. Inputs: radio 150 mV 200K; tape 150 mV 200K; aux 150 mV 200K. PU1, 2.5 mV 68K; PU2, 50 mV into special input circuit. Controls: bass ± 14 dB at 40 Hz; treble ± 14 dB at 10 KHz; treble filter 12 dB/octave above 7 KHz. Rumble filter 12 dB/octave below 45 Hz. Balance ± 6 dB for 180 degree rotation. Channel balance maintained ± 1 dB per channel. Push-button selection for input and operating mode. Power output: 12W RMS per channel into 8 ohms, at clipping level. HD 0.25% at 10W. FR: 20 Hz-20 KHz ± 1 dB. S/N 80 dB on radio, tape and aux, 70 dB on disc. Outlet to recorder: 150 mV. Size: $15\frac{1}{2} \times 5 \times 9$ in. Weight: 24 lb. Price: £56.

C51 control unit ★

Transistorised stereo control unit designed for use with A51 power amplifier. Inputs: radio, tape and aux, each 150 mV into 250K for flat response. PU1 2.5 mV 68K RIAA. PU2 same as PU1 or any characteristic to choice with basic sensitivity 0.25 mV. Plug-in adaptors available for various cartridges, microphones, etc. Controls: bass ± 16 dB at 40 Hz, treble ± 12 dB at 10 KHz, volume ± 1 dB per channel, balance ± 6 dB for 180 degrees rotation. Rumble filter: 12 dB/octave below 30 Hz. Treble filter: 4 KHz, 7 KHz and 10 KHz. Treble filter slope: gradual 6 dB/octave, steep 18 dB/octave, HD better than 0.1% at rated output. S/N better than 85 dB on 150 mV inputs, better than 75 dB on PU2 input. Push-button selection of inputs and operating mode. Power: obtained from A51 power amplifier. Size: $10 \times 4 \times 6$ in. Weight: 6 lb 3 oz. Price: £42.

A51 ★

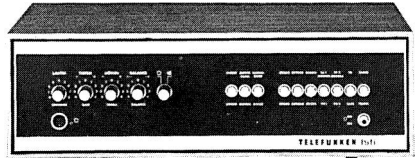
Power amplifier with Class A output stages designed for use with C51 control unit. Transistors. Output 25W per channel into 15 ohms. HD at 20W better than 0.1%. FR: 30 Hz-20 KHz ± 0.5 dB. S/N 90 dB 10K source. Sensitivity for 25W output: 600 mV. Input impedance 200K. Size: $13\frac{1}{2} \times 8\frac{1}{2} \times 10$ in. Weight: 22 lb. Price: £65.

TELEFUNKEN

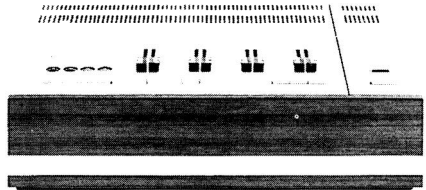
Distributor: A.E.G. (Great Britain) Ltd, A.E.G. House, Chichester Rents, Chancery Lane, London, WC2. Tel: 01-242 9944. Cables: Allgem, London.



J.E. Sugden C51



Telefunken Hi-Fi V201



Telefunken Hi-Fi V250

V201 ★

Stereo amplifier. 25W per channel into 4 ohms. HD less than 0.3% at 1 KHz and 2×25 W. FR: (± 1.5 dB) 20 Hz-22 KHz, (± 3 dB) 17 Hz-35 KHz. Inputs: magnetic pickup, crystal pickup, tape, mic, radio. Outputs: speakers (4 ohms), earphones (100-400 ohms). Controls: volume, balance, bass, treble. Also 11 push-buttons for flat response, rumble filter, noise filter, mono/stereo, stereo base width (extreme), PU1, PU2, tape, radio, on/off. Price: £93 9s.

V250 ★

Stereo amplifier. 35W per channel (music power because of stabilised power supply) at 4 ohms. HD less than 0.2% at 1 KHz and 2×35 W. FR: (± 1.5 dB) 20 Hz-18 KHz, (± 3 dB) 10 Hz-20 KHz. Cross-talk better than 52 dB at 250 Hz-10 KHz. Inputs: magnetic pickup, 4.5 mV 47K; crystal pickup, 300 mV 470K; mic I and II, 1.5 mV 47K; tuner, 300 mV 470K; tape playback, 300 mV 470K; tape record, 0.36 mV/K. Outputs: speakers, 4 ohms; tape monitoring, 300 mV 47K. Controls: slider stereo (both channels), volume, bass, treble, fade-in and fade-out (mixing). 11 push-buttons for: mic, PU1, PU2, tuner, tape

★ Indicates entry is illustrated

recorder, monitor, mono, rumble filter, noise filter, linear, on/off. Bass control gives ± 16 dB (50 Hz), treble ± 12 dB (10 KHz), rumble filter 25 dB (15 Hz) and 15 dB (20 Hz), noise filter 3 dB (5.5 KHz) and 20 dB/octave above. Features include electronic fuses, short-circuit protection, sockets for stereo recording, earphone socket with on/off speaker switching, three mains outlets. Price: £157 10s.

TELETON

Teleton Electro (Distributors) Co Ltd,
Teleton House, Robjohns Road, Widford,
Chelmsford, Essex. Tel: 62442. Telex: 99338.

SAQ 203E ★

Solid-state stereo amplifier. Output: 6W RMS per channel. FR (± 1 dB): 30 Hz-20 KHz. Output impedance: 4, 8 or 16 ohms and tape 250-300 mV. Inputs: magnetic PU 3 mV, crystal PU 200 mV, tuner 200 mV, tape 220-250 mV. Signal/noise: 50 dB or better. Channel separation: 40 dB. Controls: input selector, mono/stereo, volume, balance, bass, treble, scratch filter, on/off. Mains: 110, 220/240V 50-60 Hz. Dimensions: $10\frac{3}{4} \times 8\frac{1}{4} \times 4$ in. Price: £28 15s.

GA 101

Solid-state stereo amplifier matching GT 101 tuner. Output: more than 15W RMS per channel. Output impedance: 8 ohms. Inputs: magnetic PU 3 mV, crystal PU 80 mV, tape 250 mV. Controls: input selection, volume, balance, loudness, mono/stereo, bass, treble, scratch filter, on/off. Mains: 110, 220/240V 50-60 Hz. Dimensions: $12\frac{1}{2} \times 9\frac{3}{4} \times 4\frac{1}{2}$ in. Price: £37 10s.

SAQ 501S

Silicon transistor stereo amplifier. Output: 25W RMS per channel. Outputs: 8 ohms and for tape recording and monitoring. FR (± 1 dB): 20 Hz-20 KHz. Inputs: magnetic PU 3 mV, tape head 3 mV, tape play 150 mV, aux 150 mV, radio 150 mV. Controls: input selector, volume, balance, loudness, bass, treble, monitoring, speakers, rumble filter, scratch filter, on/off. Mains: 220 or 240V 50-60 Hz. Dimensions: $14\frac{1}{4} \times 11\frac{1}{2} \times 5$ in. Price: £51.

TRIO

Distributors: B. H. Morris & Co (Radio) Ltd,
84-88 Nelson Street, London, E1 2DY.
Tel: 01-790 4824.

KA2500 ★

Solid state integrated stereo amplifier. Inputs: PU(1) 2 mV, PU(2) 2 mV, tape head 2.5 mV, radio tuner 150 mV, aux 150 mV, tape play 150 mV. LF filter 80 Hz roll-off, HF filter 6 KHz roll-off. Bass control ± 11 dB at 50 Hz. Treble control ± 11 dB at 10 KHz. Volume control tracking error, within 3 dB. Output: 60W music



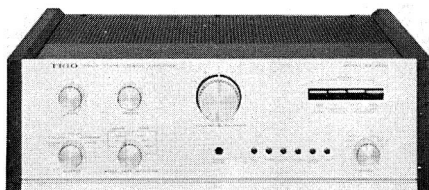
Teleton SAQ203E



Trio KA-2500



Trio KA-2000 (top) with
KT1000 below



Trio KA-4000



Trio KA-600

at 4 ohms, 50W music at 8 ohms. 20W RMS per channel. HD 0.8%. FR 20 Hz-50 KHz ± 1 dB. Signal-to-noise: PU -60 dB, tuner -70 dB. Output impedance: 4, 8 or 16 ohms. Centre channel output. Automatic mains circuit breaker. Mains: 110-120V or 220-230V 50/60 Hz. Consumption 110W at full power. Size: $12\frac{1}{2} \times 4\frac{1}{8} \times 9\frac{1}{4}$ in. Weight: 13 lb. Price: £52.

KA2000 ★

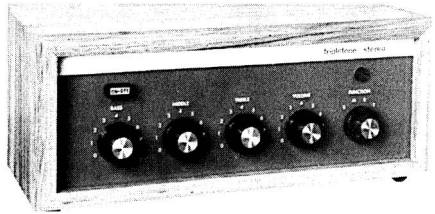
Solid state integrated stereo amplifier. Power: 13W per channel (0.5% THD); 4, 8 or 16 ohms. IM distortion: 0.5% 3 dB. FR: 20 Hz-50 KHz ± 1 dB. S/N ratio: pickup 65 dB, aux 75 dB. Inputs: pickup 2.1 mV, aux 130 mV, tape play 130 mV. Damping factor: 40 (at 16 ohms), 20 (at 8 ohms). Bass control ± 11 dB at 100 Hz. Treble ± 11 dB at 10 KHz. Psn: 220-230V, 50 or 60 Hz, 20W with no signal, 55W at full power. Automatic circuit breaker protects power transistors. Dimensions: $4\frac{1}{8} \times 10\frac{1}{4} \times 9\frac{3}{8}$ in. Weight: 10 lb. Price: £36.

KA4000 ★

Solid state stereo amplifier. Power output: 41W per channel at 4 ohms, 32W per channel at 8 ohms. HD less than 0.5%. FR: main amp, 18 Hz-50 KHz ± 1 dB; high level input 20 Hz-50 KHz ± 1 dB. Sensitivity at 8 ohms: pickups 1 and 2, 2 mV; tape head, 2.3 mV; mic, 2 mV; aux, tuner, tape play, 200 mV each; main amp input, 100 mV. S/N ratio: pickups 65 dB; tape head 63 dB; mic 67 dB; aux, tuner, tape play 77 dB. Output impedance at speaker terminal: 0.29 ohm at 1 KHz, 0.52 ohm at 50 Hz, 0.29 ohm at 10K. Damping factor: 55 at 16 ohms load; 27.5 at 8 ohms load. Low filter: 80 Hz cut-off, 12 dB per octave. High filter, 8 KHz cut-off, 12 dB per octave. Bass control: ± 10 dB at 100 Hz with 2 dB step switch. Treble control: ± 10 dB at 10 KHz with 2 dB step switch. Outputs: two pairs speaker outputs (4-16 ohms); pre-amp outputs, headphone jack, low level mono output, tape recording outputs, DIN standard tape rec/play connector, switched and unswitched AC outlets. Controls: input selector switch, mode/tape monitor switch, output selector switch, volume, balance, bass, treble, muting switch (-20 dB), loudness contour switch, low and high filter switches. Power consumption: 13W quiescent, 180W at full power. Dimensions: $5\frac{3}{8} \times 16\frac{1}{8} \times 11\frac{1}{8}$ in. Weight: 17.6 lb. Price: £78.

KA-6000 ★

Stereo solid state integrated amplifier. FR: 20 Hz-20 KHz. Inputs: PU1, 2 mV, 50K, S/N 65 dB; 0.5 mV or 0.05 mV, 200 ohms, S/N 54 dB; PU2, 50K, S/N 65 dB; tape, 100K, S/N 63 dB; mic, 100K, S/N 67 dB; aux, 100K, S/N 77 dB. Main amp. input 300K. Switched controls; PU1: level, selector, mode, tone, output, bass, treble, muting, loudness, low filter, high filter.



Tripletone Gemini Mk II



Tripletone Stereo 8+8 Mk II

Variable: volume, balance. Output (per channel): 64W at 4 ohms; 58W at 8 ohms; 42W at 16 ohms. Dimensions: $5\frac{3}{8} \times 16\frac{1}{8} \times 11\frac{1}{8}$ in, to match KT-7000 tuner. Weight: 24.5 lb. Psn: 110-120, 220-230V, 18-190W. Price: £105.

TRIPLETONE MANUFACTURING CO LTD

Factory No. 1, 138 Kingston Road, Wimbledon, London, SW19. Tel: 01-542 1189.

Solid State FET Gemini Mk II

Integrated stereo transistor amplifier. Output: 5W RMS per channel into 3 ohms. HD $< 1\%$ at rated output. Output impedance: 3-8 ohms. FR: 30 Hz-20 KHz ± 2 dB. Sensitivity: 80 mV. Input impedance 2 megohms. FET input. H and N: better than -60 dB on all inputs. Bass control: ± 15 dB. Treble control: ± 12 dB. Middle control: ± 15 dB. Available in chassis form or in teak case. Price: (chassis) £19 18s 6d; (in teak cabinet) £23 10s.

Solid State Stereo 8+8 Mk II ★

Integrated design with pre-amps, controls, twin power amplifiers. Inputs for disc, tape recorder and radio in stereo and mono. Top cut, low pass filter, treble, middle and bass controls. Output: 8W RMS per channel into 15 ohms, 10W RMS per channel into 8 ohms. Distortion: less than 0.2%. FR 30 Hz-20 KHz ± 1.5 dB. Sensitivity for 8W: pickups, ceramic, 80 mV into 2M;

★ Indicates entry is illustrated

magnetic, 3.5 mV into 47K; tape, 80 mV into 100K; radio, 200 mV into 100K. Tape output: 200 mV into 100K ± 1 dB 15 Hz-30 KHz. H and N better than -60 dB all inputs. Size: chassis, $11 \times 7\frac{1}{2} \times 3\frac{3}{4}$ in; cabinet, $13 \times 9 \times 5\frac{1}{4}$ in. Prices: chassis model for ceramic cartridge: £29 19s 6d; in case, £32 10s. Chassis model for ceramic or magnetic cartridge, £33 10s; in case £35 17s 6d.

Transistorised pre-amplifier Series 3

Mono or stereo version. Inputs for magnetic cartridges or tape heads. Various tape/disc combinations. S/N 70 dB. Equalisation ± 2 dB RIAA curve. Psn $+200/230$ V DC or -40 V DC. Octal plug or B9G connector. Size: $5 \times 2 \times 2$ in. Price: (mono) £3 17s 6d; (stereo) £5 10s.

Hi-Fi Major Mk II ★

Integrated mono amplifier. Transistors. Inputs: mag PU 3.5 mV 47K, ceramic PU 80 mV 2 megohms, tape 80 mV 100K, radio 200 mV 100K. Output: 10W RMS. HD: $<0.2\%$ at rated output. FR: 30 Hz-20 KHz ± 1.5 dB. Controls: bass ± 18 dB at 30 Hz, middle $+12$ dB to -15 dB at 1 KHz, treble ± 18 dB at 10 KHz, volume, selector. Filter: 7 KHz turnover, 6 dB/octave. Output impedance: 8-15 ohms. H and N: better than -60 dB all inputs. Tape outlet: 200 mV 100K, 15 Hz-30 KHz ± 1.5 dB. Size: (chassis model) $11 \times 7\frac{1}{2} \times 3\frac{3}{4}$ in; (cabinet model) $13 \times 9 \times 5\frac{1}{4}$ in. Finish: sage green facia plate with white lettering, matching knobs with silver discs. Teak veneer cabinet. Prices: (dual input version as described) £25 17s 6d; (ceramic PU input only) £22 10s; (chassis version) £23 10s and £19 18s 6d respectively.

UHER

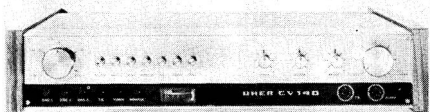
Distributors: Bosch Ltd, Rhodes Way, Radlett Road, Watford, Herts, WD2 4LB. Tel: Watford 44233.

Uher CV140 ★

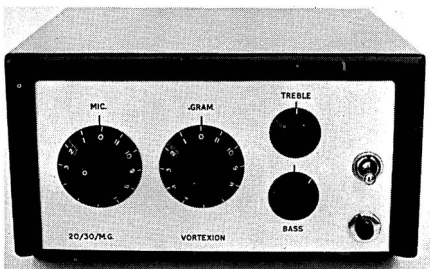
Integrated power amplifier. Stereo transistorised. Inputs for radio, tape, PU, mic. Output: 35W RMS per channel into 4 ohms. FR 20 Hz-20 KHz ± 1 dB. Bass control: ± 20 dB at 20 Hz. Treble control: ± 20 dB at 20 KHz. Presence control: ± 20 dB at 7 KHz. Scratch filter: 12 dB per octave from 6.5 KHz. Rumble filter: 6 dB per octave from 100 Hz. HD better than 0.2% at 1 KHz. Input impedance: all 100K. Main chassis pressure casting with printed boards well supported. Easily accessible. Presets on front panel permit all inputs to be adjusted to a common level (indicated on meter on panel) before being passed to main amplifier. Six DIN input sockets provided, three have facilities for plug-in preamplifier modules for low impedance mic, magnetic or ceramic PUs. Mains: 100/130V or 200/240V, 50 or 60 Hz. Consumption: 160W at full output. Price: £174 11s.



Tripletone Hi-Fi Major Mk II



Uher CV140



Vortexion 20/30W

VORTEXION LTD

257/263 The Broadway, Wimbledon, London, SW19. Tel: 01-542 6242/3/4 and 2814. Cables: Vortexion, London, SW19.

CP50 Amplifier

AC mains and 12-volt. The CP50 is an all silicon transistor amplifier for mains and 12-volt battery use, with 8Ω - 15Ω and 100-volt line output. The amplifier itself has overload or short circuit protection and all inputs have reasonable overload protection. Very large heat sinks are used with good ventilation and it is quite cool running on speech or music peaking 50 watts and even with over 40 watts of continuous sine wave the temperature conditions are not exceeded. The reservoir capacitor has been divided into 4 parts, each fused. The frequency response is within 3 dB from 25 Hz to 20 KHz and bass and treble controls are fitted, of 26 dB sweep each. This is housed in our durable steel case. Size: $18 \times 6 \times 11\frac{1}{2}$ in. Battery consumption 3 amps. Weight: 35 lb. Prices: 1 PU and 2 low Mic inputs £102, 1 PU and 3 low Mic inputs £110, 4 low Mic inputs £115.

All Silicon Mixer Amplifier 20/30 Watt ★

This is a high fidelity 'minimised' distortion tran-

sistor amplifier made possible by the latest types of silicon transistors. Since it gives 20 watts at 0.1% harmonic and 0.2% intermodulation distortion and less than 3 times this at 30 watts on $7\frac{1}{2}\Omega$ it is suitable for high quality P.A. or High Fidelity use. No output transformer is fitted in this instance, but full overload protection is provided for this cool running amplifier which is suitable for continuous night and day operation and has a quiescent consumption of less than 4 watts from the mains. In the event of overload the output is instantly switched off until it ceases without blowing any fuses, the circuit operates far faster than any fuse. The response is within 1 dB from 20 Hz-20 KHz and feedback bass and treble controls have a total range of 24-26 dB each. It can be supplied for balanced line low impedance microphone (or high impedance at reduced prices) and the normal auxiliary or gram at 50 mV on 100K. Price: £35.

30/50 Watt Amplifier

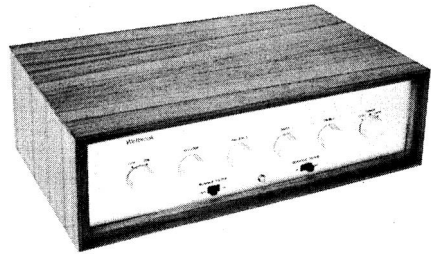
Can deliver 50 watts of speech and music or over 30 watts of continuous sine wave. Main amplifier has response of 30 Hz-20 KHz ± 1 dB; 0.15% distortion. Outputs 4, 7.5, 15 Ω and 100-volt line. Models are available with two, three, or four mixed inputs for low impedance balance line microphones, pickup or guitar. Price with 4 mixed inputs: £88.

100 Watt All Silicon Amplifier

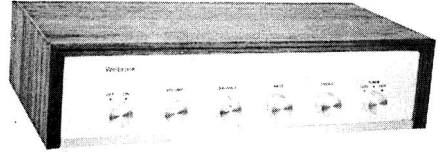
This is a high-fidelity amplifier for Audio frequencies featuring a new principle protection circuit, which is automatic on output overload, far faster than any fuse, and of course resetting when the signal is reduced. In addition a thermal cut-out is fitted which automatically switches off should it be possible for any reason to take the heat sinks beyond the safe limits. The large heat sinks are funnel cooled to add efficiency, and when supplying 100 watts power at low to medium frequencies the output transistors only have to dissipate some 18 watts each and they are capable of over 100 watts each. These transistors also have a voltage rating double that required. Large output transistors are not satisfactory above 20 KHz, and since it is not required for audio purposes, the overload limits the power capacity to the safe power available at high frequencies. The response is level from 20 Hz to 15 KHz and 3 dB maximum down at 20 KHz. Outputs are for 8-15 ohms and 100-volt line. Harmonic distortion does not tell the whole story with transistor amplifiers, so in this case only the intermodulation distortion is given which is less than 0.5%. The input required is less than 0.5 volt on 100K Ω . Price: £75.

200 Watt Amplifier

Can deliver its full audio power at any frequency in the range of 30 Hz-20 KHz ± 1 dB. Less than



Welbrook W.30



Welbrook W.20

0.2% distortion at 1 KHz. Can be used to drive mechanical devices for which power is over 120 watt on continuous sine wave. Input 1 mW 600 Ω . Psn: 100-120V or 200-240V. Additional matching transformers for other impedances are available. Price: £135.

4C/FET/100W

Mono mains amplifier with four input channels. Inputs: 30/60 ohms balanced line standard, 200 ohms and 600 ohms to order. Controls: separate gain control for each input, common bass and treble. Tone controls give approximately 12 dB lift and 12 dB cut. All silicon transistors with FET input stages. Output: 100W RMS. FR: level 30 Hz-15 KHz, -3 dB (maximum) at 20 KHz. Output impedance: 100V at 100 ohms (other impedances to order). Stove enamelled case. Size: 18 x 6 x 11 $\frac{1}{2}$ in. Weight: 37 lb. Price: £115.

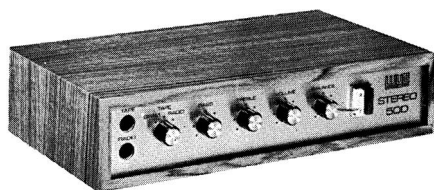
WELBROOK

Welbrook Engineering & Electronics Ltd,
Brooks Street, Stockport, SK1 3HT, Cheshire.
Tel: 061-480 4268.

W.30 ★

Stereo all-silicon transistor amplifier. Output: 15W per channel, into 8 ohms, 10W per channel into 15 ohms. HD: 0.1% maximum at all output levels. FR: 30 Hz-30 KHz -1 dB. Feedback: 34 dB. Noise level: -60 dB. Input voltage RMS: 100 mV into 100K. Output transistors: four 2N3055. Psn: 210-240V, 50 Hz. Dimensions: 4 $\frac{5}{8}$ x 15 x 9 $\frac{1}{2}$ in. Finish: teak cabinet with anodised silver fascia. Inputs: PU, sensitivity adjustable up to 3 mV, 100K. NL: -60 dB; radio,

★ Indicates entry is illustrated



Wye Electronics Stereo 500

sensitivity 100 mV, 100K, NL -70 dB; tape recorder, sensitivity 100 mV, NL: -70 dB. Controls: on/off rotary switch, volume, balance, bass (± 14 dB at 30 Hz), treble (± 14 dB at 15 KHz), input selector, rumble filter (12 dB per octave), scratch filter (12 dB per octave). Price: £52.

W.20 ★

Similar specification to W.30 but without rumble and scratch filters. Output: 12W per channel into 4 ohms, 10W per channel into 8 ohms, 7W per channel into 15 ohms. Size: $4 \times 14\frac{3}{4} \times 9$ in. Price: £42.

AMP103

Mono or stereo solid state amplifier module. HD: $< 0.1\%$ at all levels. FR: 30 Hz-30 KHz -1 dB. Feedback: 34 dB. NL: -80 dB. Input voltage RMS: 100 mV into 100K. Output: 15W. Impedance: 0.25 ohms. Output transistors: two 2N3055. Psn: 45V at 0.7A. Dimensions: $6\frac{1}{2} \times 3 \times 2\frac{1}{2}$ in (stereo version). Control unit: any having 100 mV output. Prices: mono £8; stereo £15.

WHITELEY ELECTRICAL RADIO CO LTD

See Stentorian.

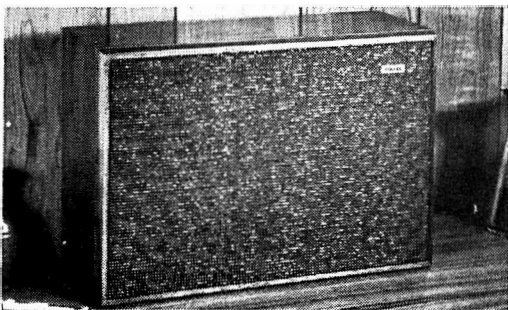
WYE ELECTRONICS LTD

Queen Street North, Chesterfield, Derbyshire.
Tel: Chesterfield 51116.

Stereo 500 ★

Transistorised integrated stereo amplifier. Inputs: tape, radio, ceramic pickup. Sensitivity: 50 mV into 1 megohm at 1 KHz for 10W output on all inputs. Output: 10W RMS per channel. Distortion: 1.5% at 10W into 4 ohms. Separation: 40 dB at 1 KHz and 10 KHz at 10W. Bass control +8 dB, -12 dB at 40 Hz. Treble control +3 dB, -8 dB at 12 KHz. FR 40 Hz-30 KHz ± 3 dB (tone controls level). 14 transistors. Output impedance: 4-15 ohms. Finish: rosewood or teak veneered shelf mounting cabinet. Size: $15 \times 9 \times 3\frac{1}{2}$ in. Price: £30 9s.

RAVENSBROOK AND RAVENSBOURNE

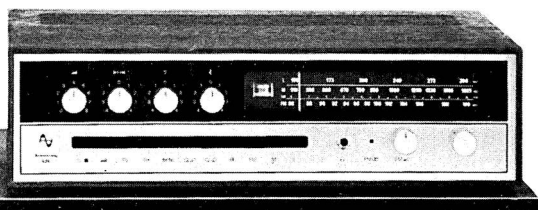
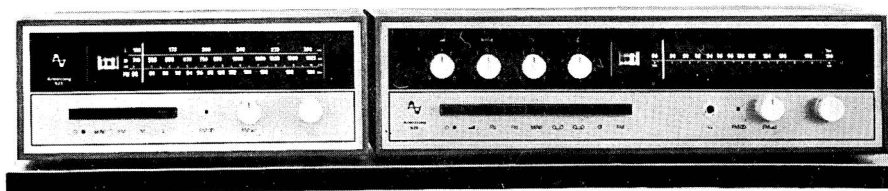
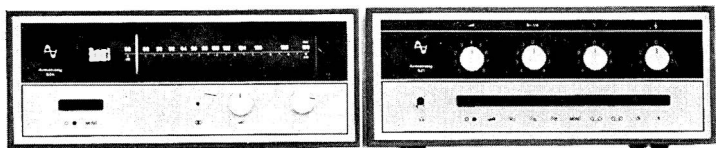


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523 AM-FM Tuner (middle left)	£55 15 3
524 FM Tuner (upper left)	£41 17 8
525 FM Tuner amplifier (middle right)	£91 17 9
526 AM-FM Tuner amplifier (lower)	£104 14 3
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Armstrong Audio Limited, Warlters Road, London, N.7

Telephone 01-607 3213

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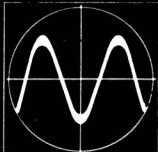
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and Pickup Arms**

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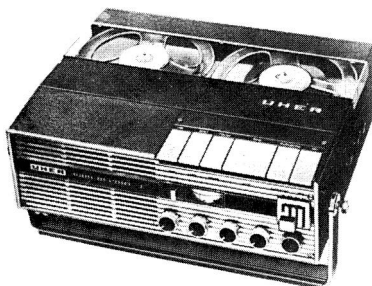


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Wow and flutter (max \pm %) 0.2 at $7\frac{1}{2}$ ips.

Record/playback half-track mono. Power output one watt. Monitoring via headphones or speaker. VU meter + three digit tape counter. Tape stop-start remote control, electronically controlled motor. Power supply from 6V, 12V, 24V car battery, from rechargeable accumulator or 5 type L.P. U2 batteries or mains unit. 17 transistors. Inputs: Microphone :- .1mv at 200 ohms. Radio :- 2mv at 47K ohms. Pick up :- 30mv at 1 megohm. Weight 7 lbs (approx.) £145-10-0 incl. P.T.

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Directory of Tape Recorders

The abbreviations used for the specifications in this directory are as follows: **FR**=frequency response; **i/s**=inches per second; **Psn**=power supply needed; **>** better than; **ME**=magic eye; **W** and **F**=wow and flutter; **Replay char**=replay characteristic; **H** and **N**=hum and noise.

★ indicates model is illustrated.

AKAI

UK distributors: Pullin Photographic (Rank Organization), P.O. Box 70, Great West Road, Brentford, Middx. Tel: 01-568 9222.

M.10L

Stereo $\frac{1}{4}$ -track recorder. Speeds: $1\frac{1}{8}$, $3\frac{3}{8}$, $7\frac{1}{2}$ i/s. Max spool: 7in. W and F: $7\frac{1}{2}$ i/s 0.1%, $3\frac{3}{8}$ i/s 0.2%, $1\frac{1}{8}$ i/s 0.3%. FR: $7\frac{1}{2}$ i/s 30 Hz-25 KHz ± 3 dB, $3\frac{3}{8}$ i/s 30 Hz-18 KHz ± 3 dB, $1\frac{1}{8}$ i/s 40 Hz-9 KHz ± 3 dB. Replay char: NARTB. Rewind time: 90 seconds for 1,200ft. Two VU meters. Inputs: line 50 mV 175K, mic 0.5 mV 4.7K, DIN (high) 50 mV 150K, DIN (low) 5 mV 27K. Outlets: line 1.23V 100 ohms, DIN 0.4V 10K, headphones 8 ohms. Output: 8W RMS per channel. Transistors. Own deck. One 3-speed hysteresis motor, two outer rotor motors. Size: $14 \times 14 \times 8\frac{3}{4}$ in. Input mixing. Crossfield head. Manual reverse. Two headphone sockets. Price: £195 (plus £48 16s PT).

X-330 ★

Stereo tape recorder. $\frac{1}{4}$ -track. Speeds: $1\frac{1}{8}$, $3\frac{3}{8}$ and $7\frac{1}{2}$ i/s. Max spool capacity: $10\frac{1}{2}$ in. W and F $7\frac{1}{2}$ i/s 0.04%; $3\frac{3}{8}$ i/s 0.07%; $1\frac{1}{8}$ i/s 0.15%. H and N -50 dB. FR $7\frac{1}{2}$ i/s 30 Hz-25 KHz ± 3 dB; $3\frac{3}{8}$ i/s 30 Hz-18 KHz ± 3 dB; $1\frac{1}{8}$ i/s 30 Hz-9 KHz ± 3 dB. Replay char: NARTB. Level indicator: meter. Rewind time: 1,200ft 75 sec. Inputs: microphone, 0.5 mV; line, 50 mV; DIN, 10 mV. Outlets: line, DIN, headphone. Audio output: 12W per channel RMS. Speakers: two 7×5 in. Transistorised. Motors: one hysteresis synchro 3-speed and two 6-pole eddy current. Tape deck: own. Dimensions: $14\frac{1}{2} \times 17\frac{1}{8} \times 9\frac{3}{8}$ in. Weight: 48.4 lb. Superimpose. Position indicator: digit, programme. Straight through amplifier. Monitoring. Input mixing. Parallel track replay. Auto continuous reverse by program sensing tape

reverse. Input for magnetic PU cartridge. Magnetic brake auto stop. Auto shut off. Remote control. Standard or low noise tape selector. Psn 100-240V. Price: £274 (plus £68 11s 4d PT).

X-360 ★

Professional stereo tape recorder. $\frac{1}{4}$ -track. Speeds: $1\frac{1}{8}$, $3\frac{3}{8}$, $7\frac{1}{2}$ and 15 i/s. Max spool capacity: 7in. W and F $7\frac{1}{2}$ i/s 0.04%; $3\frac{3}{8}$ i/s 0.07%; $1\frac{1}{8}$ i/s 0.15%. H and N -50 dB. FR $7\frac{1}{2}$ i/s 30 Hz-23 KHz ± 3 dB; $3\frac{3}{8}$ i/s 30 Hz-18 KHz ± 3 dB; $1\frac{1}{8}$ i/s 40 Hz-11 KHz ± 3 dB. Replay char: NARTB. Level indicator: two meters. Rewind time: 1,200ft 75 sec. Inputs: microphone, more than 0.5 mV; line more than 50 mV; DIN, low 5 mV, high 50 mV. Outlets: line and DIN. Audio output 15W per channel RMS. Speakers: two 5in. Transistorised. Motors: one 3-speed hysteresis synchronous, two 6-pole eddy current, outside rotor. Tape deck: own. Dimensions: $17\frac{1}{2} \times 16 \times 10$ in. Weight: 61.6 lb. Superimpose. Position indicator: digit. Straight through amplifier. Monitoring. Input mixing. Parallel track replay. Crossfield head. Auto reverse by timing clock. Comput-o-Matic recording. Warning light when heads require cleaning. Remote control. Tape cleaner. Headphone jack. Auto stop. Auto shut off. Magnetic brakes. Psn 100-240V, 50 or 60 Hz. Price: £304 (plus £76 1s 6d PT).

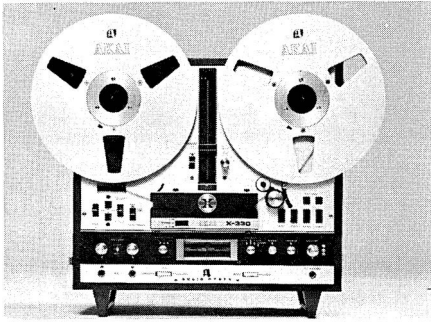
1710L ★

Stereo tape recorder. $\frac{1}{4}$ -track. Speeds: $1\frac{1}{8}$, $3\frac{3}{8}$ and $7\frac{1}{2}$ i/s. Max spool capacity: 7in. W and F $7\frac{1}{2}$ i/s 0.18%; $3\frac{3}{8}$ i/s 0.25%. H and N -50 dB. FR $7\frac{1}{2}$ i/s 40 Hz-15 KHz ± 3 dB; $3\frac{3}{8}$ i/s 40 Hz-14 KHz ± 3 dB. Replay char: NARTB. Level indicator: meter. Rewind time: 1,200ft 190 sec. Inputs: mic 3 mV 30K, DIN 20 mV 36K, line 150 mV 130K. Outlets: line and headphone. Audio output: 2W per channel RMS. Speakers: two 7×5 in. Hybrid valves/transistors. Induction motor. Tape deck: own. Dimensions: $14\frac{1}{2} \times 13\frac{1}{2} \times 7\frac{1}{2}$ in. Weight: 33 lb. Pause. Position indicator: digit. Monitoring by headphones. Input mixing. Vertical or horizontal operation. Psn 100-240V, 50 or 60 Hz. Price: £87 3s 8d (plus £21 16s 4d PT).

X-1800SD ★

Stereo tape recorder. $\frac{1}{4}$ -track. Speeds: $1\frac{1}{8}$, $3\frac{3}{8}$, $7\frac{1}{2}$ and 15 i/s with adaptor. Max spool capacity: 7in. W and F $7\frac{1}{2}$ i/s 0.12%; $3\frac{3}{8}$ i/s 0.15%; $1\frac{1}{8}$ i/s 0.2%; cartridge 0.25%. FR $7\frac{1}{2}$ i/s 30-23 KHz ± 3 dB; $3\frac{3}{8}$ i/s 30 Hz-18 KHz ± 3 dB; $1\frac{1}{8}$ i/s 30 Hz-9 KHz ± 3 dB; cartridge 50 Hz-17 KHz ± 3 dB. H and N -50 dB. Replay char: NARTB. Level indicator: VU meter. Rewind time: 1,200ft 150 sec. Inputs: microphone 0.5 mV, 50K; line, 60 mV. Outlets: line and headphone. Audio output: 4W per channel RMS. Speakers: two 4in. Transistorised. Motor: 2-speed induction. Tape deck: own. Dimensions:

★ Indicates entry is illustrated



Akai X-330



Akai A360D



Akai X-1800SD

15 × 13½ × 9½ in. Weight: 37.4 lb. Pause. Position indicator: digit. Straight through amplifier. Monitoring. Input mixing. Record and replay facilities for 8-track cartridges in addition to reel-to-reel. Reel to cartridge transfer. FM multiplex ready. Crossfield head. Walnut cabinet. Psn 100-240V, 50 or 60 Hz. Price: £159 10s (plus £39 18s 4d PT).

X-V ★

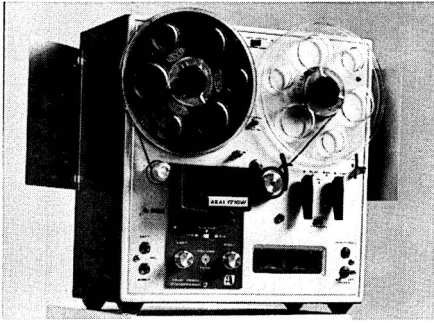
Stereo mains/battery tape recorder. ¼-track. Speeds: 1½, 1⅞, 3⅜ and 7½ i/s. Max spool capacity: 5in (7in with extension arms). W and F 7½ i/s 0.15%; 3⅜ i/s 0.17%; 1⅞ i/s 0.25%; 1½ i/s 0.35%. H and N DC -50 dB; AC -45 dB. FR 7½ i/s 40 Hz-20 KHz ±3 dB; 3⅜ i/s 40 Hz-17 KHz ±3 dB; 1⅞ i/s 30 Hz-11 KHz ±3 dB; 1½ i/s 30 Hz-5 KHz ±3 dB. Replay char: NARTB. Level indicator: meter. Rewind time: 600ft 90 sec. Inputs: microphone, 0.1 mV, 600 ohms; line 60 mV, 250K; DIN. Outlets: line and earphone. Audio output: 1W per channel RMS. Speakers: two 3in. Transistorised. Motor: brushless DC micro. Tape deck: own. Dimensions: 5½ × 11 × 12in. Weight: 12.1 lb. Position indicator: digit. Monitoring by earphone. Crossfield head. Stereo record/playback. Psn 100-240V or DC battery. Price: £150 (plus £37 10s 9d PT).

X-4000

Stereo ¼-track recorder. Speeds: 7½, 3⅜ i/s. Max spool: 7in. W and F: 7½ i/s 0.15%, 3⅜ i/s 0.2%. H and N: -50 dB. FR: 7½ i/s 30 Hz-22 KHz ±3 dB, 3⅜ i/s 30 Hz-16 KHz ±3 dB. Replay char: NARTB. Rewind time: 180 seconds for 1,200ft. Two VU meters. Inputs: mic 0.5 mV 30K, line 50 mV 330K, DIN 20 mV 100K. Outlets: line 1.228V 1.5K, DIN 250 mV 600 ohms, headphones 8 ohms. Output: 7W RMS per channel. Speakers: two 6 × 4in. Transistors. One motor. Own deck. Size: 12⅜ × 15⅞ × 7½ in. Weight: 26½ lb. Monitoring. Input mixing. One micron head gaps. Mains: 100-240V AC 50-60 Hz. Price: £99 18s (plus £25 PT).

X-5000 (L and W)

Stereo ¼-track recorder. Speeds: 1⅞, 3⅜, 7½ i/s, 15 i/s optional. Max spool 7in. W and F: 7½ i/s 0.12%, 3⅜ i/s 0.16%, 1⅞ i/s 0.22%. H and N: -50 dB. FR: 7½ i/s 35 Hz-24 KHz ±3 dB, 3⅜ i/s 40 Hz-16 KHz ±3 dB, 1⅞ i/s 45 Hz-7.5 KHz ±3 dB. Replay char: NARTB. Rewind time: 90 seconds for 1,200ft. Two VU meters. Inputs: mic 0.5 mV 4.7K, line 50 mV 175K, DIN 5 mV 27K. Output: 4W RMS per channel. Speakers: two 7 × 5in. Transistors. Own deck. One hysteresis synchronous 2-speed motor. Size: 14 × 13½ × 9½ in. Weight: (X-5000L) 32lb; (X-5000W) 31 lb. Pause control. Monitoring. Crossfield head. Auto shut off. Integrated circuits. Mains: 100-



Akai 1710L

240V 50/60 Hz. Price: £142 7s (plus £25 12s 6d PT).

AMPEX G.B. LTD

Acre Road, Reading, RG2 0QR.
Tel: Reading 84411.

Ampex AG-440 Series ★

Transistorised professional recorders. Console, portable or rack mounted. Tape transport accommodates ¼in and ½in tape. Modular construction allows mono machine to be built up to four-track ½in unit. Speeds: 15/7½ i/s and 7½/3¾ i/s. Three motors. 10½ or 11½in spools FR 30 Hz-18 KHz ±2 dB. H and N -68 dB (full track unweighted). W and F <0.08% RMS. Eight-track versions on 1in tape available. Prices on application.

Ampex AG-600

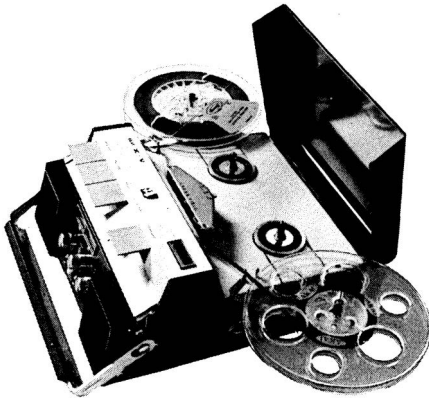
Transistorised professional portable recorder. Speeds: 7½ and 3¾ i/s. One motor. 7in spools. FR 40 Hz-10 KHz ±2 dB. Large scale VU meter. H and N -60 dB full track, -55 dB half track. W and F less than 0.15%. Size: 16½ × 13¾ × 8in. Weight: 28 lb. Price on application.

Ampex AG-600-2

Stereo version of Ampex AG-600. Size: 24½ × 13 × 8in. Weight: 42 lb. Price on application.

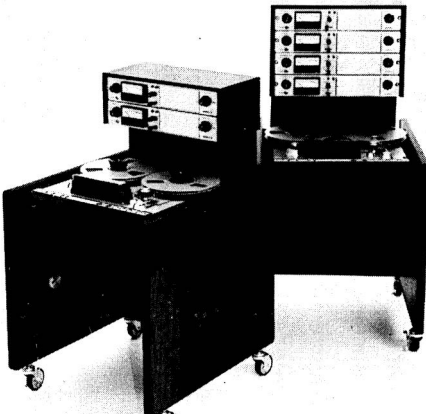
AG-500

Transistorised professional recorder. Stereo or mono versions. Full or half-track. ¼-track version available shortly. Speeds: 15 and 7½ i/s or 7½ and 3¾ i/s. W and F 15 i/s 0.1%; 7½ i/s 0.13%; 3¾ i/s 0.17%. H and N -60 dB at 15 and 7½ i/s full track. FR: 15 i/s, 30 Hz-15 KHz ±2 dB; 7½ i/s, 30 Hz-12 KHz ±2 dB. Replay char: NAB/CCIR (15 i/s only) with plug-in equalisers. Various inputs by plug-in transformers and preamps. Outlet from preamp +4 dBm into 600 ohms. One motor. 7in spool. Rewind 1½ mins. VU meter. Remote control. Size: (transport) 19 × 8¾ × 6in; (electronics) 19 × 5¼ × 5¾in. Weight: (unmounted) 44 lb; (in case) 53 lb. Price on application.



Akai X-V

Ampex markets a full range of professional and semi-professional tape recording equipment, including decks, amplifiers, mixers, duplicators and accessories. Full details and prices available on request.



Ampex AG440B

BANG & OLUFSEN UK LTD

Eastbrook Road, Gloucester, GL4 7DE.
Tel: Gloucester 21591.

Beocord 2400 ★

Transistor 3-speed stereo ¼-track recorder. Speeds: 7½, 3¾, 1¼ i/s. 7in spools. FR at 7½ i/s 20 Hz-18 KHz ±2 dB. Replay char: DIN 45,513 1969, NAB and RIAA 1965. Rewind time: 170

★ Indicates entry is illustrated

sec for 1,800ft. W and F: 0.07% at $7\frac{1}{2}$ i/s. H and N: > 60 dB (DIN 45,500 BL4-2.6) and > 65 dB (BL4-2.5). Two meters. Inputs: mic 35 μ V 50/200 ohms, switched PU for magnetic 1.5 mV 47K or crystal 50 mV 10M, switched radio 2.5 mV 47K or 50 mV 100K, also line 250 mV 47K. Outlets: line 1.25V 7.5K, radio 1.25V 25K, headphones 100 ohms nominal, 2×10 W RMS for 4 ohm external speakers. Own deck using Pabst motors. Features: pause control, straight-through amplification, monitoring, input mixing, parallel track replay, sound-on-sound, echo. Mains: 110, 130, 220, 240V 50 Hz. Teak or rosewood finish. Dimensions: $17\frac{3}{4} \times 14\frac{1}{8} \times 8\frac{3}{8}$ in. Weight: 36.3 lb. Prices: teak £219 10s; rosewood £220 10s (including PT).

Beocord Trolley ★

For mounting Beocord tape recorder or tape unit. Stainless steel with castors and single column stem. Price: £14.

BRENELL ENGINEERING CO LTD

231-5 Liverpool Road, London, N1.

Tel: 01-607 8271 (5 lines).

Mk 5. Type M. Series 3 ★

Speeds: 15, $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{7}{8}$ i/s. Three motors. $8\frac{1}{2}$ in spools. FR 15 i/s, 40 Hz-20 KHz; $7\frac{1}{2}$ i/s, 40 Hz-18 KHz; $3\frac{3}{4}$ i/s, 40 Hz-13 KHz; $1\frac{7}{8}$ i/s, 40 Hz-6 KHz. Level meter. H and N -45 dB. W and F $1\frac{7}{8}$ i/s, <0.25%; $3\frac{3}{4}$ i/s, <0.15%; $7\frac{1}{2}$ i/s, <0.1%; 15 i/s, <0.05%. Outlet from pre-amp. Mixing. Superimposing. Tape monitoring. Input monitoring. Size: $18 \times 18 \times 9$ in. Weight: 40 lb. Price: £116 9s (plus £29 2s 10d PT).

Mk 5. Series 3

15, $7\frac{1}{2}$, $3\frac{3}{4}$ and $1\frac{7}{8}$ i/s. Three motors, $8\frac{1}{2}$ in spools. FR 15 i/s, 40 Hz-15 KHz ± 2 dB; $7\frac{1}{2}$ i/s, 40 Hz-14 KHz; $3\frac{3}{4}$ i/s, 40 Hz-11 KHz; $1\frac{7}{8}$ i/s, 40 Hz-6 KHz ± 3 dB. ME level ind (Meter available). H and N -45 dB. W and F 0.05% at 15 i/s. Hi-fi outlet 500 mV into 47K. Straight-through amp. Switched frequency correction. Pause control and monitoring. Size: $18 \times 18 \times 8$ in. Weight: 38 lb. Price: £98 8s (plus £23 7s 6d PT); (with meter) £99 9s 9d (plus £24 18s PT).

STB2

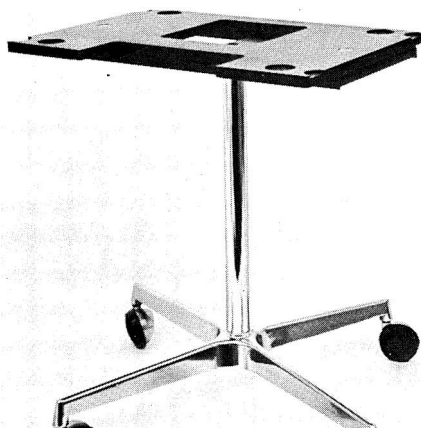
Stereo/mono recorder. See Tape Units.

ST200 ★

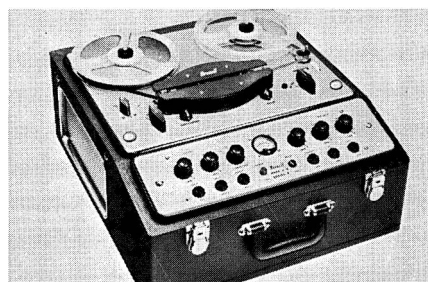
Transistorised tape recorder for general-purpose (mains) use. Speeds: $1\frac{7}{8}$, $3\frac{3}{4}$ and $7\frac{1}{2}$ i/s. 2-track. Stereo. W and F $7\frac{1}{2}$ 0.08%, $3\frac{3}{4}$ 0.1%, $1\frac{7}{8}$ 0.12%. H and N $7\frac{1}{2}$ -59 dB, $3\frac{3}{4}$ -56 dB, $1\frac{7}{8}$ -53 dB. FR $7\frac{1}{2}$ 40 Hz-14 KHz, $3\frac{3}{4}$ 40 Hz-11 KHz, $1\frac{7}{8}$ 40 Hz-5 KHz, each ± 2 dB. CCIR. Two meters. Rewind time: 1,200ft 60 secs. Inputs: microphone, 50 μ V, 200 ohms; radio 40 mV, 220K. Outlets: hi-fi 200 mV into 47K; monitor 2V, 100 ohms; extension speaker 6W RMS, 15 ohms. Output:



Beocord 2400



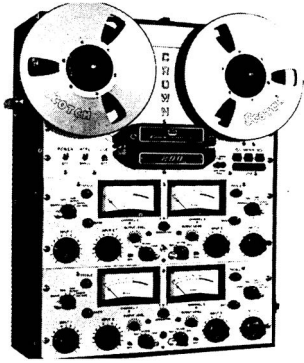
Beocord Trolley



Brenell Mk 5 Series 3 type M



Brenell ST200/ST400



Crown 800

6W RMS. Speaker: 3½in. Three Papst motors. Own tape deck. Dimensions: 15½ × 17½ × 8½in. Weight: 33 lb. Pause facility. Press-button reset revolution counter. Straight through amplifier on mono. Mono monitoring of input signal. Bass and treble cut and lift on recording and replay. 210V, 110V, 80W. Price: £116 (plus £29 PT).

ST400 ★

Is the 4-track version of the previous model. Specification is the same except for: H and N 7½-56 dB; 3¼-53 dB; 1⅞-50 dB. Price: £116 (plus £29 PT).

Mk 6.M

Mains mono recorder. ½-track. Speeds: 15, 7½, 3¾, 1⅞ i/s. Max spool: 8½in. W and F: 1⅞ i/s 0-12%, 3¼ i/s 0-1%, 7½ i/s 0-08%, 15 i/s 0-05%. H and N: 1⅞ i/s 50 dB, 3¾ i/s 54 dB, 7½ i/s 56 dB, 15 i/s 56 dB. FR: 1⅞ i/s 50 Hz-8 KHz, 3¾ i/s 50 Hz-15 KHz, 7½ i/s 20 Hz-20 KHz, 15 i/s 20 Hz-22 KHz, all ±3 dB. Replay char: CCIR. Rewind time: under 60 secs for 1,200ft. Illuminated edge-scale VU meter. Inputs: mic 0-1 mV 200-250 ohms, aux 5 mV 250K, PU mag 4 mV 47K, PU ceramic 160 mV 1.5 megohms. Outlets: external amplifier 200 mV into 10K, external speaker 15W into 8 ohms or 8W into 15 ohms. Speaker: 7 × 5in. Output: 15W RMS into 8 ohms (8W into 15 ohms). Transistorised. Own deck. Three motors (Papst outer rotor). Pause control. Straight-through amplifier. Monitoring. Input mixing. Accepts pickups direct. A/B switching. Size: 16½ × 7 × 18in. Weight: 35 lb. Mains: 110, 210, 240V AC. Price: £124 (plus £31 PT).

CHILTON

Magnetic Tapes Ltd, Chilton Works, Garden Road, Richmond, Surrey. Tel: 01-876 7957.

Chilton 100S

Transistorised stereo ¼ or ½-track three-speed recorder available as portable with in-built speakers (model 100S/CAP), or chassis in teak surround without power amplifiers (100S/CW), or with power amplifiers (100S/CAW). Speeds: 1⅞, 3¾, 7½ i/s. 7in reels. Rewind time: 150 secs for 1,800ft. Deck uses hysteresis motor and four DC-operated diode-suppressed solenoids. W and F: 0-1% at 7½ i/s, 0-25% at 1⅞ i/s. FR: (±2 dB) via tape 30 Hz-18 KHz (7½ i/s), 40 Hz-11 KHz (3¾ i/s) and (±3 dB) 50 Hz-7 KHz (1⅞ i/s). Signal/noise, unweighted, 50 dB ¼-track and 53 dB ½-track, all speeds. Replay char: IEC (NAB to order). Inputs per channel: mic 600 ohms-50K 0.4 mV, radio 100K 40 mV (DIN), gram 47K 1 mV RIAA DIN. Outlets: line 2K 0.5V DIN, radio 10K 0.25V DIN, speakers (models with power amps) 10W at 8 ohms. LS impedance 4-16 ohms. Two 6 × 4in units per channel in model CAP. Stereo headphone jack socket. Size: (portable with lid) 14½ × 13⅞ × 6½in; (chassis) 19 × 16 × 8in. Prices: 100S/CAP £124 (plus £28 15s 10d PT); 100S/CW £111 (plus £25 15s 7d PT); 100S/CAW £121 (plus £28 2s PT); two-track versions £10 (plus £2 6s 5d PT) extra; tinted Perspex cover for teak surround £3 18s (plus 18s 2d PT).

CINECODER

Murray Electronics Ltd, 5 Selkirk Road, Tooting, London, SW17. Tel: 01-672 8267.

Cinecoder Model A

Mono recorder with BSR deck. ½-track. Speed: 3¾ i/s. W and F 0.4%. FR 60 Hz-10 KHz. Replay char: CCIR. Two channel mixing with two inputs per channel. 4W 15 ohms output. One motor. 5¾in spools. 10in elliptical speaker housed in detachable lid with 24ft cable. Separate bass and treble controls. Boost and cut. Superimposition. 'Shift-track' tape control for dual recordings. Tapelift/Pause control for cueing, cross-fading. Remote control. Accessories: mic and ext cables, perforated Cinetape, tape sprockets. Size: 16½ × 14 × 8½in. Weight: 28 lb. Price: £61 19s (plus £15 2s PT).

CROWN INTERNATIONAL

Distributor: Carston Electronics Ltd, 71 Oakley Road, Chinnor, Oxon. Tel: Kingston Blount 8561.

800 Series ★

¼-track and ½-track mono and stereo professional recorders. Three-speeds with 15 i/s or 1⅞ i/s optional. Max spool: 10½in. W and F: 15 i/s 0-06%; 7½ i/s 0-09%; 3¾ i/s 0-18% (RMS). H and N: 15 i/s -60 dB; 7½ i/s -60 dB; 3¾ i/s -55 dB (below peak level). FR (±2 dB): 15 i/s 30 Hz-30 KHz; 7½ i/s 30 Hz-25 KHz; 3¾ i/s 30

★ Indicates entry is illustrated

Hz-15 KHz. Replay char: CCIR. VU meter. Rewind time: 58 seconds 2,400ft, 38 seconds 1,200ft. Inputs: 2 mixable inputs per channel, mic or line. Sensitivity: 45 mV for 0 level (line), 0.4 mV for 0 level (mic); impedance 100K, balanced or unbalanced 600 ohms, or 50/200 ohms. Output: 600 ohms. Three motors, magnetic brakes, logic circuitry for tape handling, all tape commands can be remote. A-B monitoring, source and tape mixing, echo, individual bias adjustment and metering. Size: $17\frac{1}{2} \times 19 \times 8$ in. Weight: 50 lb. Price: £700 to £1,500.

EMI

EMI Electronics Ltd, Hayes, Middlesex.
Tel: 01-573 3888.

L4 ★

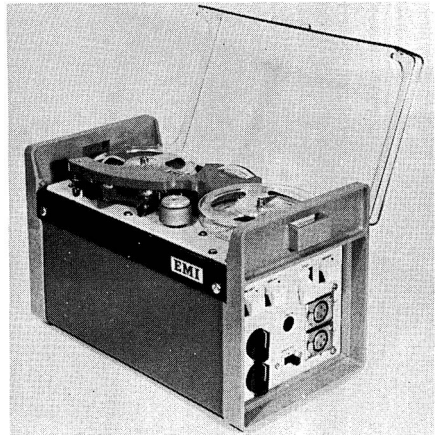
Transistorised 2-speed tape-recorder for mains/battery operation with level indicator. $4\frac{1}{2}$ in spools $7\frac{1}{2}$, $3\frac{3}{4}$ in/sec. FR: 50 Hz-12 KHz ± 12 dB. W and F: better than 0.2% RMS at $7\frac{1}{2}$ in/sec; better than 0.3% RMS at $3\frac{3}{4}$ in/sec. Inputs: Mic 50V for PRL 1K (suitable for 3/50 microphone); Mic 2: as for Mic 1; Line in, 270 mV for PRL, 20K (bridging); Line out, 0 dBm (0.775V) for PRL; 40 ohms into 200 ohm and 600 ohm lines. Replay char: IEC 70S or NAB 50S at $7\frac{1}{2}$ in/sec only. A-B monitoring, $\frac{1}{2}$ or full-track. Neopilotone version available. Audio output: 200 mW RMS. Speaker: 3in. Own deck with DC motor. Fully tropicalised. Mic bass-cut switch. Remote motor on/off on $\frac{1}{2}$ -track version. Dimensions: $7 \times 11\frac{1}{4} \times 5\frac{3}{4}$ in. Weight: $10\frac{3}{4}$ lb. Rechargeable battery or mains via charger. Price: L4a ($\frac{1}{2}$ -track version) £120; L4b (full-track version) £130; L4c (full-track and sync) £165. Free of tax.

FERROGRAPH CO LTD

The Hyde, Edgware Road, Colindale,
London, NW9. Tel: 01-205 2241.

Ferrograph 713

Semi-professional mains mono recorder. $\frac{1}{2}$ -track. Speeds: $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{7}{8}$ i/s. Max spool $8\frac{1}{2}$ in. W and F: $7\frac{1}{2}$ i/s 0.08%, $3\frac{3}{4}$ i/s 0.15%, $1\frac{7}{8}$ i/s 0.2%. H and N: $7\frac{1}{2}$ i/s better than 55 dB. FR: $7\frac{1}{2}$ i/s 30 Hz-17 KHz ± 2 dB, $3\frac{3}{4}$ i/s 40 Hz-14 KHz ± 3 dB, $1\frac{7}{8}$ i/s 50 Hz-7 KHz ± 3 dB. Replay char: DIN. VU meter. Rewind time less than one minute for 1,200ft. Inputs: mic 300 μ V to 15 mV at 250-2,000 ohms, line 50 mV to 10V at 2 megohms. Outlets: 600 ohms, 300 mV 10K, 8-16 ohms 10W. Output: 10W RMS. Two 6×4 in speakers. Transistorised. Three motors (synchronous hysteresis capstan motor and shaded pole spool motors). Pause. Four-digit gear driven tape indicator. Straight-through amplifier. Monitoring. Input mixing. Vertical or horizontal operation. Single knob control. Fast wind continuously variable in either direction. Remote start/



EMI L4



Ferguson 3244



Ferguson 3249

stop of tape, also time-switch operation. Removable head block. Straight line tape loading. Automatic stop. Reel retainers. Retractable carrying handle. A-B comparison switch. Separate bass and treble controls with cut or lift. Meter indicates signal level on record and playback. Meter switchable to indicate bias. Bias continuously adjustable. Supplied in two styles. Suffix P: portable wood case leathercloth covered; Suffix W: wooden case, natural wood finish; Mains: (Suffix U) 200-250V 50 Hz; (Suffix A) 117V 60 Hz. Price: £174 13s 6d (including PT).

Ferroglyph 713H

Similar specification to 713 except tape speeds 15, 7½, 3¾ i/s. FR at 15 i/s 30 Hz-20 KHz ±2 dB. Price: £182 4s 4d (including PT).

Ferroglyph 722 ★

Similar specification to 713 except ½-track stereo version. Track to track transfer switch. Switchable echo. Records mono on upper or lower tracks. Channel separation: stereo approx 50 dB, mono better than 65 dB. Price: £204 16s 9d (including PT).

Ferroglyph 722H

Similar specification to 722 except tape speeds 15, 7½, 3¾ i/s. FR at 15 i/s 30 Hz-20 KHz ±2 dB. Price: £212 7s 6d (including PT).

Ferroglyph 702

Similar specification to 722 except tape unit with preamps only. Additional low level output adjustable 0-300 mV. Price: £194 15s 8d (including PT).

Ferroglyph 702H

Similar specification to 702 except tape speeds 15, 7½, 3¾ i/s. FR at 15 i/s 30 Hz-20 KHz. Price: £202 6s 6d (including PT).

Ferroglyph 724

Similar specification to 722 except ¼-track version. Price: £204 16s 9d (including PT).

Ferroglyph 704

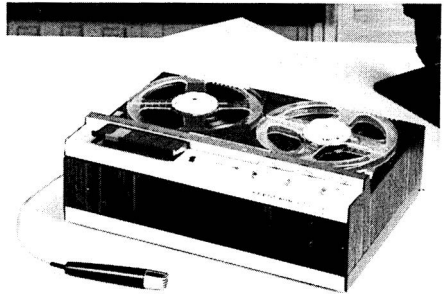
Similar specification to 702 except ¼-track version. Price: £194 15s 8d (including PT).

FERGUSON

British Radio Corporation Ltd,
284 Southbury Road, Enfield, Middlesex.
Tel: 01-366 1155.

3244 ★

¼-track stereo recorder. 3-speeds. 7in reels. W and F: 7½ i/s 0.15%, 3¾ i/s 0.2%, 1⅞ i/s 0.25%. H and N: -45 dB. FR (6 dB): 7½ i/s 40 Hz-18 KHz. Replay char: CCIR. Level meter. Rewind time: 3 min 20 sec 1,800ft. Inputs: mic, PU (high impedance), gram (low impedance). Outputs: ext speakers 5W 8 ohms, ext amps 500 mV 10K.



Ferguson 3248

5W output from 5 × 3in speakers. Track transfer switch. Solenoid operated remote pause and auto stop. Mains: 45W. Size: 16½ × 14¼ × 7½in. Price: £79 5s (plus £18 13s PT).

3249 ★

¼-track stereo recorder. 3-speeds. 7in reels. At 7½ i/s W ±0.2%, F ±0.2%, at 3¾ i/s W ±0.3%, F ±0.3%, at 1⅞ i/s W ±0.4%, F 0.4%. H and N -45 dB at 3¾ i/s. FR (6 dB): 7½ i/s 40 Hz-18 KHz, 3¾ i/s 40 Hz-14 KHz, 1⅞ i/s 40 Hz-7 KHz. Replay char: DIN. Level meter (illuminated). Rewind time: 2 min 40 sec 1,200ft. Inputs: mic/radio 0.2 mV 2K, gram 220 mV 2.2 meg. Outputs: ext speaker 8 ohms, ext amps 500 mV 10K, 3-pin accessories socket. 4.5W output (5% distortion) from 7 × 3¾in speaker. Deck BRC series F. Inching, pause control. Parallel track replay. Auto recording level control with manual over-ride, auto tape stop, tape position indicator, bass and treble controls. Transistorised. 240V 50 Hz mains operation. Size: 16½ × 14¼ × 7⅞in. MC mic with remote pause switch, LP tape, connecting lead included. Price: £50 11s 1d (plus £11 17s 11d PT).

3248 ★

¼-track mono recorder. 2-speeds. 7in reels. At 3¾ i/s W ±0.3%, F ±0.3%, at 1⅞ i/s W ±0.4%, F ±0.4%. FR (6 dB): radio input to low-level output: 3¾ i/s 40 Hz-14 KHz, 1⅞ i/s 40 Hz-7 KHz. Replay char: DIN. Level meter (illuminated). Rewind time: 2 min 40 sec 1,200ft. Inputs: mic/radio 0.2 mV 2K, gram 220 mV 2.2 meg. Outputs: ext speaker 8 ohms or 30-100 ohm phones, ext amps 500 mV 10K, 6-pin accessories socket. 4.5W (5% distortion) to 5½ × 2¾in speaker. Deck BRC series F. Inching, pause control, monitoring, parallel track replay, auto recording level control with manual over-ride, auto tape stop, tape position indicator, bass and treble controls. Transistorised. 240V 50 Hz mains. Size: 15¼ × 11 × 5½in. MC mic, LP tape, record/playback lead and ext speaker plug included. Price: £42 13s 2d (plus £10 0s 10d PT).

★ Indicates entry is illustrated

GRUNDIG (Great Britain) LTD

Newlands Park, Sydenham, London, SE27.

Tel: 01-778 2211.

TK121 ★

Mains operated $\frac{1}{2}$ -track recorder. Transistors. Slider controls for volume, tone and record level. Straight-through amplifier. 10 transistors, 3 diodes. Speed: $3\frac{3}{4}$ i/s. FR: 40 Hz-12 KHz. H and N: -52 dB. Max spool 5 $\frac{1}{2}$ in. Four-digit tape position indicator. Record level meter. Inputs: mic 1 mV 100K, radio 1-500 mV 50K. Outputs: speaker 4W 4 ohms, line 500 mV 22K. W and F: $\leq 0.2\%$. Mains: 115-230V 50 Hz. Size: $15\frac{1}{4} \times 11\frac{1}{4} \times 6\frac{1}{4}$ in. Weight: 17 $\frac{3}{4}$ in. Price to be announced.

TK141 ★

Mains operated $\frac{1}{4}$ -track recorder. H and N: -50 dB. Monitor. All other details as for TK121. Price to be announced.

TK146 ★

Mains operated $\frac{1}{4}$ -track recorder. Automatic and manual record level. Slider controls for volume, tone and record level. Record level meter. Straight-through amplifier. FR: 40 Hz-12 KHz. H and N: -50 dB. Max spool: 5 $\frac{1}{2}$ in. Speed: $3\frac{3}{4}$ i/s. W and F: $\leq 0.2\%$. Four-digit tape position indicator. Inputs: mic 1 mV 100K, radio 100 mV 50K. Outputs: 4W 4 ohms, line 500 mV 27K. Size: $6\frac{1}{4} \times 15\frac{1}{2} \times 11\frac{1}{4}$ in. Weight: 17 $\frac{3}{4}$ lb. Price to be announced.

TK246 ★

Mains 2-speed $\frac{1}{4}$ -track stereo recorder. Mono playback, stereo playback with external amplifier. Automatic or manual record level with meters. Speeds: $3\frac{3}{4}$, $7\frac{1}{2}$ i/s. 19 transistors, 12 diodes. W and F: 0-15% at $7\frac{1}{2}$ i/s, 0-2% at $3\frac{3}{4}$ i/s. H and N: -50 dB. FR: 40 Hz-16 KHz at $7\frac{1}{2}$ i/s, 40 Hz-12 KHz at $3\frac{3}{4}$ i/s. Four-digit tape position indicator. Max spool: 7in. Inputs: mic (2) 1 mV 100K, radio (2) 1 mV 33K, PU (2) 50 mV 1.5 megohm. Outputs: 4W 4 ohms, line (2) 800 mV 20K. Mains: 110-240V 50 Hz. Size: $7\frac{3}{4} \times 17 \times 13\frac{3}{4}$ in. Weight: 26 lb approx. Operates horizontally or vertically. Price: £128 17s 8d (including PT).

TK248 ★

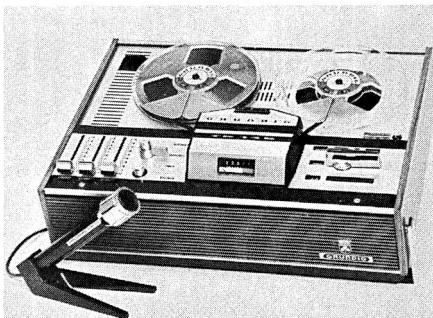
Mains 2-speed $\frac{1}{4}$ -track full stereo recorder. Stereo record and playback. Multi-synchronous and echo recordings. Straight-through amplifier. Speeds: $3\frac{3}{4}$, $7\frac{1}{2}$ i/s. W and F: $\leq 0.15\%$ at $7\frac{1}{2}$ i/s, $\leq 0.2\%$ at $3\frac{3}{4}$ i/s. Large illuminated VU meters. Max spool: 7in. 19 transistors, 12 diodes. FR: 40 Hz-16 KHz at $7\frac{1}{2}$ i/s, 40 Hz-12.5 KHz at $3\frac{3}{4}$ i/s. H and N: -50 dB. Inputs: mic (2) 1 mV 100K, radio (2) 1 mV 33K, PU (2) 50 mV 1.5 megohms. Outputs: line (2) 800 mV 20K, speaker (2) 4W 4 ohms. Four speakers. Four-digit tape position indicator. Size: $7\frac{3}{4} \times 17 \times$



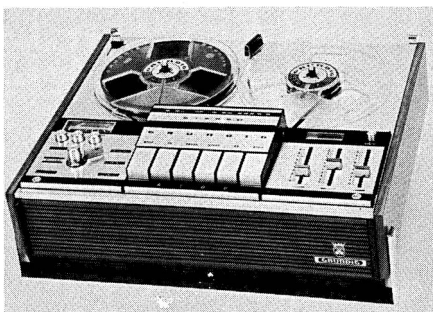
Grundig TK121



Grundig TK141



Grundig TK146

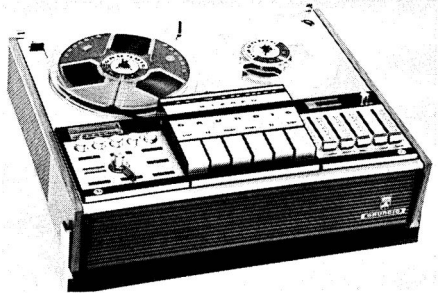


Grundig TK246

13 $\frac{3}{4}$ in. Weight: 30 $\frac{1}{2}$ lb. Price: £157 14s (including PT).

TK3200 Hi-Fi

Semi-professional class portable recorder designed to operate from mains or batteries. $\frac{1}{2}$ -track. Mono. Speeds: 1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i/s. Automatic or manual record level. Separate controls for record level and replay volume. Independent bass and treble controls. Max spool: 5 $\frac{3}{4}$ in. Three heads. 30 transistors. Four-digit tape position indicator. FR: 40 Hz-17 KHz at 7 $\frac{1}{2}$ i/s, 40 Hz-12.5 KHz at 3 $\frac{3}{4}$ i/s, 40 Hz-8 KHz at 1 $\frac{7}{8}$ i/s. Dynamic range: 52 dB at 7 $\frac{1}{2}$ i/s, 50 dB at 3 $\frac{3}{4}$ i/s, 48 dB at 1 $\frac{7}{8}$ i/s. W and F: $\leq 0.15\%$ at 7 $\frac{1}{2}$ i/s, $\leq 0.2\%$ at 3 $\frac{3}{4}$ i/s, $\leq 0.35\%$ at 1 $\frac{7}{8}$ i/s. Special mechanical tape tensioner. Remote control microphone switch. Inputs: mic 0.22 mV 10K, radio 0.22 mV 10K, PU 45 mV 2.2 megohms. Output: 800 mW to internal speaker, 2W to external speaker. Power supply: six SP2 cells or Grundig mains unit type TN12A. Size: 9 $\frac{1}{2}$ x 12 $\frac{1}{4}$ x 3 $\frac{1}{2}$ in. Weight: 12 lb. Price on application.



Grundig TK248

NAB 10 $\frac{1}{2}$ in spools. Three motors. FR to BS1568: 1960. NAB to special order. Prices: 8 track master recorder £5,450.

LUXOR

Distributors: Luxitone, 84 Bolsover Street, London, W1. Tel: 01-636 2901.

MP813

Stereo tape recorder with amplifiers and monitor speakers. Speeds: 1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i/s. Four-track. Max spool 7in. Output: 10W RMS per channel. Inputs: mic, PU, radio. Outputs: speakers, headphones, amplifier. Size: 7 $\frac{1}{4}$ x 20 $\frac{1}{2}$ x 15in. Price to be announced.

MARCONIPHONE

British Radio Corporation Ltd, 284 Southbury Road, Enfield, Middlesex. Tel: 01-366 1155.

4218

Stereo $\frac{1}{4}$ -track tape recorder. Speeds: 7 $\frac{1}{2}$ i/s, 3 $\frac{3}{4}$ i/s, 1 $\frac{7}{8}$ i/s. W and F: 0.15%, 7 $\frac{1}{2}$ i/s; 0.2% 3 $\frac{3}{4}$ i/s; 0.25% 1 $\frac{7}{8}$ i/s. FR: 40 Hz-18 KHz 7 $\frac{1}{2}$ i/s; 40 Hz-7 KHz 1 $\frac{7}{8}$ i/s. Two meters. Rewind time: 1,800ft in 3 min 20 sec. Inputs: mic/radio 250 mV 4-7K; gram 100 mV 100K; PU 50 mV 1M. Outputs: ext amp 500 mV 10K; L.S. 5W into 8 ohms. Psn: AC mains. Dimensions: 16 $\frac{1}{4}$ x 14 $\frac{1}{4}$ x 7in. Price: £72 9s 10d (plus £17 1s 2d PT).

4248

$\frac{1}{4}$ -track mono recorder. 2-speeds. 7in reels. At 3 $\frac{3}{4}$ i/s W $\pm 0.3\%$ F $\pm 0.3\%$, at 1 $\frac{7}{8}$ i/s W $\pm 0.4\%$ F $\pm 0.4\%$. H and N: -45 dB. FR: 3 $\frac{3}{4}$ i/s 40 Hz-14 KHz, 1 $\frac{7}{8}$ i/s 40 Hz-7 KHz. Replay char: DIN. Level meter (illuminated). Rewind time: 2 min 40 sec 1,200ft. Inputs: mic/radio 0.2 mV 2K, gram 220 mV 2.2 meg. Outputs: ext speaker 8 ohms, ext amps 500 mV 10K, 3-pin accessories socket. 5W to 7 x 3 $\frac{3}{8}$ in speaker. BRC series F deck. Pause control, inching, monitoring, parallel track replay, auto recording level control with manual over-ride. Auto tape stop, tape position indicator, bass and treble controls.

KINGSTEREO

Distributors: Lionel Murray Ltd, 7 West Halkin Street, Belgrave Square, London, SW1. Tel: 01-235 6424-5-6.

XAR500

4-track record/playback tape player. Price: £140 (including PT).

HW12

4 and 8 track stereo cartridge tape player. FR: 50 Hz-10 KHz. W and F: $< 0.3\%$. Power output: 4W (music) into speakers supplied. Finish: mahogany. Dimensions: 13 $\frac{1}{4}$ x 8 $\frac{1}{4}$ x 3 $\frac{3}{4}$ in. Price: £89 (including PT).

Wide range of 4 track stereo pre-recorded tape cartridges is available for this equipment.

LEEVEERS-RICH EQUIPMENT LTD

319 Trinity Road, Wandsworth, London, SW18. Tel: 01-874 9054. Cables: Leemag, London, SW18.

Series E

$\frac{1}{2}$ in professional recorders. Available in rack mounting (R), console (M), or studio console (S).

E6R-1/1, E6R-2/2

Speeds: 15 and 7 $\frac{1}{2}$ i/s, or 30 and 15 i/s, or 7 $\frac{1}{2}$ and 3 $\frac{3}{4}$ i/s. Spool 11 $\frac{1}{2}$ in. Three motors. Full track, half track or dual track. FR 30 Hz-18 KHz ± 2 dB at 15 i/s. Noise: full track -62 dB, half track -58 dB. W and F better than 0.1%. VU level meter, PPM to order. Plug-in record, replay fully transistorised amplifiers. Prices from £770.

Series G

Professional recorders. 4 or 8 tracks on 1in tape. Speeds: 15 or 7 $\frac{1}{2}$ i/s (other speeds to order).

★ Indicates entry is illustrated

Transistorised. 240V 50 Hz. Size: $5\frac{1}{4} \times 15\frac{3}{4} \times 11$ in. Price: £42 13s 2d (plus £10 0s 10d PT).

NAGRA

Distributed by: Hayden Laboratories Ltd,
East House, Chiltern Avenue, Amersham,
Bucks. Tel: Amersham 5511.

Series IV ★

Professional battery portable tape recorder. Full track mono. Front panel controls. 5-step low frequency roll-off attenuator. Modular assembly, changeable to meet requirements. Changeable internal pre-amps for special microphones. AR indicator of correct operation. All-silicon transistors. Automatic level control. Automatic overload reduction. Fade in and out for start and stop. Self-powered. Prices do not include batteries, tape, microphone and leather carrying case.

IV A

Automatic machine for reporting. It has single speed $7\frac{1}{2}$ i/s or 15 i/s. One microphone input with automatic level control. Price: £388.

IV B

As model IV A, but with two microphone inputs, and no automatic level control. Price: £396.

IV BL

As model IV B, but with the Neopilot synchronous system. Price: £450.

IV D

Three speed model ($3\frac{3}{4}$, $7\frac{1}{2}$ and 15 i/s). Two microphone inputs with manual and automatic level control. FR 15 i/s 30 Hz-20 KHz ± 2 dB; $7\frac{1}{2}$ i/s 30 Hz-15 KHz ± 2 dB; $3\frac{3}{4}$ i/s 30 Hz-7 KHz ± 3 dB. Signal to noise ratio: 69 dB. Price: £533.

IV L

As IV D, but fitted with the Neopilot synchronous system. Price: £595.

IV AL

Identical to Model IV A but with addition of Neopilot system. Price: (with one microphone preamplifier QPM-1-200) £455.

IV DE

Identical to Model IV D but with one speed ($7\frac{1}{2}$ i/s) and without the limiter and "F" device. Price: (with two microphone preamplifiers QPM-1-200) £460.

IV LE

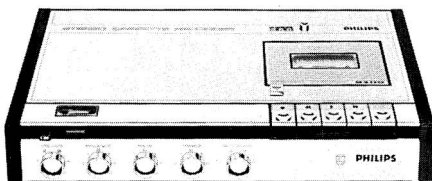
Identical to Model IV L but with one speed ($7\frac{1}{2}$ i/s) and without the limiter and "F" device. Price: (with two microphone preamplifiers QPM-1-200) £530.

IV M

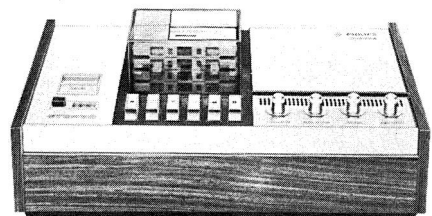
Corresponds to the IV D in the M Series. 3-speeds. "F" device and limiter incorporated.



Nagra Series IV



Philips N2400



Philips N2401



Philips N4308

Input: 560 mV (corresponding to 0 dB, 200 mV max). Input impedance 2K. Output: same level as input with source impedance of 5K (load impedance should be 50K or higher). Input and output unbalanced. Not Neopilot model. Price: £340.

IV ML

Similar to IV M but with Neopilot. Price: £405.

NATIONAL

Distributed by: United Africa Mechanical & Electrical Ltd, P.O. Box 1, United Africa House, Blackfriars Road, London, SE1.

Tel: 01-928 2070.

National RQ-501S

Mono tape recorder, mains/battery powered. $\frac{1}{2}$ -track. Speeds: $1\frac{7}{8}$ and $3\frac{3}{4}$ i/s. Max spool capacity: 5in. Level indicator: meter. Inputs: microphone, 74 dB, 20K; aux, 20 dB, 100K. Extension speaker, 8 ohms. Audio output: 1.2W. Speaker size: $3\frac{1}{2}$ in. Transistorised. One motor. Dimensions: $11\frac{3}{8} \times 3\frac{3}{8} \times 10$ in. Weight: approx $6\frac{1}{2}$ lb. Pause. Position indicator: 3-digit reset counter. Monitoring. Tone control. Four heads. Auto record. Reverse-a-Track. Psn 9V battery. 250V AC. Price: £42 (plus £10 7s PT).

National RQ-504

Mono tape recorder, mains/battery powered. $\frac{1}{4}$ -track. Speeds: $1\frac{7}{8}$ and $3\frac{3}{4}$ i/s. Max spool capacity: 5in. FR: $3\frac{3}{4}$ i/s 50 Hz-12 KHz; $1\frac{7}{8}$ i/s 50 Hz-7 KHz. Level indicator: meter. Rewind time: 600ft 3 min. Inputs: microphone, -73 dB, 200 ohms; aux, -20 dB, 100 ohms. Extension speaker, 8 ohms. Audio output: 2.5W max RMS. Speaker size: 4in. Transistorised. Electronic control motor, variable speed control. Dimensions: $12\frac{5}{8} \times 4\frac{3}{8} \times 10\frac{3}{4}$ in. Weight: $6\frac{1}{2}$ lb. Pause. Monitoring. Autorecord. Psn 9V battery, 250V AC. Price: £46 6s 3d (plus £11 8s 9d PT).

NORDEMENDE

Distributors: TAK Continental Importers, 16a High Street, Stone, Staffordshire.

Tel: Stone 3232, 3233.

6001

Stereo tape recorder. $\frac{1}{4}$ and $\frac{1}{2}$ track. Speeds: $1\frac{7}{8}$, $3\frac{3}{4}$ and $7\frac{1}{2}$ i/s. W and F: 0.15% at $7\frac{1}{2}$ i/s. FR: 40 Hz-17 KHz $7\frac{1}{2}$ i/s, 40 Hz-14 KHz $3\frac{3}{4}$ i/s, 40 Hz-7.5 KHz $1\frac{7}{8}$ i/s. Output: 3W per channel into two built-in speakers. Features: push-button controls, mono and stereo recording, both $\frac{1}{4}$ and $\frac{1}{2}$ track operation; sockets for AF amp, radio, gram and headphone monitoring; dual meters and illuminated track indicators. Finish: natural walnut. Dimensions: $20 \times 16 \times 6\frac{3}{4}$ in (approx). Price: £126 (including PT).

PHILIPS ELECTRICAL LTD

Century House, Shaftesbury Avenue
London, WC2.

Tel: 01-437 7777. Cables: Phillamps, London.

N2400 ★

Mains operated stereo cassette recorder. Speed: $1\frac{7}{8}$ i/s. W and F: <0.4%. H and N: >-45 dB. FR: 60 Hz-10 KHz. Replay char: CCIR. Rewind time: <30 secs for C60 cassette. Meter level indicator. Inputs: mic 0.25 mV 2K, PU 100 mV 1 megohm. Outlets: radio 1V 20K, speakers (2) 4W 8 ohms. Output: 4W RMS per channel. External speakers. Transistors. Own deck. One motor. Pause. Straight-through amplifier. Monitoring. Size: $14 \times 8\frac{7}{8} \times 3\frac{3}{8}$ in. Weight: $6\frac{1}{2}$ lb. Mains: 110/250V 50/60 Hz. Price: (less speakers) £54 10s 4d (plus £13 9s 8d PT); (with speakers) £65 14s 11d (plus £16 5s 1d PT).

N2401 ★

Mains operated stereo cassette recorder. Speed: $1\frac{7}{8}$ i/s. W and F: <0.3%. H and N: >-43 dB. FR: 60 Hz-10 KHz. Replay char: CCIR. Rewind time: 100 secs for C60 cassette. Meter level indicator. Inputs: mic/radio 0.25 mV 2K, PU 100 mV 1 megohm. Outlets: diode 1V 20K, speakers (2) 4W 8 ohms. Output: 4W RMS per channel. External speakers. Transistors. Own deck. One motor. Pause. Monitoring. Straight-through amplifier. Automatic cassette changer. Size: $15\frac{1}{4} \times 9\frac{1}{2} \times 6\frac{3}{8}$ in. Weight: 11 lb. Mains: 110/250V 50/60 Hz. Price: (less speakers) £64 18s 9d (plus £16 1s 3d PT); (with speakers) £76 3s 3d (plus £18 16s 9d PT).

N4308 ★

Mains operated $\frac{1}{4}$ -track mono recorder. Speeds: $3\frac{3}{4}$, $1\frac{7}{8}$ i/s. Max spool: 7in. W and F: <0.25%. H and N: >-45 dB. FR: $3\frac{3}{4}$ i/s 60 Hz-14 KHz, $1\frac{7}{8}$ i/s 80 Hz-8 KHz. Replay char: CCIR. Rewind time: <3 minutes for 1,200ft. Meter level indicator. Inputs: mic 0.25 mV 2K, radio 2 mV 20K, PU 100 mV 1 megohm. Outlets: diode 1V 20K, headphones 0.1-1.5V 1K, speaker 4W 8 ohms. Output: 4W RMS. Speaker: 6×4 in. Transistors. Own deck. One motor. Pause. Straight-through amplifier. Monitoring. Input mixing. Parallel track replay. Size: $16\frac{1}{2} \times 11\frac{3}{4} \times 5\frac{3}{8}$ in. Weight: $17\frac{3}{4}$ lb. Mains: 200-250V 50 Hz. Price: £48 19s 6d (plus £11 10s 6d PT).

N4404 ★

Mains operated stereo $\frac{1}{4}$ -track recorder. Speeds: $7\frac{1}{2}$, $3\frac{3}{4}$ i/s. Max spool: 7in. W and F: <0.15%. H and N: >-45 dB. FR: $7\frac{1}{2}$ i/s 40 Hz-18 KHz, $3\frac{3}{4}$ i/s 40 Hz-16 KHz. Replay char: CCIR. Rewind time: <200 secs for 1,800ft. Meter level indicator. Inputs: mic 0.25 mV 2K, radio 2 mV 20K, PU 100 mV 1 megohm. Outlets: diode 1V 20K, speaker (2) 2.5W 8 ohms. Output: 2.5W RMS per channel. Speakers: 6×4 in. Transistors. Own deck. One motor. Pause. Straight-through

★ Indicates entry is illustrated

amplifier. Monitoring. Input mixing. Parallel track replay. Size: $19 \times 13\frac{3}{8} \times 7\frac{1}{2}$ in. Weight: 24 lb. Mains: 110/250V 50/60 Hz. Price: £67 3s 9d (plus £15 16s 3d PT).

N4407 ★

Mains operated stereo $\frac{1}{4}$ -track recorder. Speeds: $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{1}{8}$ i/s. Max spool: 7in. W and F: $<0.15\%$. H and N: >-45 dB. FR: $7\frac{1}{2}$ i/s 40 Hz-18 KHz, $3\frac{3}{4}$ i/s 40 Hz-15 KHz, $1\frac{1}{8}$ i/s 60 Hz-10 KHz. Replay char: CCIR. Rewind time: <200 secs for 1,800ft. Two meter level indicators. Inputs: mic 0.25 mV 2K, radio 2 mV 20K, PU 100 mV 1 megohm. Outlets: diode 0-1V 20K, headphones 0-4V 600 ohms, speakers (2) 4W 8 ohms. Output: 4W RMS per channel. Speakers: 6×4 in. Transistors. Own deck. One motor. Pause. Straight-through amplifier. Monitoring. Input mixing. Parallel track replay. Track transfer. Size: $19 \times 13\frac{3}{8} \times 7\frac{1}{2}$ in. Weight: 24 lb. Mains: 110/250V 50/60 Hz. Price: £84 19s 9d (plus £20 0s 3d PT).

4408

$\frac{1}{4}$ -track stereo mains recorder. Speeds: $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{1}{8}$ i/s. Max spool 7in. W and F $\pm 0.2\%$. SN >45 dB. FR $7\frac{1}{2}$ i/s 40 Hz-18 KHz. Two level indicators (meters). Rewind time <180 secs 1,800ft. Inputs: two mic 0.25 mV 2K, two radio 2 mV 20K, two PU 100 mV 500K. Outlets: radio 1V, phones 0-1.5V 1K, two speakers 6W 4-8 ohms. Output: 6W per channel. Own deck. One motor. Pause. Straight-through amplifier. Monitoring. Input mixing. Parallel track replay. Vertical or horizontal operation. Mains 110, 127, 200-250V AC. Size: $19 \times 13 \times 8\frac{3}{4}$ in. approx. Price: £139 (including PT).

PYE

Pye Group (Radio & Television) Ltd,
St Andrews Road, Cambridge.
Tel: Cambridge 58985.

9123 ★

4-track recorder. Speeds: $3\frac{3}{4}$ i/s, $1\frac{1}{8}$ i/s. Reel size: 7in max. Duoplay, multiplay and stereo playback facilities with suitable accessories. Output: 4W. L.S.: 6×4 in. Price: £48 12s 1d (plus £11 8s 9d PT).

9137

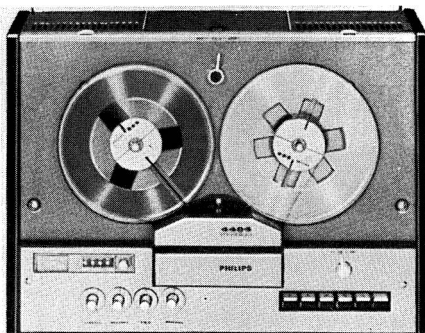
Stereo 4-track recorder. Full specification on request. Price: £84 (plus £19 15s 4d PT).

REPS

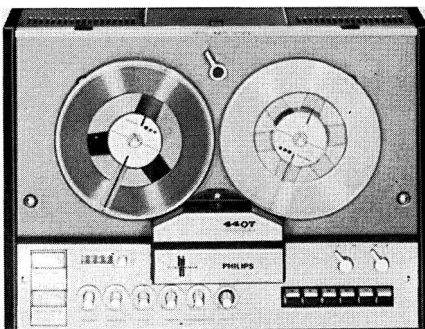
Reps (Tape Recorders) Ltd,
11-13 Regina Road, Southall, Middlesex.
Tel: 01-574 3645.

HW10

General purpose $\frac{1}{4}$ -track and $\frac{1}{2}$ -track; mains operated. Speeds: $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{1}{8}$ i/s. W and F: 0.15% at $7\frac{1}{2}$ i/s, 0.25% at $3\frac{3}{4}$ i/s. FR: 40 Hz-16 KHz



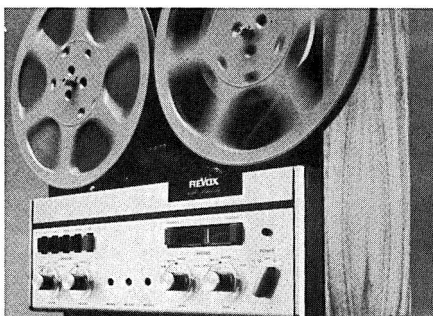
Philips N4404



Philips N4407



Pye 9123



Revox 77

± 1 dB at $7\frac{1}{2}$ i/s; 40 Hz-10 KHz ± 2 dB at $3\frac{3}{4}$ i/s, 50 Hz-6 KHz ± 3 dB at $1\frac{1}{8}$ i/s. NL: $\frac{1}{2}$ -track -55 dB at $7\frac{1}{2}$ i/s; $\frac{1}{4}$ -track -50 dB at $7\frac{1}{2}$ i/s. Level indicator: meter. Replay char: CCIR. Rewind time: 1,200ft in 3 min. Inputs: mic 0-8 mV 1M; radio 60 mV 0.5M. Outlets: loud-speaker: 10W RMS into 15 ohms, line output 0-5V at 1K. Tape deck: Magnavox 363. Monitoring, input mixing and parallel track replay facilities. Psn: 200/240V 50 Hz. Dimensions: $20 \times 16 \times 9$ in. Weight: 40 lb. Price: £60 8s 6d (plus £14 18s 6d PT) to £66 19s 2d (plus £16 10s 10d PT), according to finish.

REVOX

Distributors: C. E. Hammond & Co Ltd, 90 High Street, Eton, Windsor, Berks. Tel: Windsor 63388. Telex: 84316.

Series 77 ★

Silicon transistor stereo tape recorder available in various versions. $\frac{1}{2}$ -track or $\frac{1}{4}$ -track. Speeds: $7\frac{1}{2}$, $3\frac{3}{4}$ i/s. Max spool $10\frac{1}{2}$ in. W and F: $7\frac{1}{2}$ i/s 0-08%, $3\frac{3}{4}$ i/s 0-1%. FR: $7\frac{1}{2}$ i/s 30 Hz-20 KHz $+2 -3$ dB, $3\frac{3}{4}$ i/s 30 Hz-16 KHz $+2 -3$ dB. Record char NAB, playback char NAB and IEC (switchable). Two VU meters. Inputs: mic 0-15 mV 50-600 ohms or 2 mV up to 100K (switchable), radio 2 mV 33K, aux 40 mV 1 megohm. Outlets: line 2-5V 600 ohms, 1-2V 2-5K. Output: 8W RMS per channel. HD better than 1%. Three-motor deck electronically governed. Electronic speed change. Vertical or horizontal operation. Plug-in printed circuit modules. Oscillator frequency 120 KHz. Remote control for all functions. Output impedance (power amplifiers) 4-16 ohms. 54 transistors, 32 diodes, 4 silicon rectifiers. Mains: 110, 130, 150, 220, 240, 250V 50/60 Hz. Weight: approximately 34 lb. Prices and variations follow.

Model 1302 or 1304

Chassis in metal encasement for rack mounting, no output amplifiers. $\frac{1}{4}$ or $\frac{1}{2}$ track. Price: £204 15s (including PT).

Model 1322 or 1324

As above, but with 10W output amplifiers. $\frac{1}{2}$ or $\frac{1}{4}$ track. Price: £236 5s (including PT).

Model 1102 or 1104

Chassis in teak surround, no output amplifiers. $\frac{1}{2}$ or $\frac{1}{4}$ track. Price: £204 15s (including PT).

Model 1122 or 1124

Chassis in teak surround with output amplifiers. $\frac{1}{2}$ or $\frac{1}{4}$ track. Price: £236 5s (including PT).

Model 1222 or 1224

Complete recorder in suitcase with amplifiers and four speakers. $\frac{1}{2}$ or $\frac{1}{4}$ track. Price: £246 15s (including PT).

Specially modified versions incorporating NAB



Sanyo MR801

hubs from £159. Tax-free for professional and scientific users only.

ROBUK ELECTRICAL INDUSTRIES LTD

559/561 Holloway Road, London, N19. Tel: 01-272 1022.

Regal RK5

$\frac{1}{2}$ -track 3-speed mono mains recorder. Speeds: $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{1}{8}$ i/s. Max spool 7in. W and F: 0-2% at $7\frac{1}{2}$, 0-3% at $3\frac{3}{4}$ i/s. FR: $7\frac{1}{2}$ i/s 40 Hz-15 KHz ± 3 dB, $3\frac{3}{4}$ i/s 50 Hz-9 KHz ± 3 dB, $1\frac{1}{8}$ i/s 50 Hz-4 KHz. S/N >45 dB. Replay char: CCIR. Inputs: mic 1-8 mV high Z, radio/pickup 350 mV 250K. Output: 5W RMS push-pull. Output stage two ECL82. Outlet: 15 ohms ext speaker. Internal speaker 8in elliptical. Magic eye level indicator (EM84 or EM87). Input mixing. Own deck. Three motors. Pause. Superimpose. Monitoring with independent control. Three-digit tape position indicator. Piano key controls. Four-track version uses Miniflux heads. Size: $20\frac{1}{2} \times 14\frac{1}{2} \times 8\frac{1}{2}$ in. Weight: 30 lb. Price: £47 0s 2d (including PT).

Regal RK54

$\frac{1}{4}$ -track version of RK5. Similar specification. Price: £52 7s 1d (including PT).

SANYO

Sanyo Marubeni (UK) Ltd, Sanyo House, Bushey Mill Lane, Watford, Herts. Tel: Watford 25354/6.

MR801 ★

$\frac{1}{4}$ -track 3-speed tape unit. 7in reels. W and F: $7\frac{1}{2}$ i/s 0-15%, $3\frac{3}{4}$ i/s 0-2%, $1\frac{1}{8}$ i/s 0-3%. H and N: $7\frac{1}{2}$ i/s -45 dB unweighted -50 dB weighted. FR: $7\frac{1}{2}$ i/s 20 Hz-20 KHz ± 3 dB. Other speeds: $3\frac{3}{4}$ i/s 30 Hz-13 KHz; $1\frac{1}{8}$ i/s 30 Hz-8 KHz. Replay char: NAB ($7\frac{1}{2}$ i/s). 2 VU meters.

★ Indicates entry is illustrated

Rewind 2 min 1,200ft. Inputs: mic 0.3 mV 50K, line 100 mV 300K, tuner 4 mV 10K. Outputs: line 800 mV, 2K; amp 800 mV, 2K; headphones 8 ohms or 10K. Digital position indicator. Monitor. Sound-with-sound. Auto stop. Pause. Psn 100V, 117V, 125V, 220V, 240V, 50 Hz, 35W. Size: $15\frac{3}{8} \times 12\frac{7}{8} \times 6\frac{3}{4}$ in. Weight: 18 lb. Price: £55 18s 7d (plus £13 16s 5d PT).

MR929 ★

$\frac{1}{4}$ -track stereo recorder. 7in reels. Speeds: $7\frac{1}{2}$ i/s and $3\frac{3}{4}$ i/s. W and F at $7\frac{1}{2}$ i/s 0.25%. H and N at $7\frac{1}{2}$ i/s 40 dB below peak recording level. FR at $7\frac{1}{2}$ i/s 30 Hz-15 KHz ± 3 dB. NAB replay char. VU meters. Rewind 3 min. Inputs: mic 0.4 mV 25K; aux 100 mV 100K. Output: line 200 mV 2K; ext speaker $2\frac{1}{2}$ W 8 ohms; headphones 8 ohms or 10K. Speakers: $2\frac{1}{2}$ W 4in. Digital position indicator. Monitor. Sound-with-sound. Auto stop. Mains consumption 40W. Size: $14\frac{1}{4} \times 12\frac{3}{4} \times 11$ in. Price: £77 19s 10d (plus £19 5s 2d PT).

MR939 ★

$\frac{1}{4}$ -track stereo recorder. 7in reels. Speeds: $7\frac{1}{2}$ i/s, $3\frac{3}{4}$ i/s. W and F at $7\frac{1}{2}$ i/s 0.15%. H and N at $7\frac{1}{2}$ i/s 40 dB below peak recording level. FR at $7\frac{1}{2}$ i/s 30 Hz-15 KHz ± 3 dB. NAB replay char. VU meters. Rewind 2 min 1,200ft. Inputs: mic 0.3 mV 50K; line 100 mV 300K; rec 4 mV 10K. Outputs: 800 mV 2K, headphones 8 ohms or 10K. Speakers 4in. Pause. Digital position indicator. Monitor. Sound-with-sound. Sound-on-sound. Auto stop. Mains 50W. Size: $18\frac{1}{2} \times 6 \times 13\frac{3}{4}$ in. Price: £89 18s 10d.

SCOPETRONICS LTD

Crown Works, Church Road,
Kingston-upon-Thames, Surrey.
Tel: 01-546 1275 and 4135.

1151

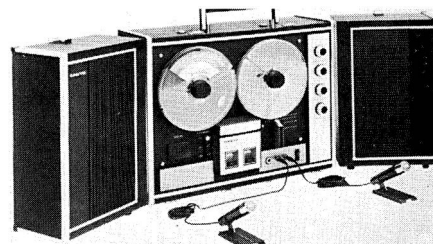
Stereo tape recorder. Speeds: $7\frac{1}{2}$, 15 i/s. Max spool capacity $11\frac{1}{2}$ in. W and F: <0.08% both speeds. H and N: -57 dB. FR: 40 Hz-15 KHz $\pm\frac{1}{2}$ dB (either speed). Replay char: CCIR. Level indicator: meter. Rewind time: 2,400ft in 1 min 45 sec. Inputs: microphone, -75 dB 600 ohms. Line bridging, -14 dB 50K. Outlets: line, up to 18 dBm, 50 ohms or 600 ohms line. Monitor amp, 2W at 15 ohms. Transistorised. 3 Papst motors, with ext Rotor. Tape deck: own. Superimpose, pause and inching facilities. Straight-through amplifier. Optical stop. Psn: 250V 50 Hz. Price: £450 (provisional).

SHARP

Sharp Electronics (UK) Ltd,
48 Derby Street, Manchester, M8 8HN.
Tel: 061-832 6115.



Sanyo MR929



Sanyo MR939



Sharp RD708V



Sharp RD711D



Sony TC-222

RD706

Mains operated mono $\frac{1}{2}$ -track recorder. Speeds: $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{7}{8}$ i/s. Max spool: 7in. W and F: $7\frac{1}{2}$ i/s 0.25%, $3\frac{3}{4}$ i/s 0.3%, $1\frac{7}{8}$ i/s 0.4%. H and N: -50 dB. FR: $7\frac{1}{2}$ i/s 60 Hz-15 KHz, $3\frac{3}{4}$ i/s 70 Hz-7.5 KHz, $1\frac{7}{8}$ i/s 70 Hz-4 KHz. Rewind time: approx 2 min for 1,200ft. Meter level indicator. Inputs: mic 0.2 mV, aux 70 mV. Outlet: 8 ohms. Output: 3W. Speaker: $7\frac{1}{2} \times 4$ in. Transistors. One motor. Sharp deck. Straight-through amplifier. Monitoring. Size: $7\frac{1}{2} \times 15\frac{1}{2} \times 13\frac{3}{4}$ in. Weight: 22 lb. Mains: 110, 200, 220, 240V 50 Hz. Price: £46 18s 2d (plus £11 11s 10d PT).

RD708V ★

Mains operated stereo $\frac{1}{4}$ -track recorder. Speeds: $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{7}{8}$ i/s. Max spool: 7in. W and F: $7\frac{1}{2}$ i/s 0.15%, $3\frac{3}{4}$ i/s 0.2%, $1\frac{7}{8}$ i/s 0.2%. H and N: -45 dB. FR: $7\frac{1}{2}$ i/s 40 Hz-16 KHz, $3\frac{3}{4}$ i/s 40 Hz-8 KHz, $1\frac{7}{8}$ i/s 40 Hz-4 KHz. Replay char: DIN. Rewind time: less than 2 min for 1,200ft. Meter level indicator. Inputs: mic 0.2 mV 200 ohms, aux (DIN) 5 mV 15K. Outlets: line (DIN) 500 mV 2K, speaker 8 ohms. Output: 3.5W RMS per channel. Speakers: 6 $\frac{1}{2}$ in bass driver, 2 $\frac{3}{8}$ in tweeter. Transistors. One motor. Sharp deck. Straight-through amplifier. Monitoring. Parallel track replay. Size: $15\frac{3}{8} \times 15\frac{3}{4} \times 10\frac{1}{2}$ in. Weight: 34 lb. Mains: 110, 200, 220, 240V 50/60 Hz. Price: £76 3s 7d (plus £18 16s 5d PT).

RD711D ★

Mains operated stereo $\frac{1}{4}$ -track recorder. Speeds: $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{7}{8}$ i/s. Max spool: 7in. W and F: $7\frac{1}{2}$ i/s <0.15%, $3\frac{3}{4}$ i/s <0.2%, $1\frac{7}{8}$ i/s <0.2%. H and N: -45 dB. FR: $7\frac{1}{2}$ i/s 40 Hz-16 KHz, $3\frac{3}{4}$ i/s 40 Hz-8 KHz, $1\frac{7}{8}$ i/s 40 Hz-4 KHz. Replay char: DIN. Rewind time: less than 2 min for 1,200ft. Meter level indicator. Inputs: mic 0.1 mV (-88 dB) 200 ohms, line 5 mV (-35 dB) 15K. Outlets: 0.5V (-6 dB) 2K, speaker 8 ohms. Output: 2.8W RMS per channel. Speakers: $7\frac{1}{2} \times 4$ in. All transistor. Straight-through amplifier. One motor. Sharp deck. Monitoring. Parallel track replay. Size: $15\frac{1}{2} \times 19\frac{1}{2} \times 7\frac{1}{2}$ in. Weight: 35 lb. Mains: 100, 200, 220, 240V 50/60 Hz. Price: £72 3s 5d (plus £17 16s 7d PT).

SONY (UK) LTD

Pyrene House, Sunbury Cross, Sunbury-on-Thames. Tel: Sunbury-on-Thames 87644/7.

TC222 ★

Mono tape recorder, battery/mains. $\frac{1}{2}$ -track. Speeds: $3\frac{3}{4}$ and $1\frac{7}{8}$ i/s. Max spool capacity: 5in. H and N: $3\frac{3}{4}$ i/s -47 dB peak level. FR: $3\frac{3}{4}$ i/s 100 Hz-7.5 KHz. Replay char: NARTB. Inputs: microphone, 0.195 mV, 400 ohms; line 0.0615V, 150K. Outlets: monitor 0 dB (0.775V) 100K. Audio output: 1W RMS. Speaker: $6\frac{1}{4} \times 3\frac{1}{2}$ in. Transistorised. Motor: DC servo controlled. Dimensions: $11\frac{5}{8} \times 4\frac{5}{8} \times 11\frac{7}{8}$ in. Weight: 12 lb.



Sony TC-230 with speakers

Psn 110, 120, 220, 240V, 50 or 60 Hz; DC 6V. Price: £43 15s 7d (plus £10 16s 5d PT).

TC230 ★

Stereo tape recorder. $\frac{1}{4}$ -track. Speeds: $1\frac{7}{8}$, $3\frac{3}{4}$ and $7\frac{1}{2}$ i/s. Max spool capacity: 7in. W and F: $7\frac{1}{2}$ i/s 0.17%; $3\frac{3}{4}$ i/s 0.3%; $1\frac{7}{8}$ i/s 0.4%. H and N $7\frac{1}{2}$ i/s better than 46 dB. FR: $7\frac{1}{2}$ i/s 40 Hz-18 KHz; $3\frac{3}{4}$ i/s 40 Hz-12 KHz; $1\frac{7}{8}$ i/s 40 Hz-6 KHz. Replay char: NARTB. Level indicator: meter. Rewind time: 1,200ft. 2 min 30 sec. Inputs: microphone, -75 dB (0.14 mV), 600 ohms; pickup, -52.5 dB (2 mV), 100K; tuner (aux) -25 dB (44 mV) 100K ohms. Outlets: line output record, 1 dB (0.87V) 10K; line output playback, 3 dB (1.1V) 10K; extension speakers, 11.3 dB (2.83V) 8 ohms. Audio output: 4W per channel RMS. Transistorised. One motor. Dimensions: $17 \times 9\frac{5}{8} \times 14$ in. Weight: 29 lb. Pause. Digital position indicator. Switchable input tape/mic, pickup and tuner. Psn 100, 110, 117, 125, 220, 240V, 50 or 60 Hz. 60W. Price: £97 9s 8d (plus £24 2s 1d PT).

TC230W

Stereo tape recorder. $\frac{1}{4}$ -track. Speeds: $1\frac{7}{8}$, $3\frac{3}{4}$ and $7\frac{1}{2}$ i/s. Max spool capacity: 7in. W and F: $7\frac{1}{2}$ i/s 0.17%; $3\frac{3}{4}$ i/s 0.3%; $1\frac{7}{8}$ i/s 0.4%. H and N $7\frac{1}{2}$ i/s better than -46 dB. FR: $7\frac{1}{2}$ i/s 40 Hz-18 KHz; $3\frac{3}{4}$ i/s 40 Hz-12 KHz; $1\frac{7}{8}$ i/s 40 Hz-6 KHz. Replay char: NARTB. Level indicator: meter. Rewind time: 1,200ft 2 min 30 sec. Inputs: microphone, -75 dB (0.14 mV), 600 ohms; pickup, -52.5 dB (2 mV), 100K; tuner (aux) -25 dB (44 mV), 100K. Outlets: record 1 dB (0.87V), 10K; playback 3 dB (1.1V), 10K; extension speaker, 11.3 dB (2.83V), 8 ohms. Audio output: 4W RMS per channel. Transistorised. One motor. Dimensions: $15\frac{3}{4} \times 7\frac{1}{2} \times 13\frac{1}{2}$ in. Weight: 22 lb. Pause. Position indicator: digital. Straight-through amplifier. Switchable input tape/mic, pickup and tuner. Psn 100, 110, 117, 125, 220, 240V 50-60 Hz, 60W. Price: £88 7s 9d (plus £21 17s PT).

★ Indicates entry is illustrated

TC630

Stereo tape recorder. $\frac{1}{4}$ -track. Speeds: $1\frac{7}{8}$, $3\frac{3}{4}$ and $7\frac{1}{2}$ i/s. Max spool capacity: 7in. W and F: $7\frac{1}{2}$ i/s 0.09%; $3\frac{3}{4}$ i/s 0.12%; $1\frac{7}{8}$ i/s 0.16%. H and N: $7\frac{1}{2}$ i/s -50 dB. FR: $7\frac{1}{2}$ i/s 30 Hz-22 KHz; $3\frac{3}{4}$ i/s 30 Hz-13 KHz; $1\frac{7}{8}$ i/s 30 Hz-10 KHz. Replay char: NARTB. Level indicator: meter. Rewind time: 1,200ft $2\frac{1}{2}$ min. Inputs: microphone, -72 dB (0.2 mV), 250 ohms; tuner, -22 dB (0.06V), 100K; aux, -22 dB (0.06V), 560K. Outlets: line output 0 dB (0.775V), 100K ohms; headphone, -28 dB (30 mV), 8 ohms; extension speakers, 8 ohms. Audio output: 15W per channel. Transistorised. Dimensions: $20 \times 17\frac{7}{8} \times 11\frac{5}{8}$ in. Motor: capstan drive. Tape deck: own. Weight: 46 lb. Superimposition. Pause. Position indicator: digital. Straight-through amplifier. Monitoring. Sound-on-sound. Echo. Three heads. Psn 100, 110, 117, 125, 220 or 240V, 50 or 60 Hz. 40W. Price: £160 1s 3d (plus £39 13s 9d PT).

TC106

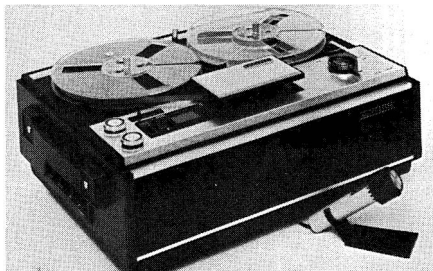
Mono tape recorder. $\frac{1}{2}$ -track. Speeds: $1\frac{7}{8}$, $3\frac{3}{4}$ and $7\frac{1}{2}$ i/s. Max spool capacity: 7in. W and F: less than 0.15% at $7\frac{1}{2}$ i/s. H and N: better than 47 dB at $7\frac{1}{2}$ i/s. FR: $7\frac{1}{2}$ i/s 40 Hz-18 KHz, $3\frac{3}{4}$ i/s 40 Hz-16 KHz, $1\frac{7}{8}$ i/s 50 Hz-6 KHz. Replay char: NARTB. Level indicator: meter. Inputs: microphone 0.195 mV 600 ohms, aux 62 mV 10K. Output: 8W into ext speaker or 4W into internal 4×6 in speaker. Outlets: monitor 2.9V 8 ohms, ext speaker 2.9V 8 ohms. Features: pause, inching, monitoring, auto recording level with manual over-ride, complete with cardioid mic, dust cover and dem tape. Mains: 100, 117, 125, 220, 240V 50/60 Hz. Weight: 17 lb 11 oz. Dimensions: $16\frac{3}{8} \times 11\frac{1}{4} \times 7$ in. Price: £46 18s 3d (plus £11 11s 9d PT).

TC120

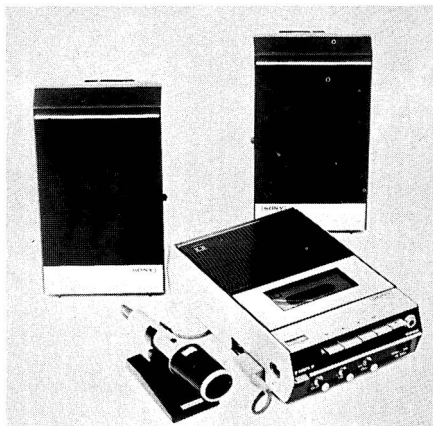
Compact cassette mono recorder. $\frac{1}{2}$ -track. $1\frac{3}{4}$ i/s. H and N: better than 46 dB. FR: 50 Hz-10 KHz. Replay char: NARTB. Indicator: meter for AGC. Inputs: microphone 0.195 mV 600 ohms, aux 62 mV 100K. Output: $1\frac{1}{2}$ W max into $2\frac{3}{4} \times 4$ in speaker. Outlet: monitor 775 mV 10K. Features: AGC recording level, built-in Electret condenser mic with 'swing balance' to minimise wow during portable use (consists of two contra-rotating flywheels). Power: four HP11 batteries or 100, 110, 120, 220, 240V 50/60 Hz. Weight: 4 lb 13 oz. Dimensions: $10 \times 5\frac{3}{4} \times 2\frac{1}{2}$ in. Price: £51 1s 9d (plus £12 13s 3d PT).

TC108 ★

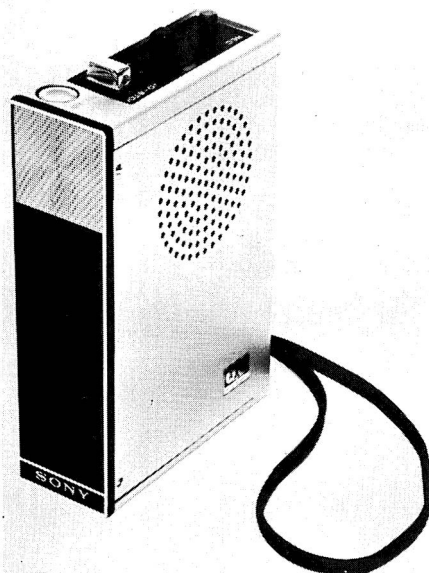
Mono recorder. $\frac{1}{4}$ -track. $1\frac{7}{8}$, $3\frac{3}{4}$ and $7\frac{1}{2}$ i/s. Max spool capacity: 7in. W and F: 0.15% at $7\frac{1}{2}$ i/s. H and N: better than 47 dB at $7\frac{1}{2}$ i/s. FR: $7\frac{1}{2}$ i/s 40 Hz-18 KHz, $3\frac{3}{4}$ i/s 40 Hz-13 KHz, $1\frac{7}{8}$ i/s 50 Hz-6 KHz. Replay char: NARTB. Level indicator: meter. Inputs: microphone 0.195 mV 600 ohms, DIN socket 6.1 mV 10K. Output:



Sony TC-108



Sony TC-124CS

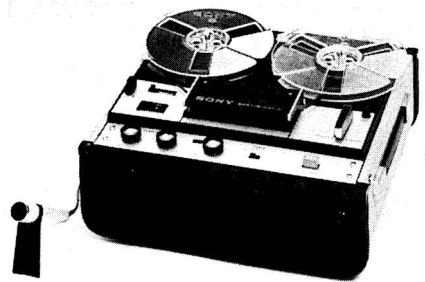


Sony TC-108

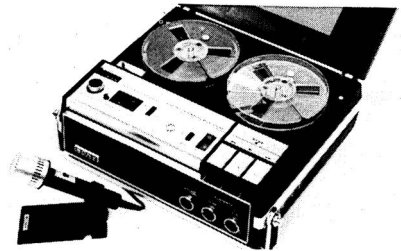
8W into ext speaker or 4W into internal 4 × 6in speaker. Outlets: ext speaker 2·9V 8 ohms, DIN socket 775 mV 1K. Features: pause, inching, monitoring through speaker. Mains: 100, 110, 117, 125, 220, 240V 50/60 Hz. Dimensions: 16 $\frac{1}{8}$ × 11 $\frac{3}{4}$ × 7in. Price: £51 1s 9d (plus £12 13s 3d PT).

TC105 ★

Mono recorder. $\frac{1}{4}$ -track. 1 $\frac{7}{8}$, 3 $\frac{3}{4}$ and 7 $\frac{1}{2}$ i/s. Max spool capacity: 7in. W and F: better than 0·17% at 7 $\frac{1}{2}$ i/s, 0·3% at 3 $\frac{3}{4}$ i/s and 0·4% at 1 $\frac{7}{8}$ i/s. H and N: better than 46 dB 7 $\frac{1}{2}$ i/s. FR: 40 Hz-18 KHz 7 $\frac{1}{2}$ i/s, 40 Hz-13 KHz 3 $\frac{3}{4}$ i/s and 50 Hz-6 KHz 1 $\frac{7}{8}$ i/s. Replay char: NARTB. Level indicator: meter. Inputs: microphone 0·11 mV 600 ohms, aux 34 mV 100K. Output: 4W to 4 × 6in speaker. Outlets: ext speaker 2·83V 8 ohms, monitor 3·46V 10K. Features: AGC level control with manual over-ride, wrap-around heads for quick threading, pause, inching, monitoring, complete with mic, dem tape, earphone and lead. Mains: 100, 110, 117, 125, 220, 240V 50/60 Hz. Weight: 21 lb. Dimensions: 14 $\frac{3}{8}$ × 13 $\frac{3}{8}$ × 7 $\frac{1}{4}$ in. Price: £51 15s 8d (plus £12 16s 7d PT).



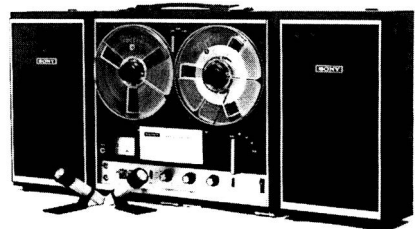
Sony TC-105



Sony TC-800B

TC50 ★

Compact cassette mono recorder. $\frac{1}{2}$ -track. 1 $\frac{7}{8}$ i/s. H and N: better than 38 dB. FR: 50 Hz-8 KHz. Replay char: NARTB. Level indicator: meter. Input: microphone 0·078 mV 250 ohms. Output: 250 mW into 2in speaker. Outlet: monitor 90 mV 8 ohms. Features: AGC recording system, servo-controlled motor, built-in microphone, supplied with external microphone, mains unit, rechargeable battery pack, plug-in pause switch, earphone, carrying case, dem tape. Power: three HP7 batteries, 100, 110, 120, 220, 240V 50/60 Hz. Weight: 1 lb 4 oz with batteries. Dimensions: 3 $\frac{3}{16}$ × 1 $\frac{1}{16}$ × 5 $\frac{7}{16}$ in. Price: £67 3s3d (plus £16 11s 9d PT).



Sony TC-252

TC124 ★

Compact cassette stereo recorder. $\frac{1}{4}$ -track. 1 $\frac{7}{8}$ i/s. W and F: better than 0·28%. H and N: better than 45 dB. FR: 50 Hz-10 KHz. Replay char: NARTB. Level indicator: meter. Inputs: 2 microphone 0·25 mV 400 ohms, 2 aux 78 mV 100K. Output: 1W per channel to internal 4 × 2 $\frac{3}{4}$ in speaker and two ext speakers. Outlets: two ext speakers 775 mV 8 ohms, headphone 24·5 mV 8 ohms. Features: AGC recording system, monitoring through ext speakers or line outlets, supplied with stereo mic fitted with stop/start switch and complete with int speaker and ext speakers. Power: four HP11 batteries, 100, 110, 120, 220, 240V 50/60 Hz. Weight: 4 lb 13 oz. Dimensions: 6 $\frac{3}{8}$ × 9 $\frac{3}{8}$ × 2 $\frac{3}{4}$ in. Price: £78 7s 9d (plus £19 7s 3d PT).

0·1% 7 $\frac{1}{2}$ i/s. H and N: 48 dB at 7 $\frac{1}{2}$ i/s. FR: 30 Hz-18 KHz 7 $\frac{1}{2}$ i/s and 30 Hz-4 KHz $\frac{1}{16}$ i/s. Replay char: NARTB. Level indicator: meter. Inputs: microphone 0·195 mV 600 ohms, aux 62 mV 100K. Output: 1W into 3 $\frac{1}{8}$ × 6 $\frac{1}{4}$ in speaker. Outlet: monitor 775 mV 10K. Features: built-in Electret condenser microphone can be used same time as external microphone fitted with stop/start switch; speed tuning facility; AGC or manual recording with speech/music switch. Weight: 11 lb 13 oz. Power: eight HP2 batteries, 110, 120, 220, 240V 50/60 Hz. Dimensions: 12 $\frac{1}{4}$ × 10 $\frac{1}{4}$ × 4 $\frac{3}{16}$ in. Price: £69 1s 6d (plus £17 13s 6d PT).

TC252 ★

Stereo recorder. $\frac{1}{4}$ -track. 1 $\frac{7}{8}$, 3 $\frac{3}{4}$ and 7 $\frac{1}{2}$ i/s. Max spool capacity: 7in. W and F: 0·12% 7 $\frac{1}{2}$ i/s. H and N: 50 dB 7 $\frac{1}{2}$ i/s. FR: 30 Hz-18 KHz 7 $\frac{1}{2}$ i/s

TC800B ★

Mono recorder. $\frac{1}{2}$ -track. $\frac{1}{16}$, 1 $\frac{7}{8}$, 3 $\frac{3}{4}$ and 7 $\frac{1}{2}$ i/s. Max spool capacity: 5in. W and F: better than

★ Indicates entry is illustrated

and 30 Hz-7 KHz $1\frac{7}{8}$ i/s. Replay char: NARTB. Level indicator: two meters. Inputs: 2 microphone 0.195 mV 600 ohms, 2 aux 62 mV 100K, DIN connector 4.8 mV 10K. Output: 4W per channel; speaker size 2 x 5in. Outlets: 2 line 390 mV 100K, DIN connector 775 mV 1K, headphone 30 mV 8 ohms, 2 speakers 2.7V 8 ohms. Features: speakers attach to form lid, horizontal or vertical operation, supplied with two mics; pause, inching, parallel track replay, sound-on-sound, monitoring. Mains: 100, 110, 117, 125, 220, 240V 50/60 Hz. Weight: 29 lb 11 oz. Dimensions: $16\frac{1}{16} \times 15 \times 10\frac{3}{8}$ in. Price: £80 (plus £19 15s PT).

TC130 ★

Compact cassette stereo recorder. $\frac{1}{4}$ -track. $1\frac{7}{8}$ i/s. W and F: 0.2%. H and N: better than 45 dB. FR: 50 Hz-10 KHz. Replay char: NARTB. Inputs: 2 microphone 0.195 mV low imp, 2 aux 62 mV 100K, DIN socket 8 mV 2.2K. Output: 6W per channel; 2 speakers $6\frac{5}{16}$ in diameter. Outlets: 2 speaker 8 ohms, 2 line 775 mV 10K, headphone 8 ohms, DIN socket 775 mV 10K. Features: stereo AGC recording system, lamp to indicate tape motion, pause, inching, parallel track replay, monitoring through speakers, line or headphones. Mains: 100, 110, 117, 125, 220, 240V 50/60 Hz. Weight: 9 lb 5 oz, each speaker 4 lb 7 oz. Dimensions: $13\frac{5}{16} \times 9\frac{7}{16} \times 4$ in, each speaker $10\frac{5}{8} \times 10\frac{5}{8} \times 5\frac{5}{16}$ in. Price: £90 4s 6d (plus £22 5s 6d PT).

TC540 ★

Stereo recorder. $\frac{1}{4}$ -track. $1\frac{7}{8}$, $3\frac{3}{4}$ and $7\frac{1}{2}$ i/s. Max spool capacity: 7in. W and F: less than 0.09% $7\frac{1}{2}$ i/s, 0.16% $1\frac{7}{8}$ i/s. H and N: better than 50 dB $7\frac{1}{2}$ i/s. FR: 30 Hz-20 KHz $7\frac{1}{2}$ i/s, 20 Hz-10 KHz $1\frac{7}{8}$ i/s. Replay char: NARTB. Level indication: 2 meters. Inputs: 2 microphone 0.195 mV 600 ohms, 2 aux 78 mV 100K, DIN socket 7.8 mV 10K. Output: 5W; speakers, 2 internal 4 x 8in and 2 external 4in. Outlets: 2 line 775 mV 100K, headphone 2.83 mV 8 ohms, DIN socket 775 mV 10K, 2 ext speakers 2.83V 8 ohms. Features: pause, inching, monitoring, parallel track replay, sound-on-sound, horizontal or vertical operation, four speakers. Mains: 100, 110, 117, 125, 220, 240V 50/60 Hz. Weight: 41 lb 10 oz. Dimensions: $19\frac{3}{4} \times 15\frac{1}{2} \times 10$ in. Price: £120 2s (plus £29 13s PT).

TC560 ★

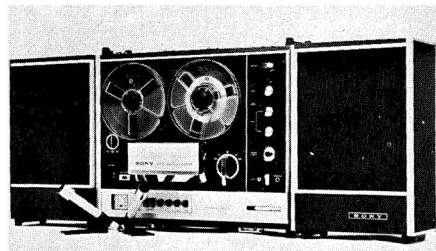
Stereo recorder. $\frac{1}{4}$ -track. $1\frac{7}{8}$, $3\frac{3}{4}$ and $7\frac{1}{2}$ i/s. Max spool capacity: 7in. W and F: 0.07% $7\frac{1}{2}$ i/s and 0.15% $1\frac{7}{8}$ i/s. H and N: better than 52 dB $7\frac{1}{2}$ i/s. FR: 20 Hz-21 KHz $7\frac{1}{2}$ i/s and 20 Hz-8 KHz $1\frac{7}{8}$ i/s. Replay char: NARTB. Level indicator: 2 meters. Inputs: 2 microphone 0.195 mV 250 ohms, 2 aux 25 mV 100K, 2 tuner 130 mV 100K, 2 PU 2 mV 50K, DIN socket 1.6 mV 7K. Out-



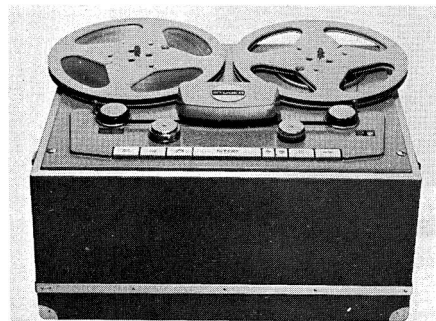
Sony TC-130



Sony TC-540



Sony TC-560



Studer A62

put: 5W per channel into 5in speakers. Outlets: 2 line 600 mV 7K, 2 ext speakers 8 ohms, head-phone 8 ohms/10K, DIN socket 600 mV 10K. Features: pause, inching, monitoring, parallel track replay, horizontal or vertical operation, two separate speakers form lid, reversing tape transport mechanism, optional extra variable speed attachment. Mains: 100, 110, 117, 125, 220, 240V 50/60 Hz. Weight: 50 lb. Dimensions: $20\frac{3}{8} \times 17\frac{1}{8} \times 11\frac{1}{4}$ in. Price: £192 9s 6d (plus £47 10s 6d PT).

STUDER PROFESSIONAL

Sole UK agents: F. W. O. Bauch Ltd,
49 Theobalds Street, Boreham Wood, Herts.
Tel: 01-953 0091.

Studer A62 ★

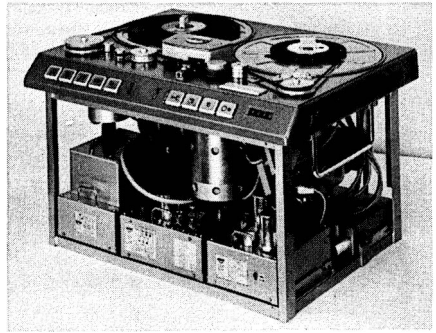
Professional transistorised studio recorder. Stereo/mono. Full track or $\frac{1}{2}$ -track. Speeds: 15, $7\frac{1}{2}$ i/s. Replay char: CCIR or NARTB (either by request). Outlet from preamp. Three motors. Mains: 110, 117, 125, 150, 220 and 250V 50 or 60 Hz as ordered. Consumption: 130W maximum. Tape timer: calibrated in minutes and seconds. W and F: $7\frac{1}{2}$ i/s $\pm 0.1\%$ peak. 15 i/s $\pm 0.05\%$ peak. Signal to noise: $7\frac{1}{2}$ i/s -64 dB, 15 i/s -66 dB. Inputs: adjustable between 200 mV and 4.4V (-10 dB to +15 dB) balanced >20 K. Output: adjustable between 700 mV and 4.4V into 200 ohms or greater. FR: 15 i/s, 30 Hz-15 KHz +1 dB, -2 dB; $7\frac{1}{2}$ i/s, 40 Hz-15 KHz +1 dB, -2 dB. Spool size: $10\frac{1}{2}$ in. (cine or NAB). Rewind time $1\frac{1}{2}$ minutes. Horizontal or vertical operation. No power amplifier or speaker. Size: $19 \times 14 \times 8\frac{1}{4}$ in. Weight: $61\frac{3}{4}$ lb. Price on application.

Studer C37 ★

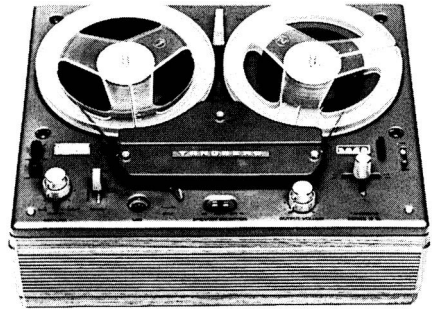
Professional studio recorder. Interchangeable head blocks: full-track, stereo and switchable. Erase head stereo, also available with pilot tone head. Speeds: 15, $7\frac{1}{2}$ i/s. W and F 15 i/s $\pm 0.015\%$, $7\frac{1}{2}$ i/s $\pm 0.025\%$. SN 15 i/s -68 dB RMS 1in, $7\frac{1}{2}$ i/s -64 dB RMS 1in. FR 30 Hz-15 KHz +1 dB, -2 dB. Separate equalisation for $7\frac{1}{2}$ and 15 i/s CCIR and NAB. Output from preamp. Three Papst motors. Rewind time: 2 mins for 2,400ft. Input: adjustable 0.7 to 7.0V (-1 dB to +19 dB) balanced 16K. Equalisation: switchable from CCIR to NAB. Spool size: 12in (3,300ft). Tape timer: calibrated in minutes and seconds. Spool adaptors for DIN, cine and NAB. No power amplifier or speakers. Size: $21 \times 26 \times 17$ in. Weight: 172 lb. Price on application.

TANDBERG

Farnell-Tandberg Ltd, 81 Kirkstall Road,
Leeds. Tel: Leeds 35111.



Studer C37



Tandberg Series 15

1521 ★

Mono tape recorder. $\frac{1}{2}$ -track. Speeds: $1\frac{1}{8}$, $3\frac{3}{4}$ and $7\frac{1}{2}$ i/s. Max spool capacity: 7in. W and F: 0.1% $7\frac{1}{2}$ i/s, 0.4% $1\frac{1}{8}$ i/s. H and N: 52 dB at $3\frac{3}{4}$ and $7\frac{1}{2}$ i/s. FR (± 2 dB): 40 Hz-18 KHz $7\frac{1}{2}$ i/s, 50 Hz-12 KHz $3\frac{3}{4}$ i/s, 60 Hz-6.5 KHz $1\frac{1}{8}$ i/s. Rewind time: 2 min 1,200ft. Meter level indicator. Inputs: mic 0.1 mV 200 ohms, radio 10 mV 100K, PU 100 mV 1M. Output: 10W into 8 ohms 4×7 in speaker. Outlets: preamp 0.9V 20K, ext speaker 10W 4 ohms, free head 2 mV 20K. Features: pause, inching, straight-through amp, monitoring, input mixing, auto end stop, bass and treble controls. Weight: 19 lb. Dimensions: $15\frac{3}{8} \times 11\frac{1}{4} \times 6\frac{3}{4}$ in. Price: £63 7s 4d (plus £15 12s 8d PT).

1522

Portable-case version of above. Price: £71 15s 8d (plus £17 4s 4d PT).

1541

$\frac{1}{4}$ -track version of 1521. Extra feature: parallel track replay. Price: £68 3s 6d (plus £16 6s 6d PT).

★ Indicates entry is illustrated

1542

Portable-case version of 1541. Price: £76 18s 10d (plus £19 1s 2d PT).

1521F

As 1521 but remote stop/start and rewind control. Price: £84 4s 4d (plus £20 15s 8d PT).

1541F

As 1521F but $\frac{1}{4}$ -track. Price: £89 16s 6d (plus £22 3s 6d PT).

1521SL

Special version for language studies with safety feature to prevent erasure of master track. Price: £88 4s 2d (plus £21 15s 10d PT).

1522SL

Portable version of 1521SL. Price: £97 0s 6d (plus £23 19s 6d PT).

1221X

Stereo recorder. $\frac{1}{2}$ -track. Deck details as above but cross-field head. Inputs: mic 90 mV, line 5 mV 100K, PU 2 mV 33K. Output: 10W into two 4×7 in 8 ohm speakers. Outlets: preamps 0.75V 5K, ext speaker 10W 4 ohms. Features: centre channel output, auto end stop, pause, inching, straight-through amp, monitoring, input mixing, parallel-track replay. Weight: 23.3 lb. Dimensions: $15\frac{1}{2} \times 11\frac{3}{4} \times 6\frac{3}{8}$ in. Price: £123 9s 10d (plus £30 10s 2d PT). Rosewood case, optional extra.

1241X ★

As above but $\frac{1}{4}$ -track.

11-2 ★

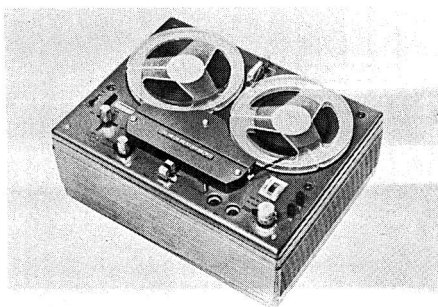
Battery-operated mono recorder. $\frac{1}{2}$ -track. Speeds: $1\frac{7}{8}$, $3\frac{3}{4}$ and $7\frac{1}{2}$ i/s. Max spool capacity: 7in. W and F: 0.1% $7\frac{1}{2}$ i/s, 0.2% $3\frac{3}{4}$ i/s, 0.3% $1\frac{7}{8}$ i/s. H and N: 58-52 dB. FR (± 2 dB): 40 Hz-16 KHz $7\frac{1}{2}$ i/s, 50 Hz-10 KHz $3\frac{3}{4}$ i/s, 50 Hz-5.2 KHz $1\frac{7}{8}$ i/s. Meter indicator. Rewind time: 2 min 1,200ft. Inputs: mic 100 mV 200 ohms, music I 5 mV 10K, music II 125 mV 200K. Output: $\frac{1}{4}$ W into 2×3 in speaker. Outlets: line 1.55V 200 ohms, speaker 20 ohms. Own pulse-excited motor. Features: off-tape monitoring, cueing in fast forward rewind, pause, inching, straight-through amp, monitoring, input mixing. Weight: 11.3 lb. Dimensions: $13 \times 10 \times 4$ in. Mains unit available. Price: £143 18s 10d (plus £35 11s 2d PT).

11-1

Similar to above but full track and available with or without new pilot tone facility. Price: on application.

11-2M

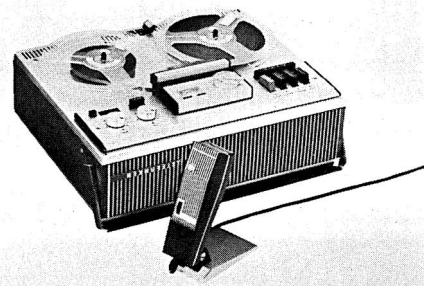
As 11-2 but for lip synchronization with Super 8 mm cameras. Accessories include variable speed unit, pulse generator and projector synchronizer. Price: £153 3s 10d (plus £37 16s 2d PT).



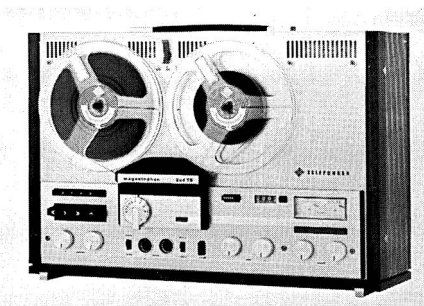
Tandberg 1241X



Tandberg 11-2



Telefunken M203



Telefunken M204TS

TEAC

Distributors: B. H. Morris & Co (Radio) Ltd, 84-88 Nelson Street, Tower Hamlets, London, E1 2DY. Tel: 01-790 4824.

See Tape Units Section for details of Teac A20 stereo cassette unit. Other Teac tape recorder models available to special order.

TELEFUNKEN

Distributor: AEG (Great Britain) Ltd, AEG House, Chichester Rents, Chancery Lane, London, WC2. Tel: 01-242 9944.

203 Studio ★

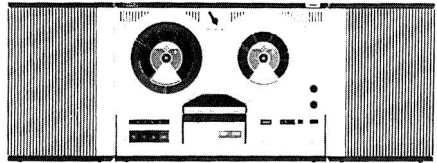
Two-speed ¼-track stereo recorder. Single playback amplifier. 7in reel. W and F: 3¾ i/s ±0.3%, 7½ i/s ±0.2%. H and N: 3¾ i/s -45 dB; 7½ i/s -50 dB. FR: 3¾ i/s 40 Hz-15 KHz; 7½ i/s 40 Hz-18 KHz. Replay char: DIN. Level meter. Inputs: tuner 0.15 mV 5K; mic 0.15 mV 5K; PU 70 mV 2.2M; tape 70 mV 2.2M. Outputs: amplifier 1V 2K; earphones 0.5V (approx) 5K load; speaker 4 ohms 6W. Function switch. Pilot light. Record light. Psn 110/240V. Size: 15 × 6¾ × 12½ in. Weight: 20 lb. Price: £83 3s (£20 5s 6d PT).

204TS ★

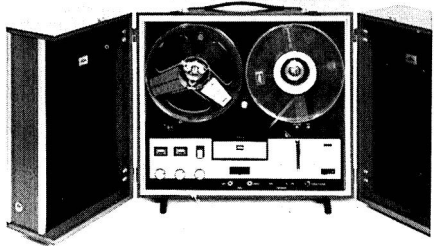
¼-track stereo recorder. 3-speed. Max reel 7in. W and F: 7½ i/s 0-15%; 3¾ i/s 0.25%; 1¾ i/s 0.4%. H and N: 7½ i/s -50 dB; 3¾ i/s -48 dB. FR (to DIN 45-511) 7½ i/s 40 Hz-18 KHz; 3¾ i/s 40 Hz-15 KHz; 1¾ i/s 40 Hz-8 KHz. Replay char: DIN. Level meters (two). Inputs: mic 0.15 mV 5K. Tuner 0.15 mV 5K, PU/tape 70 mV 2.2M. Outputs: amplifier 1.5V 8K; phones 0.5V 5K; speaker 6W 4 ohm. Speaker 7 × 4¼ in. Sound on sound. Pause. 4 digit counter. Straight-through amplifier. Monitor. Parallel track replay. Vertical or horizontal operation. Separate controls for each channel. Track selection switch. Warning light below each meter. Transcribe track-to-track. Psn 110-240V. Price: £100 9s 1d (plus £24 9s 11d PT).

302TS

Two-speed ¼-track recorder. Battery operation. 5in reels. W and F: 1¾ i/s ±0.3%, 3¾ i/s ±0.3%. H and N (DIN 45-405): 3¾ i/s -46 dB. FR (DIN 45-511): 1¾ i/s 40 Hz-8 KHz; 3¾ i/s 40 Hz-14 KHz. Replay char: DIN. Level meter. Inputs: mic 0.15 mV 2.2M; PU/tape 150 mV 2.2M; tuner 0.15 mV 2.2M. Outputs: amplifier 1.5V 18K; headphones 0.4V 5K load; speaker 4.5 ohms. 4 × 2½ in speaker. 1W output. Electronic speed control. Counter. Pause. Counter-rotating flywheels. One hand control operation. Psn: accumulator, U2 batteries, car or mains adaptor. Size: 10½ × 3 × 11 in. Weight: 6½ lb. Price: £48 10s 10d (plus £11 16s 8d PT).



Telefunken M207



Toshiba GT-840S

M207 ★

Three-speed ¼-track recorder. Max spool: 7in. Speeds: 1¾, 3¾, 7½ i/s. W and F: 7½ i/s <0.15%, 3¾ i/s <0.25%, 1¾ i/s <0.4%. FR: 7½ i/s 40 Hz-18 KHz, 3¾ i/s 40 Hz-15 KHz, 1¾ i/s 40 Hz-8 KHz. Replay char: DIN. Two level meters. H and N: 7½ i/s -50 dB, 3¾ i/s -45 dB. Inputs: mic, radio, pickup. Outlets: headphones, speakers(2). Output: 2.5W per channel. Pause control. Four-digit tape position indicator. Straight-through amplifier. One channel monitor. Parallel track replay. Vertical or horizontal operation. Selector switch. Clear plastic cover. Separate speakers fit on back of recorder to make one unit for carrying. Mains: 110-240V AC. Price: £92 0s 3d (plus £22 8s 9d PT).

TOSHIBA

Hanimex (UK) Ltd, Hanimex House, 15-24 Great Dover Street, London, SE1. Tel: 01-407 8161.

GT-840S ★

Transistorised 4-track stereo recorder. Speeds: 7½ i/s, 3¾ i/s. FR: 70 Hz-16 KHz at 7½ i/s, 70 Hz-12 KHz at 3¾ i/s. Power output: 2.5W per channel. Speakers(2) 6½ × 4 in. Max spool 7in. Psn: 110-240V 50-60 Hz. Jacks for microphones

★ Indicates entry is illustrated

and external speakers. Dimensions: $16 \times 14\frac{1}{4} \times 10$ in. Weight: 29 lb. Price: £110 (including PT).

GT-701V

2-track mono recorder which can be operated vertically or horizontally. Speeds: $7\frac{1}{2}$ i/s, $3\frac{3}{4}$ i/s. FR: 70 Hz-11 KHz at $7\frac{1}{2}$ i/s, 70 Hz-7 KHz at $3\frac{3}{4}$ i/s. Power output: 2W. Psn: 110-240V 50-60 Hz. Jacks for microphone and external speaker. Dimensions: $13 \times 7\frac{1}{2} \times 13\frac{3}{4}$ in. Max spool 7in. Price: £57 15s (including PT).

KT81

Cartridge player. Full details and specification to be announced. Price: £66 (including PT).

KT41

Stereo cassette recorder including speakers. Full details and specification to be announced. Price: £119.

UHER

Distributors: Bosch Ltd, Rhodes Way, Radlett Road, Watford, Herts, WD2 4LB. Tel: Watford 44233.

Uher 4200 ★

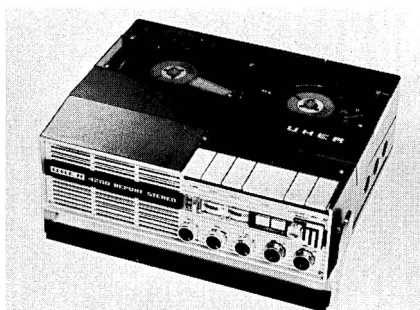
Transistorised mains/battery stereo tape recorder. $\frac{1}{4}$ -track. Speeds: $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{7}{8}$, $\frac{1}{8}$ i/s. Max spool 5in. W and F: $7\frac{1}{2}$ i/s 0.2%, $3\frac{3}{4}$ i/s 0.25%, $1\frac{7}{8}$ i/s 0.35%, $\frac{1}{8}$ i/s 0.5%. H and N: $7\frac{1}{2}$ i/s - 53 dB, $3\frac{3}{4}$ i/s - 51 dB, $1\frac{7}{8}$ i/s - 47 dB, $\frac{1}{8}$ i/s - 43 dB. FR: $7\frac{1}{2}$ i/s 40 Hz-20 KHz ± 3 dB, $3\frac{3}{4}$ i/s 40 Hz-16 KHz ± 3 dB, $1\frac{7}{8}$ i/s 40 Hz-10 KHz ± 3 dB, $\frac{1}{8}$ i/s 40 Hz-4.5 KHz ± 3 dB. Replay char: NARTB. Level indicator: two meters. Rewind time: 3 mins for 900ft. Inputs: mic 0.1 mV 2K, radio 2 mV 47K, PU 30 mV 1 megohm. Outlets: line 1V 15K, speaker 4 ohms. One motor. Pause. Digital position indicator. Monitoring. Parallel track replay. Size: $11 \times 3 \times 8$ in. Weight: approx 7 lb. Supply: internal dry cells, rechargeable accumulator, or from 6V, 12V, 24V car battery, 110-240V AC mains with additional adaptor units. Price: £187 5s (including PT).

Uher 4400

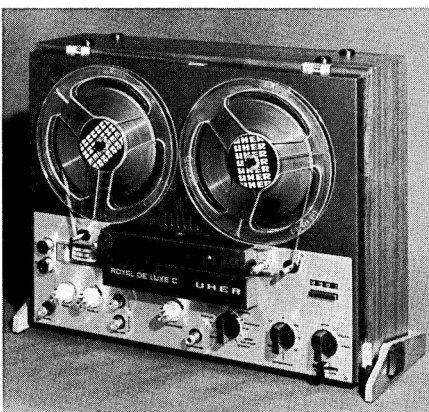
$\frac{1}{4}$ -track version of 4200. Specification almost identical. Price: £187 5s (including PT).

Uher Royal de luxe ★

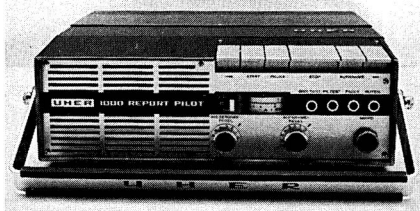
Transistorised semi-professional mains recorder. Mono/stereo. $\frac{1}{4}$ -track or $\frac{1}{2}$ -track. Speeds: $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{7}{8}$, $\frac{1}{8}$ i/s. Max spool 7in. W and F: $7\frac{1}{2}$ i/s 0.05%, $3\frac{3}{4}$ i/s 0.1%, $1\frac{7}{8}$ i/s 0.25%, $\frac{1}{8}$ i/s 0.35%. H and N: $7\frac{1}{2}$ i/s - 54 dB, $3\frac{3}{4}$ i/s - 54 dB, $1\frac{7}{8}$ i/s - 54 dB. FR: $7\frac{1}{2}$ i/s 20 Hz-20 KHz, $3\frac{3}{4}$ i/s 20 Hz-15 KHz, $1\frac{7}{8}$ i/s 20 Hz-9 KHz, $\frac{1}{8}$ i/s 20 Hz-5 KHz. Replay char: NARTB. Level indicators: two meters. Inputs: mic 0.2 mV-100 mV 200 ohms, radio 2 mV-1V 47K, PU(1) 50 mV 1 megohm, PU(2) 200 mV 50K. Outlets: line 775 mV 15K,



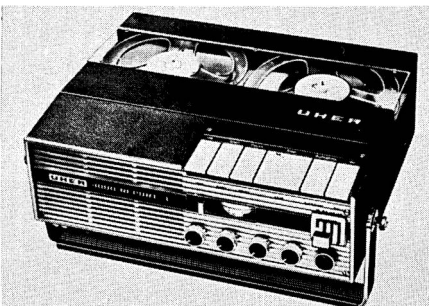
Uher 4200 Stereo



Uher Royal de Luxe



Uher 1000 Report pilot



Uher 4000 Report L

speaker 4 ohms. Output: 10W RMS per channel. One Papst motor. Pause. Inching. Straight-through amplifier. Horizontal or vertical operation. Monitoring. Input mixing. Parallel track replay. Interchangeable head assemblies available as optional extras. Dia-pilot. Multiplay. Echo. Weight: 29½ lb. Price: £287 (including PT).

Uher Royal de luxe (C)

Stereo unit without power amplifiers or speakers. Specification as for Royal de luxe. Price: £254 5s.

Uher Pilot 1000 ★

Transistorised professional mains/battery mono recorder. Full track. Speed: 7½ i/s. Max spool 5in. W and F 0.2%. H and N -52 dB. FR 20 Hz-20 KHz ±3 dB. Replay char: CCIR, NARTB. Meter level indicator. Rewind time 3 mins 900ft. Inputs: mic 0.3 mV 200 ohms balanced, 1-10V line. Output 1W RMS. Brushless DC motor. Pause. Digit tape indicator. Straight-through amplifier. A/B monitoring. Input mixing. Pilot tone input. Supply: internal dry cells, rechargeable accumulator, or from 6V, 12V, 24V car battery, 110-240V AC mains with additional adaptor units. For supply only to industrial or scientific users. Size: 11 × 3 × 8in. Weight: 7 lb. Price: £331 15s 4d (special prices available to industrial and professional users).

4000 Report L ★

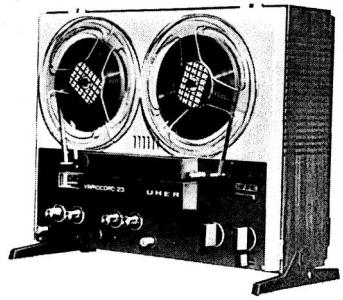
Transistorised mono battery portable recorder. ½-track. Speeds: 7½, 3¾, 1⅞, 1⅞ i/s. W and F 7½ i/s, ±0.2%. H and N -55 dB. FR: 7½ i/s 40 Hz-20 KHz, 3¾ i/s 40 Hz-16 KHz, 1⅞ i/s 40 Hz-10 KHz, 1⅞ i/s 40 Hz-4.5 KHz. All ±3 dB. Replay char: NARTB. Inputs: mic 0.1 mV, 2K, radio 2 mV, 47K; gram 30 mV, 1 megohm. Outlet direct from pre-amp. One motor. 5in spool. Means of operation: mains, car battery, 1.5V cells, rechargeable accumulator. Size: 10½ × 8½ × 3¼in. Weight: approx 7 lb. Price: £145 10s (including PT). Combined mains unit and battery charger. Price: £14 14s 6d (plus PT).

Variocord ★

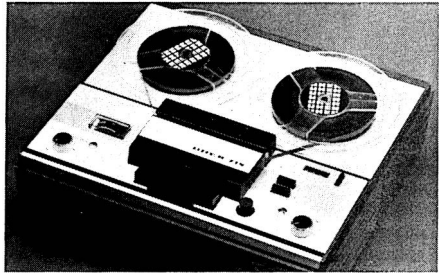
Transistorised mains mono recorder. Available as ½-track or ¼-track. Speeds: 1⅞, 3¾ and 7½ i/s. W and F at 7½ i/s 0.05%. FR 7½ i/s 30 Hz-20 KHz; 3¾ i/s 30 Hz-15 KHz; 1⅞ i/s 30 Hz-8 KHz. Inputs: mic 0.12 mV (200 ohms); radio 1.2 mV; gram 45 mV. Outputs: line 1.4V; speaker 2W or 6W (depending on type) into 4 ohms. Level indicator meter. Interchangeable head assemblies. Input mixing. Horizontal or vertical operation. Optional 2W or 6W output stages. Optional add-on automatic volume control module. Prices from £120 6s (including PT).

Variocord Stereo

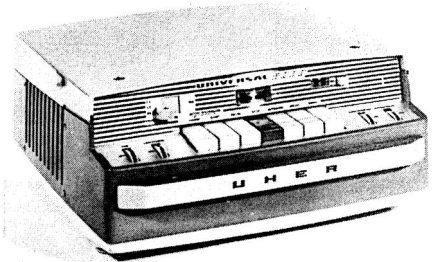
Same specification as Variocord but with twin 6W amplifiers. ¼-track or ½-track. Price: £167 8s (including PT).



Uher Variocord 23



Uher 714



Uher Universal 5000

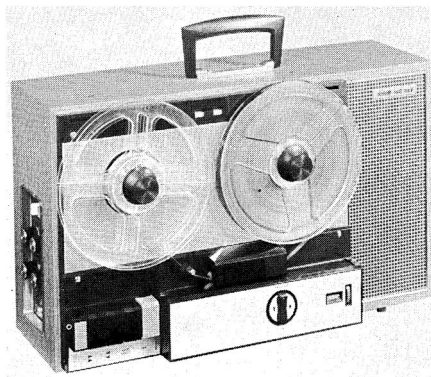
Uher 714 ★

Mains mono ¼-track recorder. Max spool 7in. Speed: 3¾ i/s. W and F 0.3%. S/N >48 dB. Inputs: mic 200 ohms, radio 47K, PU 1 megohm. Output: 2W. Meter level indicator. Monitor facility. Auto shut-off at end of tape. Price: £55 10s (including PT).

Uher 5000 Universal ★

Mains ½-track mono recorder. Speeds: 3¾, 1⅞, 1⅞ i/s. FR 40 Hz-15 KHz ±3 dB at 3¾ i/s. Max spool: 5¾in. W and F: 3¾ i/s ±0.2%. Inputs: mic 200 ohms, radio 47K, PU 1 megohm. Solenoid operation for remote control working. All metal case. Large range of dictation and transcription accessories available. Price: £149 10s (including PT).

★ Indicates entry is illustrated



Van Der Molen VR7T

5000 Language Tutor

Specification as for 5000 Universal except double $\frac{1}{2}$ -track heads and $3\frac{3}{4}$ i/s speed only. Price: £131.

VAN DER MOLEN LTD

1 Mildmay Road, Romford, Essex.

Tel: Romford 41904.

VR7T ★

Recorder. 3 speed, $\frac{1}{4}$ or $\frac{1}{2}$ track mono. Max reel size 7in. W and F: $7\frac{1}{2}$ i/s 0.15%; $3\frac{3}{4}$ i/s 0.25%; $1\frac{7}{8}$ i/s 0.35%. H and N better than 40 dB all speeds. FR: $7\frac{1}{2}$ i/s 60 Hz-15 KHz; $3\frac{3}{4}$ i/s 60 Hz-10 KHz; $1\frac{7}{8}$ i/s 60 Hz to 4 KHz. Replay char: CCIR. ME level indicator. Rewind time 3 min 1,200ft. Inputs: mic 2 mV 1 megohm; radio 200 mV 1 megohm. Outputs: 1-3V 200K; ext speaker 3W 3 ohm; int speaker 3W. Pause control, rev counter, straight through amplifier, monitor, input mixing, parallel track replay, vertical or horizontal operation. Mains 200-250V. Size: $18\frac{3}{4} \times 11\frac{1}{2} \times 7$ in. Weight: 21 lb. Price: £44 10s (plus £11 PT).

VR2

$\frac{1}{2}$ -track mono, operates vertically. Speeds: $7\frac{1}{2}$ i/s, $3\frac{3}{4}$ i/s, $1\frac{7}{8}$ i/s. W and F: 0.15% at $7\frac{1}{2}$ i/s, 0.25% at $3\frac{3}{4}$ i/s, 0.4% at $1\frac{7}{8}$ i/s. FR: 40 Hz-15 KHz ± 3 dB at $7\frac{1}{2}$ i/s. Inputs: mic 2 mV 50K; PU 200 mV 1M; radio 30 mV 100K. Power output: 5W RMS into 8 ohms. Record level meter. Pause and mixing facilities. Dimensions: $15\frac{1}{4} \times 12\frac{1}{4} \times 7\frac{3}{4}$ in. Weight: 21 lb. Finish: teak. Price: £59 15s (plus £14 9s 5d PT).

VR4

4-track mono, operates vertically. Details as for VR2. Price: £59 15s (plus £14 9s 5d PT).

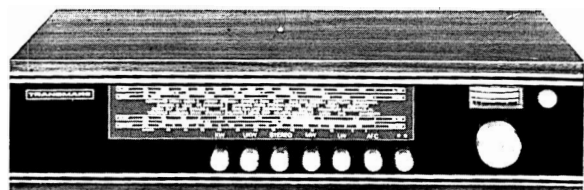
KORTING-TRANSMARE

High-Fidelity Sound

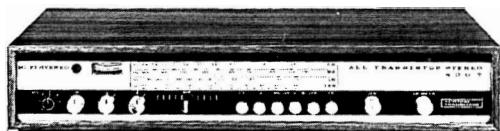
SURPASSES THE DIN 45.500 STANDARD SEVERAL TIMES



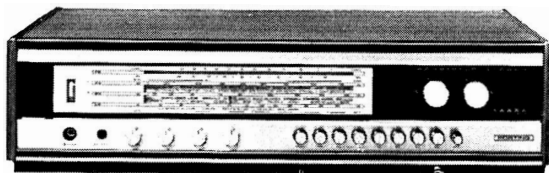
HI-FI A500 STEREO AMPLIFIER
 21 transistors, 1 rectifier. Two inputs for ceramic or magnetic cartridges.
 2x 10 watts output (Sine wave)
 2x 15 watts, output (Music power)
 Recommended Price: £42.15.0
 Dimensions : 14" x 8" x 3 1/4"



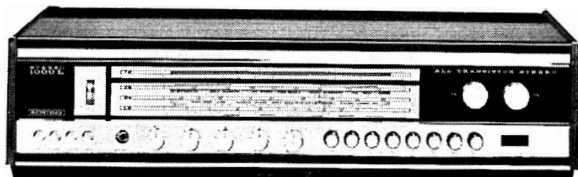
HI-FI T500 STEREO TUNER
 12 transistors, 11 diodes, 1 rectifier. Wavebands: LW, MW, SW and FM with AFC. Stereo decoder with automatic indicator.
 Recommended Price: £48.15.0 inc. Purchase Tax
 Dimensions : 14" x 8" x 3 1/4"



HI-FI STEREO TUNER/AMPLIFIER "STEREO 400T"
 20 transistors, 11 diodes, 1 rectifier. Wavebands: FM, LW, MW and SW with AFC. Stereo-decoder fitted, with automatic indicator and automatic Mono/Stereo switching. Two inputs for ceramic or magnetic cartridge. 2x 8 watts output (Sine wave).
 Recommended Price: £79.15.0 inc. Purchase Tax
 Dimensions : 22" x 4 1/4" x 7"



HI-FI STEREO TUNER/AMPLIFIER "STEREO 700"
 35 transistors, 15 diodes, 1 rectifier. Wavebands: LW, MW, SW and FM with AFC. Stereo-decoder with automatic indicator and automatic Mono/Stereo switching. Two inputs for ceramic or magnetic cartridges.
 2x 10 watts output (Sine wave)
 2x 15 watts output (Music power)
 Recommended Price: £124.15.0 inc. Purchase Tax
 Dimensions : 25" x 9 1/4" x 6"



HI-FI STEREO TUNER/AMPLIFIER "STEREO 1000L"
 39 transistors, 16 diodes, 2 rectifiers. Wavebands: LW, MW, SW and FM with AFC. Stereo-decoder with automatic indicator and automatic Mono/Stereo switching. Two inputs for ceramic or magnetic cartridges. Rumble and scratch filters. Format control to adjust the emphasis between 300C and 31C.
 2x 25 watts output (Sine wave)
 Recommended Price: £139.15.0 inc. Purchase Tax
 Dimensions : 25" x 9 1/4" x 6"

ILLUSTRATED LEAFLETS AND DETAILS FROM U.K. CONCESSIONAIRES

EUROPA ELECTRONICS LTD., Howard Place, Shelton, Stoke-on-Trent
 Telephone: Stoke-on-Trent 29316



BOGEN BETTER TAPE HEADS

cole

SOLE U.K. AGENTS
COLE ELECTRONICS LTD.
LANSDOWNE ROAD
CROYDON CR9 2HB
TEL: 01-686 7581 TELEX: 262346

Tape Decks

★ Indicates entry is illustrated

BRENNELL ENGINEERING CO LTD

231/5 Liverpool Road,
London, N1.
Tel: 01-607 8251 (5 lines).

Mark 5 Series 3

G.P. tape deck. 15. $7\frac{1}{2}$, $3\frac{3}{4}$ and $1\frac{7}{8}$ i/s. Three motors. $8\frac{1}{4}$ in spools. W and F 0.1% at $7\frac{1}{2}$ i/s. Accommodates up to four heads. Size: $15 \times 11\frac{1}{2} \times 5$ in. Weight: 16 lb. Price: £47 11s (plus £11 18s PT) with two heads.

Mark 510 Series 2

Deck mechanism. $\frac{1}{2}$ - or $\frac{1}{4}$ -track. Speeds: 15. $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{7}{8}$ i/s. W and F 15 i/s. <0.05%; $7\frac{1}{2}$ i/s. <0.1%; $3\frac{3}{4}$ i/s. <0.15%; $1\frac{7}{8}$ i/s. <0.25%. Three motors (synchronous type for capstan). $10\frac{1}{2}$ in. NAB spools. 60 secs per 1,200ft rewind. Pause. Accommodates 4 heads. Size: $15 \times 11\frac{1}{2} \times 6$ in. Weight: 16 lb. Price: (less heads) £56 19s (plus £14 5s 1d PT). (Prices with heads on application.)

FERROGRAPH CO LTD

The Hyde,
Edgware Road,
Colindale,
London, NW9. Tel: 01-205 2241.

Series 7

Semi-professional tape deck. Speeds: 15. $7\frac{1}{2}$, $3\frac{3}{4}$ i/s or $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{7}{8}$ i/s. Mono or stereo. $\frac{1}{4}$ -track or $\frac{1}{2}$ -track. Max spool $8\frac{1}{4}$ in. W and F 0.08% at 15 i/s, 0.08% at $7\frac{1}{2}$ i/s, 0.15% at $3\frac{3}{4}$ i/s, 0.2% at $1\frac{7}{8}$ i/s. Rewind time: less than one minute for 1,200ft. Three motors, synchronous hysteresis capstan motor, shaded pole reel motors. Pause facility. Single knob control. Vertical or horizontal operation. Fast wind continuously variable in either direction. Remote start/stop facility. Removable head block. Automatic stop at end of reel. Reel retainers fitted to spindles. Various head arrangements. Full specification and prices on application.

PLANET PROJECTS LTD

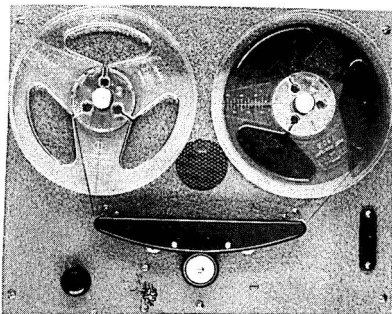
Goodman Works,
Belvue Road,
Northolt,
Middlesex. Tel: 01-845 1775.

C.D.2 ★

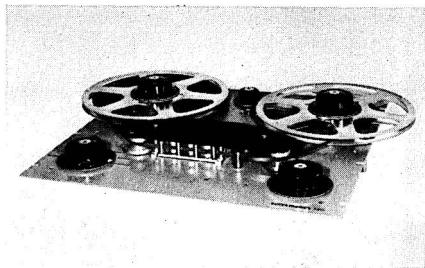
Tape deck. Speed: $3\frac{3}{4}$ i/s ($1\frac{7}{8}$ i/s to special order). W and F: less than 0.2% at both speeds. Mini-flux heads. $\frac{1}{2}$ -track mono or $\frac{1}{4}$ -track stereo. Two heads, one for each track. FR: dependent on speed and heads. Papst hysteresis motor. Spool size 7in. Automatic track change and reversal of tape direction at end of spool, no fast rewind required. Uses standard $\frac{1}{4}$ in tape. Single knob control. Provides over $8\frac{1}{2}$ hours uninterrupted playing at $1\frac{7}{8}$ i/s. Mains 220-230V 50 Hz. Size: $14\frac{3}{4} \times 11\frac{3}{4} \times 6$ in. Weight approximately: 10 lb. Price on application.

SCOPETRONICS LTD

Crown Works,
Church Road,
Kingston-upon-Thames,
Surrey.
Tel: 01-546 1275 and 4135.



Planet CD2



Scopetronics 1150

★ Indicates entry is illustrated

1150 ★

G.P. tape deck 15, $7\frac{1}{2}$ i/s. Three Papst motors with ext rotors. Three heads. W and F: 0.14% at $7\frac{1}{2}$ i/s, 0.08% at 15 i/s. Spool capacity: $11\frac{1}{2}$ in. Pause control and inching facility. Rewind: < 1 min 45 sec for 2,400ft. Weight: 26 lb. Price: £154 10s.

TAPE RECORDER DEVELOPMENTS LTD

7 King George Avenue.
Bushey,
Herts.
Tel: 01-950 2331.

TRD.1 Series

Four-speed mono or stereo tape decks. W and F 15 i/s 0.05%, $7\frac{1}{2}$ i/s 0.08%, $3\frac{3}{4}$ i/s 0.13%, $1\frac{7}{8}$ i/s 0.2%, $\frac{15}{16}$ i/s 0.35%. Mains operated. $\frac{1}{4}$ - or $\frac{1}{2}$ -track. Accommodation for four Bogen heads. Drive motors: Papst hysteresis synchronous. Rewind motors: Papst R.O.T. Spool capacity: 3in cine to $10\frac{1}{2}$ in NAB. Four-digit tape position indicator. Silicon transistor tape pre-amplifier/oscillator unit available (see Tape Units section).

TRD.1/S

Specification as above. Speeds: $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{7}{8}$, $\frac{15}{16}$ i/s. Solenoid operation.

TRD.1/VR

Specification as above. Speeds: $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{7}{8}$, $\frac{15}{16}$ i/s. Mechanical operation. Variable speed spooling.

TRD.1/S/15

Specification as above. Speeds: 15, $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{7}{8}$ i/s. Solenoid operation.

TRD.1/VR/15

Specification as above. Speeds: 15, $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{7}{8}$ i/s. Mechanical operation. Variable speed spooling.

TRD.1/S/30

To special order only. Specification as above. Speeds: 30, 15, $7\frac{1}{2}$, $3\frac{3}{4}$ i/s. Solenoid operation.

TRD.1/S/15P

To special order only. Specification as above. As TRD.1/S/15 but for $\frac{1}{2}$ in tape.

TRD.1/VR/15P

To special order only. Specification as above. As TRD.1/VR/15 but for $\frac{1}{2}$ in tape.

Full specifications and prices of TRD decks and electronic units on request.

Tape Units

★ Indicates entry is illustrated

AKAI

Pullin Photographic (Rank Organization),
P.O. Box 70, Great West Road, Brentford,
Middlesex. Tel: 01-568 9222.

X-360DS ★

Professional stereo tape unit with pre-amplifiers. $\frac{1}{4}$ -track. Speeds: $1\frac{1}{8}$, $3\frac{3}{4}$ and $7\frac{1}{2}$ i/s. Max spool capacity: 7in. W and F: $7\frac{1}{2}$ i/s 0.04%; $3\frac{3}{4}$ i/s 0.07%; $1\frac{1}{8}$ i/s 0.15%. H and N 50 dB. FR: $7\frac{1}{2}$ i/s 30 Hz-23 KHz; $3\frac{3}{4}$ i/s 30-18 KHz; $1\frac{1}{8}$ i/s 30 Hz-9 KHz. Replay char: NARTB. Level indicator: meter. Rewind time: 1,200ft 75 secs. Inputs: microphone, 0.5 mV; line, 50 mV; DIN, 5 mV low, 50 mV high. Outputs: line, 1-23V; DIN, 0-4V; headphone. Transistorised. Motors: one 3-speed hysteresis synchronous; two 6-pole eddy current Tape deck: own. Dimensions: $17\frac{1}{2} \times 16 \times 10$ in. Weight: 55 lb. Superimpose. Position indicator: digit. Monitoring: A-B. Input mixing. Parallel track replay. Crossfield head. Magnetic brake. FM multiplex ready. Remote control. Tape cleaner. Psn 100-240V, 50 or 60 Hz. Price: £255 (plus £63 16s 4d PT).

4000D ★

Stereo tape unit with pre-amplifiers. $\frac{1}{4}$ -track. Speeds: $3\frac{3}{4}$ and $7\frac{1}{2}$ i/s. Max spool capacity: 7in. W and F: $7\frac{1}{2}$ i/s 0.15%; $3\frac{3}{4}$ i/s 0.2%. H and N: 50 dB. FR: $7\frac{1}{2}$ i/s 30 Hz-22 KHz ± 3 dB; $3\frac{3}{4}$ i/s 30 Hz-16 KHz ± 3 dB. Replay char: NARTB. Level indicator: Meter. Rewind time: 1,200ft 150 secs. Inputs: microphone, 0.5 mV, 50K; line, 50 mV; DIN, 50 mV. Outputs: line, DIN, headphone. Transistorised. Induction motor. Tape deck: own. Dimensions: $12\frac{3}{8} \times 15\frac{7}{8} \times 7\frac{1}{2}$ in. Weight: 25.3 lb. Pause. Position indicator: digit. Monitoring: A-B. Parallel track replay. One micron gap recording head. Sound on sound. Auto stop. Auto shut off. Tape cleaner. Vertical or horizontal operation. Psn 100-240V. Price: £71 19s (plus £18 0s 1d PT).

X-330D

Stereo tape unit with pre-amplifiers. $\frac{1}{4}$ -track. Speeds: $1\frac{1}{8}$, $3\frac{3}{4}$ and $7\frac{1}{2}$ i/s. Max spool capacity: $10\frac{1}{2}$ in. W and F: $7\frac{1}{2}$ i/s 0.04%; $3\frac{3}{4}$ i/s 0.07%; $1\frac{1}{8}$

i/s 0.15%. H and N 50 dB. FR: $7\frac{1}{2}$ i/s 30 Hz-25 KHz ± 3 dB; $3\frac{3}{4}$ i/s 30 Hz-18 KH ± 3 dB; $1\frac{1}{8}$ i/s 30 Hz-9 KHz ± 3 dB; Replay char: NARTB. Level indicator: meter. Rewind time: 1,200ft 75 secs. Inputs: microphone, 0.5 mV; line, 50 mV; DIN, 10 mV. Outputs: line, DIN, headphone. Motors: one hysteresis synchro 3-speed, and two 6-pole eddy current. Tape deck: own. Superimpose. Position indicator: digital, programme. Parallel track replay. Auto continuous reverse by programme. Sensing tape reverse. Magnetic brake auto stop. Auto shut off. Remote control. Price: £250 (plus £62 11s 3d PT).

AMPEX GREAT BRITAIN LTD

Acre Road, Reading, RG2 0QR.
Tel: Reading 84411.

ABR Series

Transistorised tape unit with preamps only. Full, $\frac{1}{4}$ or $\frac{1}{2}$ track working, mono and stereo. Any two speeds from $\frac{1}{16}$ to 15 i/s. 15in reels. W and F 0.1% at 15 i/s, 0.4% at $\frac{1}{8}$ i/s. H and N 63 dB at 15 i/s, 40 dB at $\frac{1}{8}$ i/s. FR (± 2 dB) 30 Hz-18 KHz at 15 i/s. Replay char: $7\frac{1}{2}$ and 15 i/s NAB, low speeds 90-200 microsecs. Rewind time: 3 min 5,000ft. VU meter. Input: -17 dB 100K unbalanced or balanced. Output: +4 dB 600 ohms. Four DC servo-driven motors. Inching, monitoring, input mixing, parallel track replay, infinitely variable fast rewind bi-directional, servo-controlled tape tension. Size: $33\frac{1}{4} \times 19 \times 12$ in. 105-125V 50 or 60 Hz mains. Prices on application.

MM-1000 Series

Transistorised tape unit with preamps only. 8, 16 or 24 channels. $7\frac{1}{2}$ and 15 i/s or 15 and 30 i/s to order. W and F 0.08% at 15 i/s. H and N 60 dB at $7\frac{1}{2}$ and 15 i/s. FR (± 2 dB) 30 Hz-18 KHz 15 i/s, 30 Hz-15 KHz $7\frac{1}{2}$ i/s. Replay char: NAB, CCIR. Rewind time: 1.4 min 2,500ft. VU meter. Input: -17 dB 600 ohms, 20K or 100K balanced or unbalanced. Output: +8 dB balanced or +4 dB unbalanced. Three hysteresis motors. Convertible from 8 channels upward. Tape position index, electronic timer, remote control, logic control circuits, motor drive amplifier available. Size: $65 \times 42.3 \times 27.5$ in. 117V 50 or 60 Hz mains. Prices on application.

BLM 200

High speed duplicator. Transistorised, mains operated. $\frac{1}{4}$ and $\frac{1}{2}$ track, mono and stereo. Tape capacity 1,200ft. Speeds: 60/120 i/s. W and F 0.1% at 120 i/s. H and N better than 10 dB below low-noise blank tape. Replay char: NAB. FR (± 1 dB) 500 Hz-160 KHz at 120 i/s, 50 Hz-8 KHz (± 2 dB) at 1.875 i/s (real speed). VU meter. DIN loop transport on master. Size: $61 \times 42 \times 27$ in. 117V 50 or 60 Hz. Prices on application.

★ Indicates entry is illustrated

BANG & OLUFSEN UK LTD

Eastbrook Road, Gloucester, GL4 7DE.

Tel: Gloucester 21591.

Beocord 1800 ★

Stereo tape unit. $\frac{1}{4}$ or $\frac{1}{2}$ track versions. $\frac{1}{2}$ -track model also has $\frac{1}{4}$ -track replay facility. Speeds: $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{7}{8}$ i/s. FR at $7\frac{1}{2}$ i/s. 20 Hz-18 KHz ± 2 dB. DIN 45-513 replay char. VU meters. Fast rewind 170 sec 1800ft. Inputs: mic 35 μ V 50-200 ohms, radio/gram 2.5 mV 47K or 50 mV 100K (switched), line 250 mV 47K. Outputs: 1-25V 25K, line 1-25V 7.5K, headphone 1.8V 470 ohms (5-500 ohm loads). Superimpose, pause, 3 digit counter, straight-through amplifier (mixing), monitor, input mixing, parallel track replay. Sound-on-sound, synchroplay, echo, mixing on inputs with tape replay. Mains: 110, 130, 220, 240V 50 Hz 50W. Size: $8\frac{3}{8} \times 17\frac{7}{8} \times 14\frac{1}{8}$ in. Weight: 35.6 lb. Price: ($\frac{1}{4}$ track, teak) £187 10s; ($\frac{1}{4}$ track, rosewood) £188 10s; ($\frac{1}{2}$ track, teak) £192; ($\frac{1}{2}$ track, rosewood) £193. All prices include PT.

Beocord Trolley

For mounting Beocord tape recorders. Stainless steel with castors and single column stem. Price: £14 (including PT).

BRENELL ENGINEERING CO LTD

231/5 Liverpool Road, London, N1.

Tel: 01-607 8271 (5 lines).

STB2

Stereo/mono deck mechanism with pre-amplifiers. 2/2 and 2/4 playback heads. Speeds: 15, $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{7}{8}$ i/s. W and F 15 i/s, $< 0.05\%$; $7\frac{1}{2}$ i/s, $< 0.1\%$; $3\frac{3}{4}$ i/s, $< 0.15\%$; $1\frac{7}{8}$ i/s, 0-25%. Outlet from pre-amp. Three motors, $8\frac{1}{2}$ in or $10\frac{1}{2}$ in NAB spools to order. Two illuminated level meters. Twin record and replay pre-amps. Tape monitoring facilities. Price: ($8\frac{1}{2}$ in spools) £165 (plus £41 5s 10d PT); ($10\frac{1}{2}$ in spools) £187 (plus £46 15s 11d PT).

STB2

Monitor amplifier for use with STB2 tape unit. 3W per channel. Response 40 Hz-25 KHz ± 3 dB. Noise level -60 dB. Input: 1V for 3W output. Transistorised. Bass and treble controls. Output impedance 15 ohms. Complete with two 5×3 in speakers. Price: £27 10s (plus £6 17s 8d PT).

CROWN INTERNATIONAL

Distributor: Carston Electronics Ltd,

71 Oakley Road, Chinnor, Oxon.

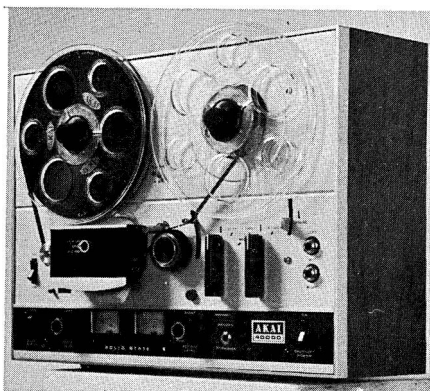
Tel: Kingston Blount 8561.

800 Series

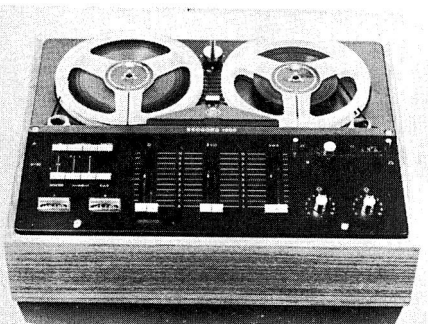
Stereo unit. $\frac{1}{4}$ - or $\frac{1}{2}$ -track. Three speed 15 i/s or $1\frac{7}{8}$ i/s option. Max reel size 10 $\frac{1}{2}$ in. W and F: 15 i/s 0-06%; $7\frac{1}{2}$ i/s 0-09%; $3\frac{3}{4}$ i/s 0-18% (RMS).



Akai X360DS



Akai 4000D



Beocord 1800

H and N: 15 i/s -60 dB; $7\frac{1}{2}$ i/s -60 dB; $3\frac{3}{8}$ i/s -55 dB (below peak level). FR (± 2 dB): 15 i/s 30 Hz-30 KHz; $7\frac{1}{2}$ i/s 30 Hz-25 KHz; $3\frac{3}{8}$ i/s 30 Hz-15 KHz. Replay char: CCIR. VU meter. Rewind time: 58 secs 2,400ft, 38 secs 1,200ft. Inputs: 2 mixable inputs per channel, mic or line. Sensitivity: 45 mV for 0 level (line), 0.4 mV for 0 level (mic); impedance 100K, balanced or unbalanced 600 ohms, or 50/2000 ohms. Output: 600 ohms. Three motors, magnetic brakes, logic circuitry for tape handling, all tape commands can be remote. A-B monitoring, source and tape mixing, echo, individual bias adjustment and metering. Size: $17\frac{1}{2} \times 19 \times 8$ in. Weight: 50 lb. Price: £700 to £1,500.



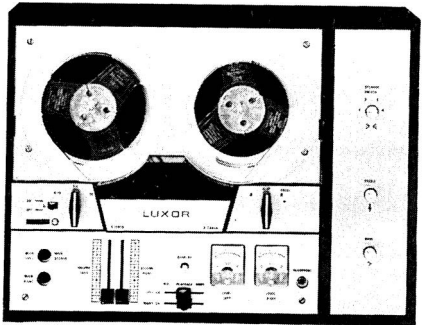
Dual CTG28

DUAL

Dual Electronics Ltd, Paramount Industrial Estate, Mill Road, Stokenchurch, Bucks. Tel: Radnage 3467/8.

CTG28 ★

Stereo tape unit. Speeds: $7\frac{1}{2}$ i/s, $3\frac{3}{8}$ i/s. Four tracks. Push-button control. Two heads. FR: 35 Hz-18 KHz at $7\frac{1}{2}$ i/s, 35 Hz-13 KHz at $3\frac{3}{8}$ i/s. W and F: 0.1% at $7\frac{1}{2}$ i/s, 0.15% at $3\frac{3}{8}$ i/s. Inputs: mic 1 and mic 2, 0.15 mV 200-700 ohms; radio, 0.15V; PU, 50 μ V at 1M. Outputs: radio, 0.775V at 18K; monitor 0.775V at 4K. Reel size: 7in dia max. Rewind time: 1,800ft in $3\frac{1}{2}$ min. Psn: 110-250V 50 Hz. Dimensions: $16\frac{1}{2} \times 7\frac{1}{2} \times 14\frac{1}{4}$ in. Dust cover provided. Finish: walnut veneer. Weight: 17 lb. Price: £87 14s (plus £20 12s 8d PT).



Luxor MP813

LAFAYETTE

Barnet Factors Ltd, 147 Church Street, London, W2. Tel: 01-723 5328.

RK.870

Stereo tape unit with pre-amplifiers only. $\frac{1}{4}$ -track. Speeds: $1\frac{7}{8}$, $3\frac{3}{8}$ and $7\frac{1}{2}$ i/s. Max spool: 7in. W and F: $7\frac{1}{2}$ i/s 0.2% RMS. FR: $7\frac{1}{2}$ i/s 40 Hz-18 KHz ± 3 dB; $3\frac{3}{8}$ i/s 40 Hz-12 KHz ± 3 dB. Level indicator: meter. Inputs: microphone, 0.15 mV 600 ohms; aux 100 mV 150K; aux 500 mV 700K. Outlets: external amplifier, 1V-2.5V variable, 5K; headphones 10K. Transistorised. Motor: 4-pole induction. Dimensions: $12\frac{5}{8} \times 11\frac{3}{4} \times 6$ in. Weight: 18 lb. Features: superimpose, pause, inching, stereo headphone monitoring. Position indicator: digital counter with reset button. Automatic equalisation for three speeds. Silicon transistors. Deluxe oiled walnut wood case. Psn 220-240V. Price: £58 6s 1d (plus £16 0s 11d PT).

MP613

Stereo tape unit with preamps. Speeds: $1\frac{7}{8}$, $3\frac{3}{8}$ and $7\frac{1}{2}$ i/s. 4-track. Max spool capacity: 7in. W and F: $1\frac{7}{8}$ i/s $\pm 0.35\%$, $3\frac{3}{8}$ i/s $\pm 0.2\%$, $7\frac{1}{2}$ i/s $\pm 0.1\%$. FR: $1\frac{7}{8}$ i/s 80 Hz-6 KHz, $3\frac{3}{8}$ i/s 50 Hz-12 KHz, $7\frac{1}{2}$ i/s 40 Hz-18 KHz. Replay char: DIN. Rewind time: 3 min 40 sec for 7in. DP. Inputs: microphone, 7 mV 220K; gram, 100 mV 1M; tuner, 50 mV 1M. Outlet: amplifier, 0.5V 22K. Audio output: 2W per channel RMS. Motor: 4-pole shaded. Luxor tape deck used. Pause facility. Digital position indicator. Price: £99 15s (including PT).

MP813 ★

Stereo tape unit with amplifiers. Speeds: $1\frac{7}{8}$, $3\frac{3}{8}$, $7\frac{1}{2}$ i/s. Four track. Max spool 7in. Output: 10W RMS per channel. Built-in monitor speakers. Inputs: mic, record player, radio. Outputs: speakers, headphones, amplifier. Size: $7\frac{1}{4} \times 20\frac{1}{2} \times 15$ in. Price to be announced.

LUXOR (Luxor Industri Aktiebolag)

Motala, Sweden. UK distributors: Luxitone, 84 Bolsover Street, London, W1. Tel: 01-636 2901.

★ Indicates entry is illustrated

NATIONAL

Distributed by: United Africa Mechanical and Electrical Ltd, P.O. Box No. 1, United Africa House, Blackfriars Road, London, SE1. Tel: 01-928 2070.

RS-766US

Four track stereo tape deck with built-in two-channel preamplifiers. Speeds: $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{7}{8}$ i/s. Two VU meters. Four-pole motor. Automatic switch-off. See Tape Recorder Section for full details of facilities. Full specification on request. Price: £87 13s (plus £17 7s PT).

RS-768U/S

Four track 3-head 3-speed stereo tape unit. Transistorised with built-in pre-amps. Two VU meters, 4-pole hysteresis synchronous motor. Integrated circuits employed in pre-amp stages. National noise filter eliminates disturbance from non-recorded portions on tape. Auto stop, 40151T counter, sound on sound, sound with sound recording. Price: £108 17s (plus £22 15s PT).

PHILIPS ELECTRICAL LTD

Century House, Shaftesbury Avenue, London, WC2. Tel: 01-437 7777.

N4500 ★

Mains operated $\frac{1}{4}$ -track stereo tape unit. Speeds: $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{7}{8}$ i/s. Max spool: 7in. W and F: <0.15%. H and N: >-50 dB. FR: $7\frac{1}{2}$ i/s 40 Hz-18 KHz, $3\frac{3}{4}$ i/s 40 Hz-15 KHz, $1\frac{7}{8}$ i/s 60 Hz-8 KHz. Replay char: CCIR. Rewind time: <3 min for 1,800ft. Two meter level indicators. Inputs: mic 0.2 mV 2K, radio 2 mV 20K, PU 100-150 mV 1 megohm. Outlets: line 0.5-1V 20K, monitor 0.5-1V 50K, headphones 0-3V 600 ohms. Transistors. Own deck. One motor. Pause. Straight-through amplifier. Monitoring. Input mixing. Parallel track replay. Echo. Track to track transfer. Sliding fader-type controls. Size: $19\frac{1}{8} \times 13\frac{3}{8} \times 7\frac{1}{8}$ in. Weight: 22 lb. Mains: 110/250V 50/60 Hz. Price: £102 (plus £24 PT).

PRO12 ★

Mains operated stereo tape unit. Available in $\frac{1}{4}$ -track and $\frac{1}{2}$ -track versions. Speeds: $7\frac{1}{2}$, $3\frac{3}{4}$ i/s. Max spool: 7in. W and F: $7\frac{1}{2}$ i/s <0.08%, $3\frac{3}{4}$ i/s <0.1%. H and N: >-56 dB. FR: $7\frac{1}{2}$ i/s 40 Hz-18 KHz, $3\frac{3}{4}$ i/s 40 Hz-15 KHz. Replay char: CCIR. Rewind time: <75 secs for 1,800ft. Two level meters. Inputs: mic (2) 1 mV 2K, line 100 mV 100K, diode 2 mV 20K. Outlets: diode 1V 20K, line 775 mV 10K, phones 0-4V 400 ohms. Transistors. 4in monitor speaker. Own deck. Three motors. Superimpose. Pause, inching, straight-through amplifier. Monitoring. Input mixing. Parallel track replay. Echo. Track to track transfer. Relay operated controls. Size:



Philips N4500



Philips PRO12



Sharp RD712



Sony TC255

20 $\frac{5}{8}$ × 14 × 9 $\frac{5}{8}$ in. Weight: 57 lb. Mains: 200-250V
50 Hz. Price: £200 1s 5d (plus £49 8s 7d PT).

PLANET PROJECTS LTD

Goodman Works, Belvue Road, Northolt,
Middlesex. Tel: 01-845 1775.

C.D.2.P.A.

This comprises model C.D.2 tape deck (see Tape Deck section) with built-in pre-amplifier and power supply. Power supply provides correct voltages for operating both relays and also a stabilised supply for the pre-amplifier. Pre-amplifier is three-stage direct coupled block using high frequency silicon planar transistors. Equalisation and stability is achieved with multiple feedback loops operating down to DC. Average output: 250 mV. Output impedance: 200 ohms to be fed into a load not less than 2.5K. FR: 30 Hz-12 KHz +3 dB. HD not greater than 3 dB. S/N 50 dB. Price on application.

SCOPETRONICS LTD

Crown Works, Church Road,
Kingston-upon-Thames, Surrey.
Tel: 01-546 1275 and 4135.

1150

Stereo tape unit. Speeds: 7 $\frac{1}{2}$, 15 i/s. Max spool capacity: 11 $\frac{1}{2}$ in. W and F: 0.08% (both speeds). H and N: -57 dB. FR: 7 $\frac{1}{2}$ i/s 40 Hz-15 KHz $\pm\frac{1}{2}$ dB; 15 i/s 40 Hz-15 KHz $\pm\frac{1}{2}$ dB. Replay char: NARTB, CCIR. Level indicator meter. Rewind time: 2,400ft in <1 min 45 sec. Inputs: line in, 2V 100K. Line out, 1 mW 600 ohms. Valves. Motors: 3 Papst Ext. Rotor. Tape deck: own. Superimpose, pause and inching facilities. Straight-through amplifier. Variable spooling. Removeable plug-in head block. Psn: 250V 50 Hz. Price: mono, £341 10s; stereo, £493 10s. Console versions: add £75.

SHARP

Sharp Electronics (UK) Ltd, 48 Derby Street,
Manchester, M8 8HN. Tel: 061-832 6115.

RD712D ★

Mains operated stereo $\frac{1}{4}$ -track tape unit. Speeds: 7 $\frac{1}{2}$, 3 $\frac{3}{4}$, 1 $\frac{7}{8}$ i/s. W and F: 7 $\frac{1}{2}$ i/s 0.15%, 3 $\frac{3}{4}$ i/s 0.2%, 1 $\frac{7}{8}$ i/s 0.2%. FR: 7 $\frac{1}{2}$ i/s 40 Hz-16 KHz ± 6 dB, 3 $\frac{3}{4}$ i/s 50 Hz-9 KHz, 1 $\frac{7}{8}$ i/s 50 Hz-3.5 KHz. Max spool: 7in. Three digit tape indicator. Rewind time: less than 2 min for 1,200ft. Replay char: DIN. Meter level indicator. Inputs: mic 0.1 mV 200 ohms, aux 5 mV 15K. Output: line 3K. One motor. Parallel track replay. Mains: 110, 200, 220, 240V 50/60 Hz. Size: 11 $\frac{3}{4}$ × 15 $\frac{3}{4}$ × 6 $\frac{7}{8}$ in. Weight: 22 lb. Price: £60 2s 10d (plus £14 17s 2d PT).



Sony TC355

SONY (UK) LTD

Pyrene House, Sunbury Cross, Sunbury-on-
Thames. Tel: Sunbury-on-Thames 87644/7.

TC255 ★

Stereo tape unit with preamps only. $\frac{1}{4}$ -track. Speeds: 1 $\frac{7}{8}$, 3 $\frac{3}{4}$ and 7 $\frac{1}{2}$ i/s. Max spool capacity: 7in. W and F: 7 $\frac{1}{2}$ i/s 0.15%; 3 $\frac{3}{4}$ i/s 0.25%; H and N: 7 $\frac{1}{2}$ i/s better than 52 dB. FR: 7 $\frac{1}{2}$ i/s 30 Hz-20 KHz; 3 $\frac{3}{4}$ 30 Hz-17 KHz; 1 $\frac{7}{8}$ i/s 30 Hz-13 KHz. Replay char: NARTB. Level indicator: meter. Rewind time: 1,200ft 2 min 20 sec. Inputs: microphone, -72 dB (0.19 mV) 600 ohms; aux 0-22 dB (0.06V) 100K. Outlets: line output, 0 dB (0.775V), 100K; headphones, -28.5 dB (0.029V), 8 ohms. Transistorised. One motor. Dimensions: 15 $\frac{3}{8}$ × 7 $\frac{1}{4}$ × 13 $\frac{3}{8}$ in. Weight: 18 lb. Pause. Position indicator: digital. Vertical and horizontal operation. Psn 100, 110, 117, 125, 220 or 240V, 50 or 60 Hz, 27W. Price: £66 9s 10d (plus £16 8s 8d PT).

TC355 ★

Stereo tape unit with preamps only. $\frac{1}{4}$ -track. Speeds: 1 $\frac{7}{8}$, 3 $\frac{3}{4}$ and 7 $\frac{1}{2}$ i/s. Max spool capacity: 7in. W and F: 7 $\frac{1}{2}$ i/s 0.15%; 3 $\frac{3}{4}$ i/s 0.25%. H and N: 7 $\frac{1}{2}$ i/s better than 52 dB. FR: 7 $\frac{1}{2}$ i/s 20 Hz-25 KHz; 3 $\frac{3}{4}$ i/s 30 Hz-17 KHz; 1 $\frac{7}{8}$ i/s 30 Hz-9 KHz. Replay char: NARTB. Level indicator: meter. Rewind time: 1,200ft 2 min 30 sec. Inputs: microphone, -72 dB (0.19 mV), 600 ohms; aux, -22 dB (0.06V), 560K. Outlets: line output, 0 dB (0.775V), 100K; headphone, -28 dB (0.031V), 8 ohms. Transistorised. One motor. Dimensions: 15 $\frac{3}{8}$ × 7 $\frac{1}{16}$ × 14in. Weight: 22 lb. Pause. Position indicator: digital. Monitoring. Three heads. Psn 100, 110, 117, 125, 220, 240V, 50-60 Hz, 30W. Price: £80 5s 7d (plus £19 16s 11d PT).

★ Indicates entry is illustrated

TC560D

Stereo tape unit with preamps only. $\frac{1}{4}$ -track. Speeds: $1\frac{1}{8}$, $3\frac{3}{4}$ and $7\frac{1}{2}$ i/s. Max spool capacity: 7in. W and F: $7\frac{1}{2}$ i/s 0-15%; $3\frac{3}{4}$ i/s 0-2%; $1\frac{1}{8}$ i/s 0-35%. H and N: $7\frac{1}{2}$ i/s better than 52 dB. FR: $7\frac{1}{2}$ i/s 20 Hz-21 KHz; $3\frac{3}{4}$ i/s 20 Hz-15 KHz; $1\frac{1}{8}$ i/s 20 Hz-8 KHz. Replay char: NARTB. Level indicator: meter. Rewind time: 1,200ft 2 min 20 sec. Inputs: microphone, -72 dB (0.19 mV), 600 ohms; auxiliary, -22 dB (61 mV), 100K. Outlets: line output, 0 dB (0.775V), 100K; headphone, 29/38 dB (28/10 mV), 8 ohms. Transistorised. Two motors. Dimensions: $6\frac{11}{16} \times 16\frac{3}{8} \times 15\frac{7}{16}$ in. Weight: 28 lb 11 oz. Pause. Position indicator: digital. Monitoring. Auto reverse, plays left to right and right to left. Psn 100, 110, 117, 220 and 240V, 50 or 60 Hz, 16W, DC. 12V. Price: £140 1s 11d (plus £34 17s 4d PT).

TC666D ★

Stereo tape unit with preamps only. $\frac{1}{4}$ -track. Speeds: $3\frac{3}{4}$ and $7\frac{1}{2}$ i/s. Max spool capacity: 7in. W and F: $7\frac{1}{2}$ i/s 0.09%; $3\frac{3}{4}$ i/s 0.15%. H and N: $7\frac{1}{2}$ i/s 59 dB. FR: $7\frac{1}{2}$ i/s 20 Hz-22 KHz; $3\frac{3}{4}$ i/s 20 Hz-15 KHz. Replay char: NARTB. Level indicator: meter. Rewind time: 1,200ft 60 sec. Inputs: microphone, -72 dB, 600K; line, -22 dB (61 mV), 100K. Outlets: monitor, 8 ohms; line output, 100K; record/playback, 10K. Transistorised. Three motors. Dimensions: $17\frac{7}{8} \times 8\frac{1}{16} \times 16\frac{3}{8}$ in. Weight: 48 $\frac{1}{2}$ lb. Position indicator: 4-position digital counter. Monitoring. Automatic reverse, plays left to right and right to left. Psn 100, 110, 117, 125, 220, 240V, 50 or 60 Hz, 140W. Price: £212 (plus £52 10s PT).

TC630D ★

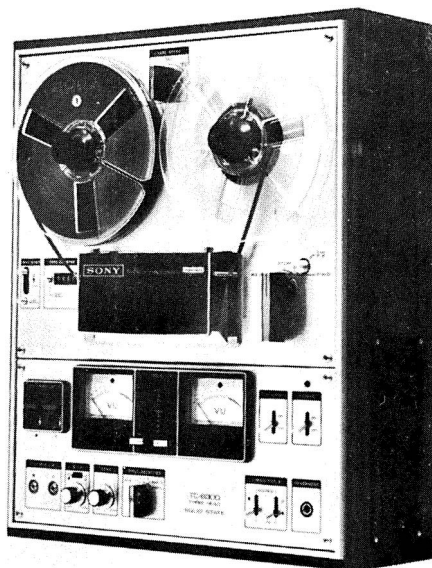
Stereo tape unit with preamps only. $\frac{1}{4}$ -track. Speeds: $1\frac{1}{8}$, $3\frac{3}{4}$ and $7\frac{1}{2}$ i/s. Max spool capacity: 7in. W and F: 0.09% $7\frac{1}{2}$ i/s. FR: 20 Hz-22 KHz $7\frac{1}{2}$ i/s, 20 Hz-17 KHz $3\frac{3}{4}$ i/s and 20 Hz-10 KHz $1\frac{1}{8}$ i/s. Replay char: NARTB. Level indicator: 2 VU meters. Inputs: 2 microphone 0.195 mV 600 ohms, 4 aux 62 mV 100K, 2 aux 62 mV 560K, DIN connector 7.75 mV 10K. Outlets: 2 line 775 mV 100K, headphone 30 mV 8 ohms, DIN connector 775 mV 3-3K. Features: pause, inching, monitoring off tape, parallel track replay, sound-on-sound, echo. Finish: grained wood cabinet with dust cover. Mains: 100, 110, 117, 125, 220, 240V 50/60 Hz. Weight: 24 lb 15 oz. Dimensions: $16\frac{1}{8} \times 19 \times 7\frac{3}{8}$ in. Price: £132 2s 6d (plus £32 12s 6d PT).

TC252D ★

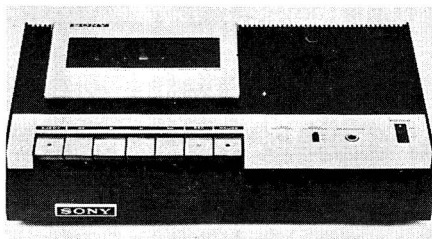
Stereo tape unit with preamps only. $\frac{1}{4}$ -track. Speeds: $3\frac{3}{4}$ and $7\frac{1}{2}$ i/s. Max spool capacity: 7in. W and F: 0.12% $7\frac{1}{2}$ i/s. H and N: 52 dB $7\frac{1}{2}$ i/s. FR: 30 Hz-18 KHz $7\frac{1}{2}$ i/s and 40 Hz-13 KHz $3\frac{3}{4}$ i/s. Replay char: NARTB. Level indicator: 2 meters. Inputs: 2 microphone 195 mV 600 ohms, 2 aux 62 mV 560K, DIN connector 5.4



Sony TC-252D



Sony TC-630D



Sony TC-125

mV 10K. Outlets: 2 line 775 mV 100K, headphone 30 mV 8 ohms, DIN connector 775 mV 100K. Features: pause, inching, monitoring, parallel track replay, horizontal or vertical operation. Mains: 100, 110, 117, 125, 220, 240V 50/60 Hz. Weight: 17 lb 11 oz. Dimensions: $15\frac{1}{4} \times 13\frac{1}{16} \times 7\frac{1}{2}$ in. Price: £58 7s (plus £14 8s PT).

TC125 ★

Stereo Compact Cassette unit with preamps only. $\frac{1}{4}$ -track. $1\frac{1}{8}$ i/s. W and F: 0.2%. H and N: 45 dB or better. FR: 50 Hz-10 KHz. Replay char: NARTB. Inputs: 2 microphone 0.195 mV 200 ohms, 2 aux 62 mV 100K, DIN socket 4.5 mV 2.2K. Outlets: 2 line 775 mV 100K, headphone 8 ohms, DIN socket 775 mV 10K. Features: stereo auto gain control, tape index counter, lamp indicator of tape motion, pause, monitoring, parallel track replay. Mains: 110, 120, 220, 240V 50/60 Hz. Weight: 7 lb 8 oz. Dimensions: $13 \times 7\frac{3}{8} \times 3\frac{3}{8}$ in. Price: £50 2s 6d (plus £12 7s 6d PT).



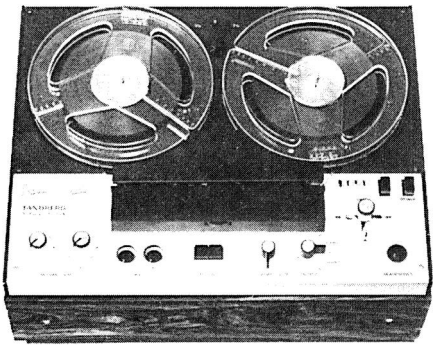
Sony TC666D

TANDBERG

Farnell-Tandberg Ltd, 81 Kirkstall Road, Leeds. Tel: Leeds 35111.

3000X ★

Tape unit with preamps. Stereo. $\frac{1}{4}$ -track. Speeds: $1\frac{1}{8}$, $3\frac{3}{4}$ and $7\frac{1}{2}$ i/s. Max spool capacity: 7in. W and F: 0.1% $7\frac{1}{2}$ i/s, 0.2% $3\frac{3}{4}$ i/s, 0.4% $1\frac{1}{8}$ i/s. H and N: 57-51 dB. FR (± 2 dB): 40 Hz-20 KHz $7\frac{1}{2}$ i/s, 50 Hz-16 KHz $3\frac{3}{4}$ i/s, 50 Hz-9 KHz $1\frac{1}{8}$ i/s. Meter indicators. Rewind time: 2 min 1,200ft. Inputs: mic 100 mV 200 ohms, line 100 mV 1M, radio 5 mV 57K. Outlets: emitter follower 0.75V 100 ohms, headphones 0.75V 100 ohms. Features: pause, inching, straight-through amp, input mixing, parallel track replay, off tape monitoring. Weight: 20 lb. Dimensions: $15\frac{1}{2} \times 12\frac{3}{8} \times 6\frac{1}{2}$ in. Price: £80 2s 3d (plus £19 15s 9d PT).



Tandberg 3000X

6041X

Stereo tape unit with deck details as above. Inputs: mic 70 mV 200 ohms, radio 5 mV 100K, PU 1 mV 33K. Outlets: left, right and centre channels, and headphones, each 1.5V 200 ohms. Features as 3000X plus built-in mixing preamp and A-B test. Weight: 23.3 lb. Dimensions: $15\frac{1}{2} \times 11\frac{3}{4} \times 6\frac{3}{8}$ in. Price: £155 3s 2d (plus £38 6s 10d PT).

6021X

As 6041X but $\frac{1}{2}$ -track. Same price.

TAPE RECORDER DEVELOPMENTS LTD

7 King George Avenue, Bushey, Herts.
Tel: 01-950 2331.

600 Series.

4 speed tape units. Independent gain controls for microphones, line inputs, and line outputs.

Upper and lower track function controls. Meter reads 1 or 2 channel or peak of either. Adjustable bias read on meter. Four speed equalisation to DIN 45-513 or NAB. Locking DIN sockets. Input mixing. See TRD1 deck information in Tape Deck section. Inputs: mic 30 to 600 ohms, 70 dBm f or 600 ohms; line 600 ohms/10K bridging, -20 dBm +10 dBm max into 600 ohms. Output: +10 dB max into 600 ohms. FR: 15 i/s 40 Hz-20 KHz; $7\frac{1}{2}$ i/s 40 Hz-18 KHz; $3\frac{3}{4}$ i/s 40 Hz-14 KHz; $1\frac{1}{8}$ i/s 40 Hz-8 KHz (all ± 2 dB). Prices: (replay only mono) £167 10s; (replay only stereo) £170; (record and replay mono) £270; (record and replay stereo) £275. Professional and scientific orders.

★ Indicates entry is illustrated



Telefunken M-205



Teac A-20

TEAC

B. H. Morris & Co (Radio) Ltd,
84-88 Nelson Street, Tower Hamlets,
London, E1 2DY. Tel: 01-790 4824.

A20 ★

Stereo cassette unit for Compact cassette. Speed: $1\frac{7}{8}$ i/s. Heads: two Teac Techno-built, erase and record/playback, 4-track, 2-channel stereo. FR: 60 Hz-10 KHz. W and F: 0.2% or less. S/N ratio: -45 dB or better. Inputs: microphone, 600 ohms, 0.3 mV minimum; line 120K 0.1V minimum. Outputs: line 50K, 0.5V; headphone 8 ohms, 0.1 mW/DIN connector. Psn 100, 115, 200, 220V, 50 or 60 Hz. Size: $9\frac{3}{4} \times 10 \times 4\frac{1}{4}$ in. Weight: 10 lb. Price: £78.

TELEFUNKEN

Distributor: AEG (Great Britain) Ltd,
AEG House, Chichester Rents, Chancery Lane,
London, WC2. Tel: 01-242 9944.

250 Hi-Fi

Two speed $\frac{1}{2}$ -track stereo tape unit. 7in reels. W and F: $3\frac{3}{4}$ i/s $\pm 25\%$, $7\frac{1}{2}$ i/s $\pm 2\%$. H and N: $3\frac{3}{4}$ i/s -54 dB, $7\frac{1}{2}$ i/s -54 dB. FR: $3\frac{3}{4}$ i/s 40 Hz-15 KHz, $7\frac{1}{2}$ i/s 40 Hz-18 KHz. Replay char: DIN Standard 45-500. Level meters. Inputs: tuner 0.15 mV 2K; mic 0.15 mV 2K; PU/tape 150 mV 2.2M. Outputs: Amplifiers 1.5V 10K; earphones 1V into 400 ohms load. Echo at $3\frac{3}{4}$ i/s. Reverberation at $7\frac{1}{2}$ i/s. Monitor combined with instruments. Parallel recording and playback. Track-to-track transcription. Function selector. Record light. Volume control for headphones. Slide control for record level. Preset level controls. Sound-on-sound. Pause. Psn 110/240Vac. Size: $18\frac{1}{4} \times 12\frac{1}{4} \times 4\frac{1}{4}$ in. Weight: 26 lb. Price: £114 16s 1d (plus £27 19s 11d PT).

M205 ★

Three-speed $\frac{1}{4}$ -track stereo tape unit. Max spool: 7in. Speeds: $1\frac{7}{8}$, $3\frac{3}{4}$, $7\frac{1}{2}$ i/s. W and F: $1\frac{7}{8}$ i/s 0.4%, $3\frac{3}{4}$ i/s 0.25%, $7\frac{1}{2}$ i/s 0.15%. H and N: $3\frac{3}{4}$ i/s -45 dB, $7\frac{1}{2}$ i/s -50 dB. FR: $1\frac{7}{8}$ i/s 40 Hz-8 KHz, $3\frac{3}{4}$ i/s 40 Hz-15 KHz, $7\frac{1}{2}$ i/s 40 Hz-18 KHz. Inputs: mic; radio, pickup. Outputs: phones, line. Vertical or horizontal operation. Pause control. Multi-function switch. Four-digit tape position indicator. Separate record level controls for left and right channels. Clear plastic lid. Mains: 110-240V AC. Price: £70 1s 4d (plus £17 1s 8d PT).

TOSHIBA

Hanimex (UK) Ltd, Hanimex House,
15/24 Great Dover Street, London, SE1.
Tel: 01-407 8161.

PT-850SA

Stereo tape unit. Speeds: $7\frac{1}{2}$ i/s, $3\frac{3}{4}$ i/s. FR: 30 Hz-18 KHz at $7\frac{1}{2}$ i/s, 30 Hz-12 KHz at $3\frac{3}{4}$ i/s. Psn: 100/240V 50/60 Hz. Dimensions: $15\frac{3}{4} \times 13\frac{1}{4} \times 6$ in. Price: £94 (including PT).

KT-80

Cartridge tape unit. Full details and specification to be announced. Price: £47.

KT-43D

Stereo cassette tape unit. Full details and specification to be announced. Price: £63.

TRIO

Distributors: B. H. Morris & Co (Radio) Ltd,
84-88 Nelson Street, Tower Hamlets,
London, E1 2DY. Tel: 01-790 4824.

TT-10 ★

Stereo tape unit with preamps. $\frac{1}{4}$ -track. Speeds: $1\frac{7}{8}$, $3\frac{3}{4}$, $7\frac{1}{2}$ i/s. Max spool: 7in. FR: $7\frac{1}{2}$ i/s 40 Hz-19 KHz, $3\frac{3}{4}$ i/s 50 Hz-10 KHz, $1\frac{7}{8}$ i/s 50 Hz-5 KHz, all +1 dB -3 dB. H and N: playback better



Trio TT-10

than 50 dB, overall better than 45 dB. W and F: $7\frac{1}{2}$ i/s < 0.15%, $3\frac{3}{4}$ i/s < 0.25%, $1\frac{7}{8}$ i/s < 0.35%. Rewind time: $2\frac{1}{2}$ min for 1,200ft. Two VU meters. Inputs: mic 0.6 mV 50K, line 100 mV 100K, record/playback (DIN) connector 9.8 mV. Outputs: line 0.775V 100K, record/playback (DIN) connector 0.775V 2.5K, headphones 8 ohms or higher. Record char: NAB. Three heads. Bias frequency: 85 KHz. 16 silicon transistors, 6 diodes. Operates horizontally or vertically. Auto stop. Four-digit tape position indicator. Slider type controls. Monitoring. Parallel track playback. Size: $16 \times 7\frac{1}{8} \times 12\frac{3}{4}$ in. Weight: 22 lb. Price to be announced.

UHER

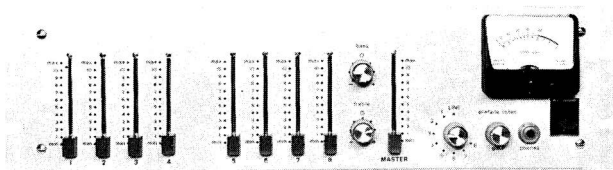
Distributors: Bosch Ltd, Rhodes Way,
Radlett Road, Watford, Herts, WD2 4LB.
Tel: Watford 44233.

Uher Royal de luxe (C)

Transistorised semi-professional mains tape unit. Mono/stereo. $\frac{1}{4}$ -track or $\frac{1}{2}$ -track. Speeds: $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{7}{8}$, $\frac{1}{8}$ i/s. Max spool 7in. W and F: $7\frac{1}{2}$ i/s 0.05%, $3\frac{3}{4}$ i/s 0.1%, $1\frac{7}{8}$ i/s 0.25%, $\frac{1}{8}$ i/s 0.35%. H and N: $7\frac{1}{2}$ i/s - 54 dB, $3\frac{3}{4}$ i/s - 54 dB, $1\frac{7}{8}$ i/s - 54 dB. FR: $7\frac{1}{2}$ i/s 20 Hz-20 KHz, $3\frac{3}{4}$ i/s 20 Hz-15 KHz, $1\frac{7}{8}$ i/s 20 Hz-9 KHz, $\frac{1}{8}$ i/s 20 Hz-5 KHz. Replay char: NARTB. Level indicators: two meters. Inputs: mic 0.2 mV-100 mV 200 ohms, radio 2 mV-1V 47K, PU(1) 50 mV 1 megohm. PU(2) 200 mV 50K. Outlets: line 775 mV 15K. One Papst motor. Pause. Inching. Horizontal or vertical operation. Input mixing. Parallel track replay. Interchangeable head assemblies available as optional extras. Dia-pilot. Multiplay. Echo. Price: £254 5s (including PT).

Professional....

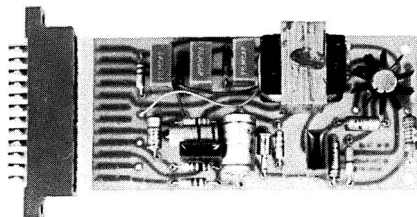
MICROPHONES · AMPLIFIERS
SOUNDMIXERS · AUDIO MODULES
RE-INFORCEMENT LOUDSPEAKERS



4 Channel Stereo
8 Channel Mono
VU or P.P.M.



30, 50, 100 watts
1, 3 or 5 inputs
Stack, Rack or
Free Standing



Stereo P.U. or Tape
Microphone, Linear,
600 ohm Line Out,
Power Supplies,
Meter amplifiers.

At Millbank we've got it-made

Millbank Electronics

Forest Row : Sussex : England

Telephone: Forest Row 2288 (0342-82-2288)



Tape Amplifiers and Mixer Units

★ Indicates entry is illustrated

AMPEX G.B. LTD

Acre Road, Reading, RG2 0QR.

Tel: Reading 84411.

Ampex AM-10

Transistorised stereo mixer unit. Inputs: six mics or four mics and two lines. Mics 200 ohms, line 100K bridging. Gain -67 dBm mic, -27 dBm line will produce 1V output. Up to four mixers may be coupled to give 12 input and two output channels. Output: 1V normal, 30V maximum unbalanced. FR 40 Hz-15 KHz. Signal-to-noise 65 dB for inputs of -55 dBm. Controls: six potentiometers, two-gang master gain key switches. Line/Mic AC line switch, mixer couple switch. Key switches, channel A, B or both. Four channels in, two out. Self-powered 105-125V, 30W. Size: $5\frac{7}{32} \times 19 \times 5\frac{3}{16}$ in. Price on application.

Ampex markets a full range of professional and semi-professional tape recording equipment, including decks, amplifiers, mixers, duplicators and accessories. Full details and prices available on request.

BRADMATIC LTD

338 Aldridge Road, Streetly, Sutton Coldfield, Warwickshire. Tel: 021-353 3171.

Solid state mixers, power amplifiers, control units and associated equipment designed and built to order. Quotations given. Full details of services offered on application.

BRENELL ENGINEERING CO LTD

231/5 Liverpool Road, N1.

Tel: 01-607 8271 (5 lines).

Mk 5 Series 3 Record/playback amplifier

Inputs: mic 2 Series 2 mV, radio/gram 75 mV, both high imp. Outputs: 500 mV into 47K and 3W into 15 ohms for direct connection to loud-speaker. Headphone monitoring. ME level ind or meter if required. Price: £31 12s (plus £7 18s 2d PT); metered version £37 13s (plus £9 8s 5d PT).

Brenell Mixer Unit

Three channel unit. High imp sources. There

are 4 sockets for jack plugs for the three inputs and the output lead, each input having a volume control. Price: £3 10s.

Hi-Fi Tape Link

Stereo tape pre-amplifier and oscillator unit. 9 valves. Input (record): 75 mV stereo, 100 mV mono, into 1 megohm. Input (playback): 1-5 mV. Output: variable up to 1V at 47K. FR 40 Hz-14 KHz at tape speed $7\frac{1}{2}$ i/s +3 dB. Equalisation to new CCIR at all speeds. Two level meters. H and N -50 dB. Controls: Tape speed compensation switch, variable bias, record track selector, monitor original/tape, record gain, playback gain, function. Separate mains unit 110-250V, DC heater supply. Suitable for Brenell three-head stereo decks, $\frac{1}{4}$ - or $\frac{1}{2}$ -track. Sizes: tape link $13\frac{3}{4} \times 4 \times 8\frac{3}{4}$ in, front panel $15\frac{1}{2} \times 4\frac{1}{4}$ in. Power unit $6\frac{1}{2} \times 4 \times 4$ in. Weight: 18 lb including power unit. Separate record and playback pre-amplifiers. Price: £50 12s (plus £12 13s 3d PT).

STB2 Monitor amplifier

See Tape Units section.

DEIMOS LTD

8 Corwell Lane, Hillingdon, Middx.

Tel: 01-573 3561.

Deimos Tape Amplifier

Miniature stereo/mono system with plug-in all-silicon transistor modules. Separate record and playback amplifiers. Sensitivity 30 mV. Output 6V RMS. Meter level indicator. Separate power supply. Size: panel $13\frac{1}{2} \times 2\frac{1}{2}$, depth 4 $\frac{1}{2}$ in. Prices on application. Kit may be available.

A. R. FRANKLIN

(Audio Engineer), 4 Birch House, Penge, London, SE25. Tel: 01-659 0912.

Control unit/mixer

Transistorised three-channel stereo mixer/amplifier. Inputs: (1) mic 200 μ V and PU 4 mV 47K RIAA, (2) mic 200 μ V and 100 mV 800K, (3) mic 200 μ V and 100 mV 800K. Balance and mono switch on each input (enables panning). Controls: Bass, treble and master fade. Noise: better than -60 dB. Outputs: 1V 10K, 6-5V at 8 or 15 ohms. Filters: 10 KHz and 6 KHz filters on RIAA position. Provision for speaker or headphone monitoring. Designed as mixer or as control unit for larger installations. HD <0.2%. FR 40 Hz-30 KHz \pm 3 dB. Output transistors: AD161, AD162. Mains: 110, 240V AC. Size: $3 \times 13\frac{1}{2} \times 6$ in. Price: £54. Special models made to order.

GRAMPIAN REPRODUCERS LTD

19 Hanworth Trading Estate, Feltham, Middx.

Tel: 01-894 9141/3. Cables: Reamp, Feltham.

★ Indicates entry is illustrated

Grampian 18/4

Four channel pre-amplifier mixer. Transistors. Inputs: 0.2 mV 25 ohms, 0.8 mV 600 ohms, 10 mV high impedance, 100 mV high impedance. Output: 0.775V. Output impedance: 600 ohms floating. Distortion <1.5%. Bass control: -8 dB at 100 Hz on mic \pm 8 dB at 100 Hz on aux. Treble control: +8 dB -25 dB at 10 KHz. FR 100 Hz-10 KHz \pm 3 dB (tone controls level). Noise: -60 dB. Supply: PP9 (or equivalent) 9V battery. Consumption: average 18 mA. Jack socket outlet at rear. Size: 11 $\frac{3}{8}$ x 7 x 2 $\frac{7}{8}$ in. Weight: 4 $\frac{1}{2}$ lb. Price: £37.

Grampian 16/6

Six-channel pre-amplifier mixer for professional sound engineers. Six independently controlled microphone inputs. On-off key switch for each input permits gain control to be preset if desired. Master gain control normally controls all channels but there is provision for some inputs to operate independently. Sensitivity: 0.2 mV input for 0.775V output. Output meter scaled for 1V with overload warning on scale, 1 mW indicated by red marker at 0.775V. Specially damped movement. Output impedance: 600 ohms floating. Distortion: <0.1% for 0.775V output. FR 100 Hz-15 KHz +2 dB with tone controls level. Bass cut: -10 dB at 100 Hz. Treble cut: -12 dB at 10 KHz. Treble lift: +6 dB at 10 KHz. H and N better than -65 dB. Input impedances from 200 μ V at 25 ohms to 100 mV at high impedance to order. Mains: 200-250V AC. Size: 19 $\frac{1}{4}$ x 7 $\frac{1}{8}$ x 6 $\frac{3}{8}$ in. Weight: 12 $\frac{1}{4}$ lb. Price and full specification on request.

GRUNDIG (Great Britain) LTD

Newlands Park, Sydenham, London, SE26.
Tel: 01-778 2211.

422 ★

Transistorised stereo mixer for four inputs. Three coarse level controls, directional control and control for reverberation unit. Four microphone preamplifiers fitted. Channel separation 50 dB (mic), 35 dB (PU). Response: 40 Hz-20 KHz \pm 2 dB. Powered by two 9V batteries. Size: 13 $\frac{1}{4}$ x 2 $\frac{1}{4}$ x 7 $\frac{1}{2}$ in. Price: £35.

420

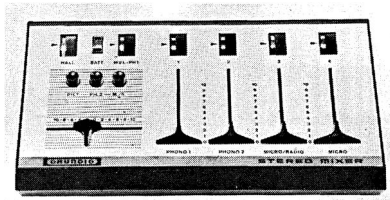
Mono version of 422 mixer above. Price: £24. Note: Grundig prices include purchase tax where applicable.

LOWTHER MANUFACTURING CO

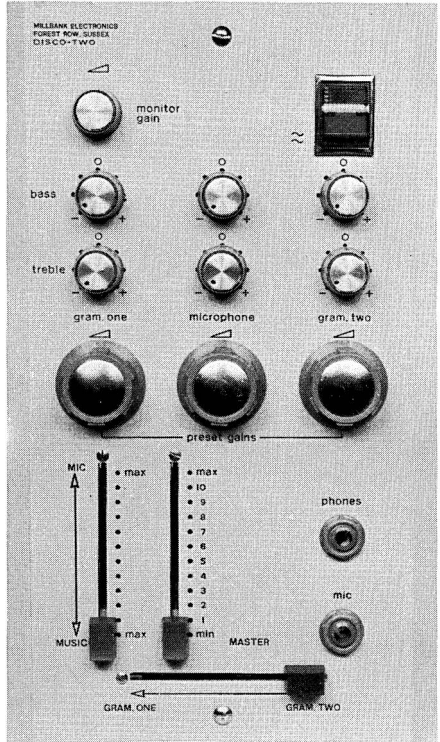
Lowther House, St Mark's Road, Bromley, Kent, BR2 9HQ.
Tel: 01-460 5225. Cables: Lowther, Bromley.

Companion Supply Unit No 2

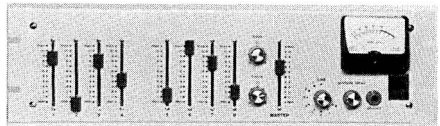
HT and LT power supply suitable to power radio tuners. Pre-amp and tape bias amplifier.



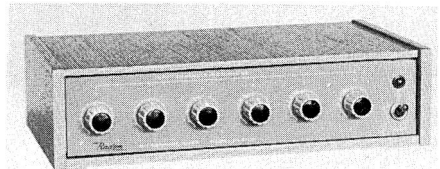
Grundig 422 stereo mixer



Millbank Disco Two



Millbank MCC



Radon DL6/CM

Output: 250V at 40 mA, 6.3V at 3 amps. Price: £8 15s.

Companion Supply Unit No 3

HT and LT power supply suitable to power radio tuners. Pre-amp and tape bias amplifier. Output: 350V at 35 mA, 6.3V at 3 amps. Price: £8 15s.

MILLBANK ELECTRONICS

The Square, Forest Row, Sussex.
Tel: Forest Row 2288.

Disco Two ★

Transistorised mono mixer. Three inputs: PU 5.0 mV, mic 80 μV, PU 5.0 mV. Two outlets: 2V 1.5K to 470K, 2V 1.5K to 470K. Controls: preset gains each channel, independent bass and treble for each channel, monitor gain, crossfade mic/music both outlets, PU input crossfade. AC mains. 2W monitor amplifier built-in. Size: 11 $\frac{3}{4}$ × 6 × 6 $\frac{5}{8}$ in. Price: £92 12s.

MCC ★

Mono/stereo transistorised mixer. Maximum inputs: 8. Mag PU 5 mV 47K, tape 35 mV 47K, mic 200 μV 30-200 ohms, 18 mV to 11V at 1.5K to 470K impedance (linear). Outlets: maximum 5. 2V to 4.5V at 10K, 600 ohms +22 dBm, 15 ohms 2W. Controls: bass, treble, on-off, monitor gain, PFL selection. Linear motion gain each channel. Neon indicator lamp. VU or PPM level meter. Pre-fade/line switched monitoring. Size: 19 × 5 $\frac{1}{2}$ × 11in. Price: (less input or output modules) £115 12s.

RADON

Radon Industrial Electronics Co. Ltd,
Orme Road, Worthing, Sussex.
Tel: Worthing 34904.

DL6/CM ★

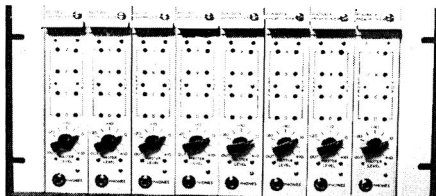
Mains operated mono six-channel mixer. Transistors. Six inputs: 1 mV 35-100 ohms (high impedance to order). Output: 1V p-p at 6K, 0.25V p-p at 68 ohms. Independent gain control for each input. Mains on-off switch with indicator light. H and N: better than 40 dB down. FR: 10 Hz-35 KHz (level 30 Hz-25 KHz). Mains: 110-120V 50/60 Hz or 220-240V 50 Hz. Size: 3 $\frac{1}{2}$ × 13 × 7in. Weight: 6 $\frac{1}{2}$ lb. Finish: satin polished wood cabinet with grey laminate front panel. Price on application.

RICHARDSON ELECTRONICS LTD

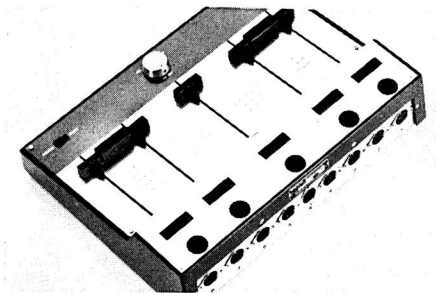
57 Jamestown Road, London, NW1.
Tel: 01-267 0723.

Modular System ★

System of pluggable tape record/playback modules. Each module is 8 $\frac{3}{4}$ in high and designed to fit into 19in rack. Silicon transistors. Remote



Richardson Electronics modules



Uher A121

electronic switching for four separate equalisations.

Modules include record preamplifier, playback preamplifier, PPM oscillator, self-sync switching unit, power supply. Full specifications on request. Prices from £35.

TTC

Distributors: E. R. Factors Ltd,
378 Harrow Road, Paddington, London, W9.
Tel: 01-286 9530 and 0361.

B2001

Four-channel microphone mixer. Permits four high impedance sources to be fed into a single high impedance input. Separate gain control for each input. Gain: 6 dB. Max output: 2.5V. Standard $\frac{1}{4}$ in jacks. Power supply: 9V battery. Wood finished case. Price: £3 3s.

B2002

Four-channel microphone mixer. Permits four high impedance sources to be fed into a single high impedance input. Stereo or mono selector switch. In stereo position two channels available each side for fading and mixing. In mono position, both amplifiers paralleled. Standard $\frac{1}{4}$ in jacks. Power supply: 9V. Wood finished case. Price: £4 12s 6d.

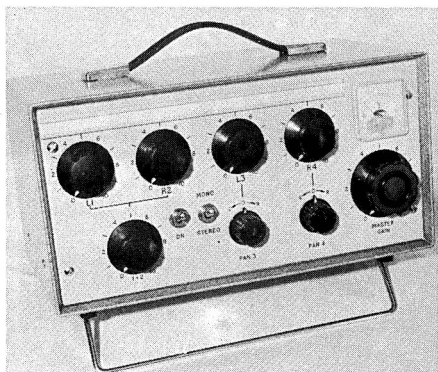
UHER

Distributors: Bosch Ltd, Rhodes Way,
Radlett Road, Watford, Herts, WD2 4LB.
Tel: Watford 44233.

A121 ★

Mixer unit for five channels: two stereo plus one

★ Indicates entry is illustrated



Unimixer 4S

mono or five mono channels. Inputs available for 200 ohm microphone, radio or pickup. Output approx 30 mV. FR 20 Hz-20 KHz. Slider faders with directional control, muting switches and 1 KHz generator. Powered by PP3 battery. Price: £48 14s 5d.

UNIMIXER

Soundex Ltd, 18 Blenheim Road,
Woodstock Road, London, W4.
Tel: 01-995 1661.

Unimixer 4S ★

High quality mixing unit for studios and on location. One stereo pair and two pan controlled mics. Input impedance: 25-600 ohms. S/N ratio greater than 55 dB with input signal of 0.18 mV at 200 ohms, or 0.07 mV at 30 ohms. Individual test certificate. Price: £45.

Unimixer 4S/P

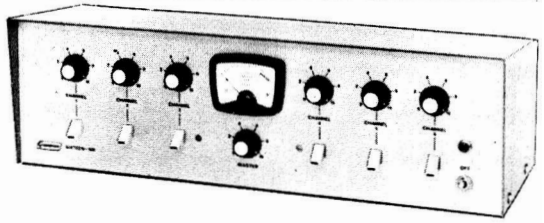
Similar specification to Unimixer 4S but offering additional facilities. Peak reading level meter (on stereo meter reads greater of two signals). Mains powered: 110-250V AC. Price: £62.

VORTEXION LTD

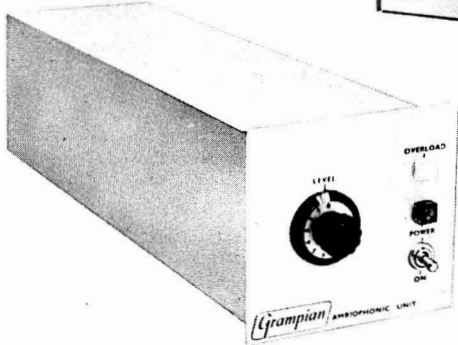
257-263 The Broadway, Wimbledon,
London, SW19. Tel: 01-542 6242/3/4 and 2814.
Cables: Vortexion, London, SW19.

4C/FET/100W

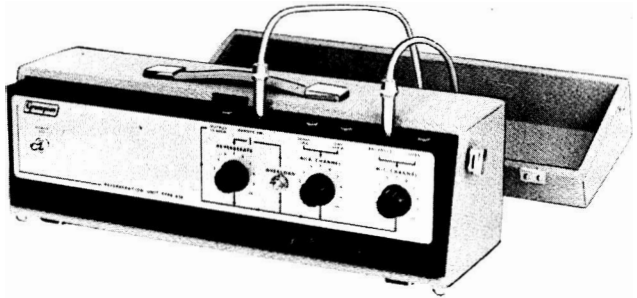
Mono four-channel mixer with 100W output. Inputs: four microphone channels 30/60 ohms balanced (standard). 200 ohms and 600 ohms inputs to order. Controls: separate gain control for each input, common bass and treble controls. Tone controls give approximately 12 dB lift and 12 dB cut. All-silicon transistors with FET input stages. Output: 100W RMS. Output impedance: 100V at 100 ohms (other impedances to order). Stove enamelled case (rack mounting version available). Size: 18×6×11½in. Weight: 37 lb. Price: £115.



Mixer Units



Ambiophonic Units



Reverberation Units



Microphones for every occasion.

Just to mention a few typical items illustrating how Grampian cater for the Audio requirements of all, whether they be professional or amateur.

Write for details on many other equipment items such as Amplifiers, Loudspeakers, Rack equipments.



SOUND EQUIPMENT

GRAMPIAN REPRODUCERS LTD

HANWORTH TRADING ESTATE,
FELTHAM, MIDDLESEX.

TELEPHONE: 01 894 9141.

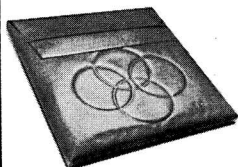
Bib

HIGH QUALITY AUDIO AIDS AND ACCESSORIES

Bib Compact Tape Head Cleaning Kit

Cuts repair costs, ensures better recording and reproduction with either reel or cassette recorders. Kit comprises, bottle of Bib Tape Head Cleaner, non-flammable, 2 Blue Tape Head Applicator Tools, 2 White Tape Head Polisher Tools, 10 Applicator and Polisher Sticks, Cleaning Cloth, all in a plastic wallet.

9s 9d or 49p including p.t. (1s 11d) SIZE J



Bib 12" Record Wallet

Made in P.V.C. simulated pigskin. Designed to hold 10 x 12" records in their sleeves, and specially padded for extra protection. Makes a useful light weight carrying case. **19s 11d or 49½p inc. p.t. (4s 3d) SIZE U**

Bib Recording Tape Splicer

For use with ½" or 6-3mm. recording tape of any thickness. Invaluable for accurate tape editing. Chrome finished clamps for holding tape for diagonal or butt splices. Special non-slip base, complete with razor cutter and instructions.

19s 6d or 97½p MODEL 20

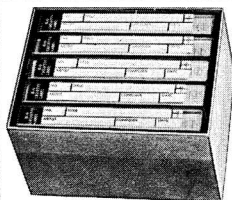


Bib ½" Video Tape Splicer Kit, Model 21, and Bib 1" Tape Splicer Kit, Model 22, are available. Prices and details on application.

Bib Cassette Tape Editing & Joining Kit

A complete kit to enable cassette tapes to be edited easily, quickly and accurately. The kit comprises, Cassette Tape Splicer (½" - 3.2mm.) 2 precision Tape Cutters, Tape Piercer, 10 self-adhesive Cassette and Container Labels, Reel of Splicing Tape, 3 Tape Winders and Removers (2 spares) instruction leaflet, in handy plastic wallet.

29s 0d or £1.45 SIZE 24



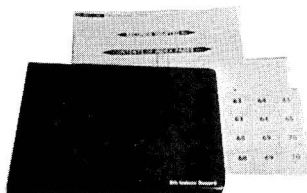
Bib "Five" Tape Cassette Case

Made from extra strong P.V. Holds 5 compact tape cassettes in their containers, for quick storage & easy handling. **5s 11d or 29½p inc. p.t. (1s 9d) SIZE N**

Bib Indexa Record

A unique way of cataloguing and locating gramophone records. Suitable for 1—100 records, which can be expanded to 999 records. The system comprises: luxury padded index book, with 12 clear 'slip in' filing pockets, 100 pairs of self-adhesive labels (1—100). Pad of pre-printed and colour coded index pages. 40 general purpose self-adhesive labels.

34s 0d or £1.70 including p.t. (7s 4d) SIZE A



Bib Flex Shorteners

Shorten without cutting, audio cables and flexes. Made of unbreakable plastic. **Pack of 4, 2s 6d or 12p SIZE D**

All prices are recommended retail. Obtainable from most audio stockists.

Write for full details of the complete range of BIB Audio Accessories to:

BIB DIVISION MULTICORE SOLDERS LTD, HEMEL HEMPSTEAD, HERTS.

TEL: HEMEL HEMPSTEAD 3636 (Ext 100)



Tape Accessories/ Components

★ Indicates entry is illustrated

ACOS

Cosmocord Ltd, Eleanor Cross Road,
Waltham Cross, Herts.
Tel: Waltham Cross 27331.

R.E.6

Magnetic earpiece made in four impedances and colour coded: green 10 ohms, blue 150 ohms, violet 300 ohms and red 1,000 ohms. Each earpiece is fitted with a 3.5 mm jack plug. Price: 12s 6d.

Acos Stethoset

For personal listening with 6ft of lead. Price: £1 9s.

ADASTRA ELECTRONICS LTD

167 Finchley Road, Swiss Cottage,
London, NW3. Tel: 01-624 8164/5.

Imp-Verta

Matches low impedance tape heads, PU cartridges and microphones into high impedance amplifier inputs. Solid state printed circuit device using silicon transistor. Automatically switched 9V internal battery. Negligible drain. Conversion factor approximately 20 (depending on load). Virtually no hum or signal loss. Metal case, finished black crackle. Size: $5 \times 1\frac{1}{2} \times 1\frac{1}{2}$ in. Price: £3 10s.

Tape Editing Kit

See entry under Sychrotape.

AGFA-GEVAERT

Agfa-Gevaert Ltd, Brent House,
950 Great West Road, Brentford, Middlesex.
Tel: 01-560 2072/5.

Editing Kit ★

Price: £1 10s 9d.

Splicing Tape Dispenser ★

Price: 6s 6d.

Novodur Plastic Library Boxes

Prices: 4½in and 5in 8s 2d; 5½in 10s 3d; 7in 11s 10d.

Plastic Spools

Prices: 3in 3s 3d; 4in and 4½in 3s 10d; 5in 4s 6d;

5½in 4s 9d; 7in 5s 1d; 8½in 12s 5d; 10in 14s; 10½in £1 11s 3d.

AMOS OF EXETER LTD

Weircliffe Court, Exwick, Exeter.
Tel: Exeter 72132. Cables: Amos, Exeter.

Weircliffe Bulk Erasers ★

Models 6, 7, and 8. Model 6 accepts reels up to 8½in diameter of ¼-1in tape. Capacity 180-400 reels per hour. Model 7 accepts 8 × 8in cassettes of ¼in tape. Model 8 accepts reels of up to 14½in diameter containing tape from ¼in audio up to 2in video including ½in and 1in instrument tape and 16 and 35 mm film. Capacity 100-400 reels per hour (NATO catalogue No. 5835-99-972-5371). Sizes: (Models 6 and 7) $11\frac{1}{2} \times 12\frac{1}{4} \times 7\frac{1}{2}$ in. Weight: 43 lb. Size: (Model 8) $20\frac{1}{2} \times 20\frac{1}{2} \times 10\frac{1}{2}$ in. Weight: 92 lb. Prices: (Models 6 and 7) £46; (Model 8) £135; (Model 9) £210. Models available for 115V 60 Hz.

BANG & OLUFSEN UK LTD

Eastbrook Road, Gloucester, GL4 7DE.
Tel: Gloucester 21591.

Beocord Trolley 3019 and 4009

Pedestal stand with cruciform base and castors. Designed for Beocord tape recorder and tape unit. Price: (trolley 3019) £1 1 10s (including PT); (top 4009) £2 10s (including PT).

4001 Synchro Box ★

For synchronising slide projector to tape recorder. Records projector control pulses on one track while commentary is recorded on second track. On playback the control pulse is read and shaped to length required by the projector. Price: £29 10s (including PT).

6001

Line transformer for coupling low-impedance microphone into high impedance tape recorder input. Five-pin DIN socket at one end, three-pin DIN plug at the other. Matches into 50K input. Fully screened. Price: £3 10s.

4036

Microphone preamplifier. Input: balanced 35 µV 50-200 ohms. Price: £10 15s.

4037

Pickup preamplifier. Sensitivity: (switched) 1.5 mV 47K for mag PU, 50 mV 10 megohms for ceramic PU. Price: £7 5s.

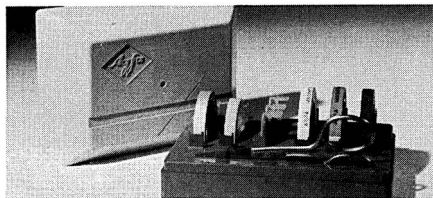
4038

Tuner preamplifier. Sensitivity: (switched) 2.5 mV 47K, 50 mV 100K. Price: £7 5s.

BASF

BASF United Kingdom Ltd,
Knightsbridge House, 197 Knightsbridge,
London, SW7. Tel: 01-584 5080.

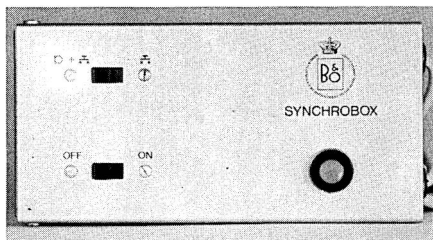
★ Indicates entry is illustrated



Agfa tape editing kit



Agfa splicing tape dispenser



Bang & Olufsen 4001 Synchrobox



Bib tape head cleaning kit

Technical-Look Spools

Standard sizes: 3in 3s 3d; 3½in 3s 10d; 4in 3s 10d; 4½in 3s 10d; 5in 4s 6d; 5½in 4s 9d; 7in 5s 1d. Special sizes: 2½in 3s 10d; 8½in 11s 5d; 8¾in 11s 5d; 10in 13s 11d; 10½in £1 3s 5d; (All prices include PT).

Leader Tape

Green, red or white. Plastic centre spool. 984ft £1 10s; 80ft 5s.

Splicing Tape

33ft ¼in blue 4s 6d; 33ft ¼in white 5s 6d; 33ft ½in white 7s 6d; 33ft 0-7in white 11s 6d.

Splicing Set

Plastic box with bonding groove and 33ft of splicing tape. Price: 6s 6d.

Metallised Foil

For automatic stop or track change. 82ft ¼in spluttered silver. Price: £1.

Leader Tape Set

Containing red and green leader tapes, 25 strips of metallised foil and spare spool labels. Price: 10s.

Adhesive LG

Splicing fluid for PVC base tapes. 1 oz bottle. Price: 7s 6d (cannot be sent by post).

Plastic tape clips

Box of 10. Price: 2s 6d.

BIB

Multicore Solders Ltd, Bib Division, Multicore Works, Maylands Avenue, Hemel Hempstead, Herts. Tel: Hemel Hempstead 3636.

Tape Head Cleaning Kit ★

Comprises: bottle of Bib non-flammable tape head cleaner, two tape head applicator tools (blue), two tape head polisher tools (white), 10 applicator and polisher sticks, cleaning cloth and plastic wallet. Prices: size J, 9s 9d (including PT); size K, £3 9s 8d (including PT).

Recording Tape Splicer ★

Model 20. For use with ¼in or 6.3 mm tape of any thickness. Chrome finished clamps for holding tape. Makes diagonal or butt splices. Non-slip base. Complete with razor cutter and instructions. Price: 19s 6d.

Model 21

Special larger version of Model 20. Designed for editing and splicing ½in video tape. Four razor cutters and cleaning kit included. Price: £9 10s.

Tape Editing Kit

Model 23. Kit contains tape splicer for ¼in or 6.3 mm tape, 12 tape reel labels, razor cutter, splicing tape, tape marker, instruction leaflet and plastic wallet. Price: £1 7s.



Bib splicer



Bib Cassette Tape Editing Kit



Bib tape and cassette labels

Cassette tape editing kit ★

Model 24. Enables cassette tapes to be edited quickly and easily. Kit contains cassette tape splicer ($\frac{1}{8}$ in or 3.2 mm), two precision tape cutters, tape piercer, 10 self-adhesive cassette and container labels, reel splicing tape, three tape winders and removers (two spares), instruction leaflet and plastic wallet. Price: £1 9s.

Precision tape cutters

Model M. Set of four stainless steel cutters with special plastic grips for all types of magnetic recording tape. Price: 2s 11d (including PT).

Tape reel labels ★

Self-adhesive labels printed with spaces for title, composer, date, type of tape and number. On backing paper in sheet form so that details can be easily filled in by typewriter or pen. Prices: size T/1 (reel labels) 20 for 2s; size T/2 (tape box labels) 20 for 2s; size T/3 (cassette and container labels) 20 for 2s.

Cassette case

Model N. Made from strong PVC with clear plastic hinged lid. Holds five Compact (Philips type) cassettes for easy storage or carrying in car, etc. Titles can be read through lid. Price: 5s 11d.

Anti-static Cleaner

Non-inflammable anti-static fluid with cleaning cloth. Does not smear or scratch. Suitable for instrument panels, plastic, chrome, glass and exteriors of electronic equipment. Price: 4s 6d.

BLACK KNIGHT RUMBLECURE

Bank Top, Currier Lane, Ashton-under-Lyne, Lancs. Tel: 061-330 2836.

Rumblecure

Kits of units and individual items designed to isolate pickup arms, motor units, tape recorders, speaker enclosures and other pieces of equipment from mechanical vibration. Various patented accessories available. Full details and prices on request.

BRADMATIC LTD

338 Aldridge Road, Streetly, Sutton Coldfield, Warwickshire. Tel: 021-353 3171.

A range of monophonic magnetic tape heads (record, play and erase) made to order. Twin-track, single-hole fixing, cylindrically ground pole pieces, screening cans available. Full details on request.

BRITISH RADIO CORPORATION LTD

Thorn House, Upper St Martin's Lane, London, WC2. Tel: 01-836 2444.

Synchro-amp adaptor TA/01

Pre-amplifier unit for second channel stereo

★ Indicates entry is illustrated

playback. Monitoring one track whilst recording on another. Automatic slide projector synchronisation. For $\frac{1}{4}$ -track machines only. Price on application.

Foot switch TA/03

Facilitates use of recorder as dictating machine. Recorder runs when switch is depressed. Price on application.

Monitoring Stethoset TA/15

Stethoscope type earpiece to monitor programme during recording (7in spool machines only). Price on application.

Preamplifier TA/27

For providing separate playback and second channel monitoring with four-track recorders. Price on application.

Slide Projector Synchroniser TA/28

For operating slide change on projectors having a remote control. Used with $\frac{1}{4}$ -track recorders. Price on application.

The tape recorder accessories listed above are primarily for use with machines marketed under the Thorn brand names Ferguson, HMV, Marconiphone and Ultra.

COLTON & CO (Lapidaries) LTD

The Crescent, Wimbledon, London, SW19.
Tel: 01-946 9401.

Gripex ★

Anti-slip dressing. A spirit suspended solution supplied in 1 fl oz bottles with brush. Applied thinly to drive surface of belts or friction wheels, it dries in 10-15 minutes. Price: 5s per bottle.

Tape storage rack

Constructed in heavy gauge welded wire finished in black polythene with matching or contrasting feet. May be used for tapes and books. Accommodation for 21 tapes. Sliding 'tidy' keeps tapes upright when smaller quantity stored. Price: £1 1s (plus 1s 11d PT).

See also pickup accessory section.

CONTRONICS LTD

Garth Works, Deepcut Bridge Road,
Blackdown, Camberley, Surrey.
Tel: Deepcut 5936.

Carol Cinesound ★

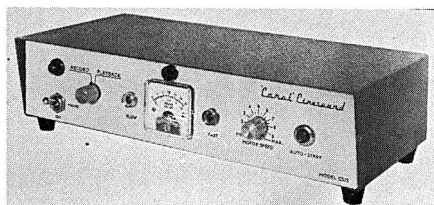
Tape/film, tape/slide synchronisers enable home movies to be made with sound. The Carol Cinesound completes a sound system between the projector and tape recorder. There are three models.

Model R.1

Record only unit for projectors or cameras. In a cream plastic case, size $4 \times 2 \times 1\frac{1}{2}$ in, it uses a



Colton Gripex



Carol Cinesound (Contronics)

22-5V Ever Ready B122 battery and weighs $5\frac{1}{2}$ oz complete. Pulse input: miniature jack socket. Output to tape recorder: DIN 3-way socket. Accessories included. Price: £3 15s (plus £1 6s 6d tax).

Model P.1

Playback only unit for projectors. Mains operated in a steel case, size: $5\frac{1}{4} \times 3 \times 3$ in, weighing 2 lb 2 oz. Projector control in/out switch. Tape input: DIN 3-way socket. Pulse input: miniature jack socket. Mains input: 3-pin fixed plug. Projector socket: 8-pin octal socket. Accessories included. Price: £11 5s (plus £3 19s 5d tax).

Model CS/2

Record/playback unit. Mains unit operated. Steel housing finished in grey and off-white stove enamel measuring $12 \times 7 \times 3\frac{1}{2}$ in. 23 silicon transistors and 15 silicon diodes. Control circuit operated via isolating transformer driving a silicon controlled rectifier in the motor control circuit. Price: £34 10s (plus £12 3s 6d PT).

COSMOCORD

See Acos.

EAGLE PRODUCTS

Distributors: B. Adler & Sons (Radio) Ltd,
Coptic Street, London, WC1.
Tel: 01-636 9606/7. Cables: Reldab, London.

TD.79 Tape Head Demagnetiser

250V mains operation. Price: £1 9s 10d (plus 7s PT).

T.635 Tape Splicer

Complete with cutting and trimming blades.
Price: 18s 5d (plus 4s 4d PT).

EMI

EMI Tape Ltd, Blythe Road, Hayes, Middx.
Tel: 01-573 3888.

Empty Spools

In cardboard boxes: 4in 4s; 5in 4s 2d; 5½in 4s 8d;
7in 5s 2d; 8½in 10s 10d. In library cases: 3in 3s 6d;
4in 5s 8d; 5in 7s; 5½in 7s; 7in 8s 5d.

Joining Block

API23 10s 6d.

Accessory Kit

AP124 £1 17s 6d.

Non-magnetic Scissors

AP39 £1 0s 4d.

FERROGRAPH CO LTD

The Hyde, Edgware Road, Colindale,
London, NW9. Tel: 01-205 2241.

Head lift transformers

Suitable for FP17, FR7A and CL7 heads. Price:
£3 3s 9d.

Defluxer

For depolarising heads, capstans and guides.
Ensures maximum signal/noise ratio. Prevents
hiss and protects tapes from cumulative back-
ground noise. Price: £3 15s.

Tape heads

FP16 stereo stacked. Price: £13 7s 9d. FR7A
upper track. Price: £9 7s 5d. CL7 lower track.
Price: £9 7s 5d.

Carrying case

Waterproof canvas case with zip fastener. Price:
£3 18s (plus £1 1s 5d PT).

Plugs

SP7 screened plug with aluminium body and
cable clamp. Price: 7s 6d. UP7 unscreened plug
with insulated body. Price: 5s.

Endless loop cassette

Permits Ferrograph to be operated continuously
on an endless loop of 8 mins duration at 7½ i/s.
Price: £8 15s 11d.

Ferrotape spools

Aluminium, anodised grey. Prices: 7in 13s 2d;
8½in 15s 8d.

GRAMPIAN REPRODUCERS LTD

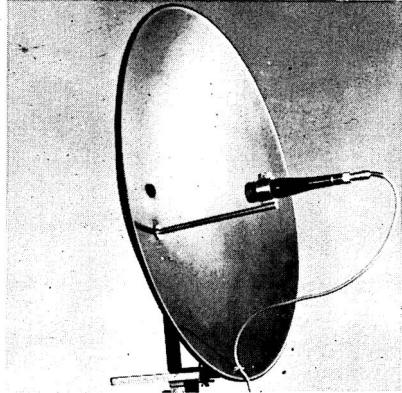
Hanworth Trading Estate, Feltham, Middx.
Tel: 01-894 9141. Cables: Reamp, Feltham.

Grampian G.7 ★

Matching units, consisting of double wound
transformer in a Mu-metal case with jack socket
on the primary and a screened lead on the



Grampian G7 matching unit



Grampian Parabolic reflector

secondary. Dimensions: 3¾ × 1¼in diameter.
Versions available for matching 15/30 ohms,
600 ohms and 50,000 ohms or greater. Price:
£4 15s.

Grampian Parabolic Reflector ★

Diameter 24in, depth 5in. Gain 14 dB over range
of 500 c/s to 5,000 c/s. To take Grampian DP4
and DP6 mics. Weight: 4¾ lb. Price: £8 5s.

Grampian Reverberation Unit

Self-contained portable unit, transistorised and
operated from internal dry batteries. Independent
input channels, low level and high level.
Output 1V, 600 ohms, Size (including detach-
able lid): 17½ × 5¼ × 6¼in. Weight: 12 lb. Price:
£62 10s (batteries extra). Mains unit available.

GRUNDIG (Great Britain) LTD

Newlands Park, Sydenham, London, SE26.
Tel: 01-778 2211.

Sona Dia

Designed to synchronise a tape recorder with
automatic slide change projector. Records and
reads control pulse on lower ¼-track. Pulse
frequency 100 Hz. Power consumption 3W.
Price: £19 7s 3d (including PT).

★ Indicates entry is illustrated

KOSS

Tape Music Distributors Ltd,
11 Redvers Road, London, N22.
Tel: 01-888 0152.

T-1

Monitoring box for tapes from high impedance sources, such as tape recorders with pre-amps only. Impedance matching transformers: 600-10,000 ohm outputs. Equipped with two output jacks for stereophones and two RCA-type input jacks. Price: £4 10s.

T-5

Remote control station provides stereophone and speaker control from remote location. Jacks for two sets of stereophones. Left and right channel volume controls and speaker on-off switch. Metal cabinet. Price: £4 10s.

T-10

Chairside listening station. Connecting box for plugging in Koss stereophones. Includes speaker on-off switch. Wires directly to amplifier output. Provision for two sets of phones. Separate independent volume control for each pair of phones. Impedance: 4-16 ohms. Finish: walnut. Price: £13 10s.

LENNARD DEVELOPMENTS LTD

497 Green Lanes, London, N13.
Tel: 01-886 3723.

Dry-Splice

Precut adhesive tape for splicing and mending without the aid of a splicing block. Envelopes of 24. Price: 3s 9d.

M.A.C. LTD

Ripley, Surrey.

AAU-1

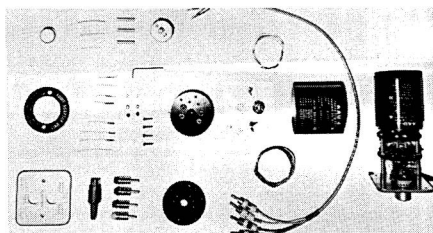
Audio adaptor unit providing connections for tape recorders. Provision for fitting attenuator resistors internally. 24in connecting leads fitted with either phono or DIN plugs. Size: 3 × 3 × 3in. Finish: jaguar silver. Front panel is fitted with two DIN sockets for record/replay. One stereo or two mono recorders can be connected to a cabinet mounted hi-fi system. Price: £3 15s.

AAU-4 ★

As previous model, but with provision for connecting two stereo recorders to one amplifier for record/replay, one via rear phono sockets, the other via front DIN socket. 3-way switching gives various combinations for copying, etc. Price: £4 15s.

AAU-4M

As AAU-4, but fitted with additional replay leads and extra switching for use with amplifiers incorporating special tape monitor circuits. Price: £7.



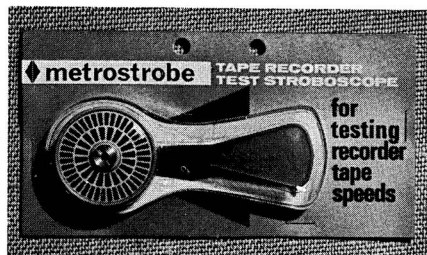
M.A.C. AAU-4 tape recorder switching kit



Metrosound Klenszape



Metrosound cleaning brush



Metrosound stroboscope

AAU-TV

Audio adaptor unit provides a ready means of connecting various hi-fi equipments to a TV receiver. Built-in isolating transformer tapped 3-8-15 ohms for matching external speakers. Switchable output attenuator for matching input of tape recorder or amplifier. 3-way switching enables TV speaker to be switched on or off. (Remote control switch available with 10ft lead to switch speakers off-on from chair.) Size: $3\frac{1}{4} \times 3\frac{1}{4} \times 3\frac{1}{2}$ in. Solid teak case. Finish: jaguar silver. Price: £8.

AAU-BOX

Connector box with facilities for various combinations of audio leads fitted with the plugs in common use. Two independent channels of: 4 mm sockets, co-ax, $\frac{1}{4}$ in jack, miniature jack, 3-pole jack, 5-pin DIN, two pairs of phono. DIN pins selected by slide switch. Screw terminals underneath for fitting attenuator and load resistors, which can be switched in or out. Size: $4\frac{1}{2} \times 3\frac{3}{4} \times 1\frac{1}{4}$ in. Finish: jaguar silver. Price: £5 10s.

MASTERTAPE

Mastertape (Magnetic) Ltd,
Blackthorne Road, Poyle Trading Estate,
Colnbrook, near Slough, Bucks.
Tel: Colnbrook 2431.

Splicing kit

Contains five reels leader tape, one reel metallic strip, one reel adhesive, plastic splicer. Price: £1 5s 8d (including PT).

Empty plastic spools (boxed)

3in 2s9d; 4in 3s8d; 5in 4s3d; $5\frac{1}{2}$ in 4s7d; 7in 5s4d; $8\frac{1}{4}$ in 6s9d.

Leader Tape

Colours: red, white, blue, yellow and green. Price: 2s 6d.

Metallic foil

Price: 4s 6d.

Adhesive jointing tape

Price: 4s 6d.

METROSOUND

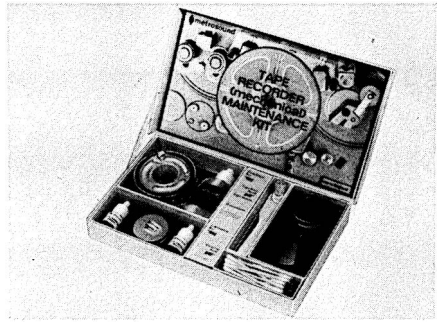
Metrosound Manufacturing Co Ltd,
Cartersfield Road, Waltham Abbey, Essex.
Tel: Waltham Cross 31933.

M.1 Metro-Splicer

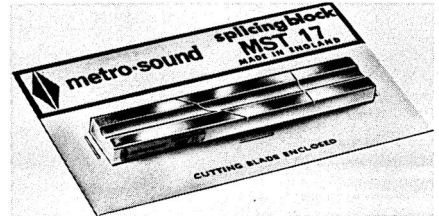
Nylon block impervious to joining compounds, interchangeable guides and channels for use with 8 mm films. Supplied with spare cutter blades and emulsion scraper. Price: 15s (plus 3s 7d PT).

M.4 Klenzatape kit ★

Patented head cleaner. Kit comprises ribbed cleaning tape, two special spools and bottle of Klenzatape fluid. Price: 13s 6d (plus 3s 3d PT).



Metrosound mechanical maintenance kit



Metrosound M17 splicing block

M.7 Tape accessory kit

Comprising Metro-Splicer, Klenzatape kit, Metro-brush on display card. Price: £1 10s (plus 7s 1d PT).

M.9 Metro-Brush ★

Designed for use with tape recorders for cleaning all surfaces except tape head. Soft nylon with plastic handle. Price: 2s 6d (plus 7d PT).

M.12 Metro-Strobe ★

Stroboscope for checking accuracy of tape recorders on all speeds at 50 Hz and 60 Hz. Price: 12s 6d (plus 2s 11d PT).

M.16 Tape Recorder Mechanical Maintenance Kit ★

Presentation pack with Metro-Strobe, lubricating kit, Klenzatape kit, supply of cleaning pads, Metro-Brush. Price: £1 16s (plus 8s 5d PT).

Metro-Splicing Block ★

Professional precision metal splicing block for $\frac{1}{4}$ in tape, supplied with non-magnetic cutter blade. Price: 9s.

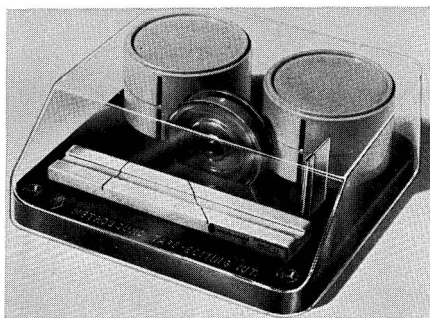
M.18 Leader tapes

Choice of six colours, approximately 40ft of leader tape, wound on to plastic mini-spool. Price: 4s 6d each.

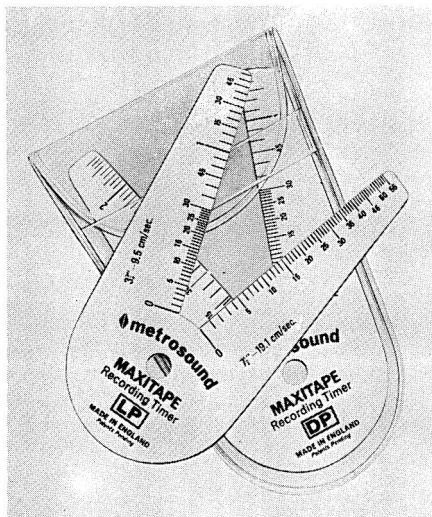
M.19 Stop foil

Metallic tape for actuating electronic auto stop mechanisms for tape recorders. Approximately 15ft on mini-spool. Price: 4s 6d.

★ Indicates entry is illustrated



Metrosound M25 editing kit



Metrosound M29 recording timer

M.20 Jointing tape

$\frac{1}{4}$ in wide, approximately 12ft on mini-spool. Price: 4s 6d.

M.23 Spirit level

Plastic spirit level for tape recorders and turntables, etc. Price: 6s.

M.24 Lubricating Kit

Suitable for tape recorders and mechanical moving parts. Comprises small bottle of each of R.O.B. and R.O.G. oil and container of Starfax. Price: 6s.

M.25 Tape Editing Kit ★

Comprises splicing block and cutter, one reel stop foil, one reel jointing tape; three assorted coloured leaders in cassettes with transparent dust cover, mounted on plastic base with soft plastic feet and supplied with fixing screws for bench use. Price: £1 7s.

M.29 Maxitapes Universal Recording Timer ★

A set of four double-sided timing protractors for checking time of recordings on tape and time/length constant of remaining tape, at all speeds from $\frac{1}{18}$ to $7\frac{1}{2}$ i/s on standard, long-play, double-play and triple-play tapes in transparent plastic pack. Price: 12s (plus 2s 8d PT).

M.32 Cassette Head Cleaner

Same size as Philips Compact Cassette. Non-abrasive. Cleans and polishes record and erase heads. For all recorders and tape players using Philips type cassettes. Price: 9s (plus 2s 2d PT).

M.30 Accessory Rack

For radio and audio retailers. Wire display rack with assortment of Metrosound accessories in packs. Full details and prices on request.

MULTICORE. See Bib.

OSMABET LTD

46 Kenilworth Road, Edgware, Middlesex.
Tel: 01-958 9314.

'Instant' Bulk Tape Eraser and Recording Head Demagnetizer

Operates from AC mains to provide rapid and complete erase of tapes prior to making quality recordings. Weight: 18 oz. Price: £2 2s 6d.

PHILIPS ELECTRICAL LTD

Century House, Shaftesbury Avenue,
London, WC2. Tel: 01-437 7777.

EL3787 Pre-amplifier

Designed for use with Philips $\frac{1}{4}$ -track mono mains-operated recorders which have stereo socket and first-stage input transistor circuit. EL3787 with additional equipment offers playback of pre-recorded stereo tapes, duo-play (playback of one track while recording on parallel track) and multi-play (copying from one track to another and simultaneously adding an accompaniment). Price: £9 6s.

EL1995 Slide Synchroniser

For use with most tape recorders and automatic slide projectors (max voltage 30V, max current 1 A). Supply: 9V battery. Price: £18 3s 3d.

N6502

Mains supply unit. Inputs: 110-245V (switchable). Outputs: 6V, 7.5V and 9V (switchable). For use with Philips battery tape recorders and radios fitted with appropriate socket. Price: £5 5s.

N6705

Car mounting unit for models EL3300, 3301, 3301T, 3302 tape recorders. 6V, 12V positive or negative earth. Price: £5 14s 4d.

EL1901/50 Splicing Kit

Contains white, green, red and blue leader tape,

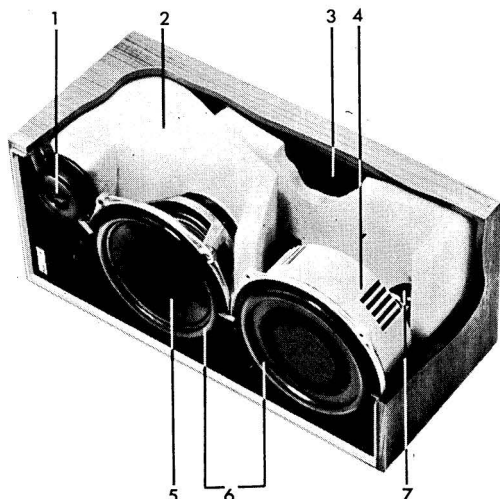
**For those who like to
hear the sound
of their own voice-**

Agfa Magnetron Tape



Just what is this ABR, that makes such a vital difference to the 'DITTON 15' ?

1. Studio quality high frequency unit (HF1300 Mk. 2).
2. Anechoic cellular foam wedge and lining eliminates standing waves.
3. High hysteresis panel loading material to eliminate structural resonances.
4. Auxiliary Bass Radiator (ABR)—plastic foam diaphragm of high rigidity and low mass having a free air resonance of only 8 Hz, double roll suspension allowing excursions up to $\frac{3}{4}$ " with virtual absence of distortion.
5. 8" bass unit, with free air resonance of 25 Hz, and massive Ferroba II magnet structure for optimum magnetic damping and cone treated with viscous damping layer to suppress resonances.
6. Units mounted flush to eliminate diffraction effects and tunnel resonances; covered by acoustically transparent grille cloth for maximum presence.
7. Full L-C Crossover network.



Brief specification

Overall frequency response:	30-15,000 Hz
Power handling capacity:	15 Watts R.M.S.
Impedance:	4—8 ohms
Size:	21" x 9 $\frac{1}{2}$ " x 9 $\frac{1}{4}$ " (534 x 242 x 235 mm)
Finish:	Walnut or Teak

It's an interesting story—and worth enquiring about. Send for details of the three Celestion 'Ditton' Hi-Fi Speaker systems.



Celestion

Studio
Series

Loudspeakers for the Perfectionist

ROLA CELESTION LTD., Foxhall Road, Ipswich, Suffolk. IP3 8JP England
TELEPHONE: 0473-73131 CABLES: VOICECOIL Ipswich TELEX 98365

switching foil, adhesive tape, adhesive labels, cutting blade, splicing jig and instructions. Contained in plastic case. Price: £1 3s.

Stethoscope headphones

Various models for use with Philips recorders. Price: mono £3 10s; stereo £5 10s; hi-fi £8 10s.

Empty spools

3in 3s 7d; 4in 4s; 5in 4s 7d; 5½in 5s; 7in 5s 7d. In library case: 3in 5s; 4in 5s 7d; 5in 6s 7d; 5½in 7s; 7in 8s 7d.

Library cases

3in 2s; 4in 2s 10d; 5in 3s 7d; 5½in 4s 2d; 7in 5s.

ET4743/00

Compact Cassette Box. Price: 10d.

ET4744/00

Library Rack. Price: 1s 9d.

Cassette Cleaning Tape

Price: 17s 9d.

SCOTCH

Minnesota Mining and Manufacturing Ltd, 3M House, Wigmore Street, London, W1. Tel: 01-486 5522.

Accessory Kit

Contains splicer, roll No. 41 splicing tape on dispenser, roll No. 24 white leader and timing tape, cutter, ten fastening clips. Price: £1 14s 6d.

Available separately

Tape clips (packet 10) 2s 6d; No. 24 leader tape (¼in 50ft) 2s; No. 41 splicing tape (½in 150in) 3s 6d; (¾in 66ft) 4s 6d; (½in 66ft) 6s 6d; No. 51 Sensing Tape (¾in 150in) 14s.

Spools

7in 5s; 5½in 4s 8d; 5in 4s 5d; 4in 3s 9d; 3in 3s 2d.

SYNCHROTAPE

Sole distributors: Adastra Electronics Ltd, 167 Finchley Road, Swiss Cottage, London, NW3. Tel: 01-624 8164/5.

Synchrotape Editing Kit ★

Instant cut and trim splicer, four reels coloured leader tape, one reel metallic stop foil, one reel adhesive tape, six coloured tape-securing clips and 28 self-adhesive titling labels. Presented in see-through crush-proof carton. Complete with 12-page instruction and information booklet. Price: £1 9s 6d (plus 7s 2d PT).

TAPE RECORDER SPARES LTD

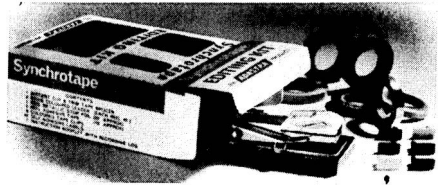
Harmsworth House, 9 Harmsworth Street, London, SE17. Tel: 01-735 9683.

Audio Packs

Pre-packed spares and audio accessories.

Connecting cords

Cables of various types with plugs, sockets and



Synchrotape Editing Kit

other terminations covering all equipment in use for domestic audio.

Adaptors

Convert from any type of plug or socket termination to any other type.

Audio Spares

Plugs, sockets, chassis mounted components, fuses and audio accessories. Pre-packed for counter or showroom display.

TELEFUNKEN

Distributor: A.E.G. (Great Britain) Ltd, AEG House, Chichester Rents, Chancery Lane, London, WC2. Tel: 01-242 9944.

Telefunken Endless Tape Cassette

Price: £3 7s 3d (plus 16s 8d PT).

TTC

Distributors: E.R. Factors Ltd, 378 Harrow Road, Paddington, London, W.9. Tel: 01-286 9530 and 0361.

1003

Tape head demagnetiser. Moulded white plastic body. Complete with two-core lead. Tapered probe for reaching the pole surface of recording head. Price: £1 19s 6d.

TUTCHINGS ELECTRONICS LTD

14 Rook Hill Road, Friars Cliff, Christchurch, Hants. Tel: Highcliffe 2019.

Tapesponder's kit

Magnetic rubber for completely erasing tape; and 40ft of white noise azimuth tape. Price: 5s, including postage.

UHER

Distributors: Bosch Ltd, Rhodes Way, Radlett Road, Watford, Herts, WD2 4LB. Tel: Watford 44233.

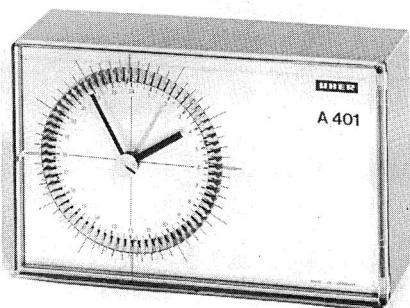
W211

Midget earphones. Price: £2 6s.

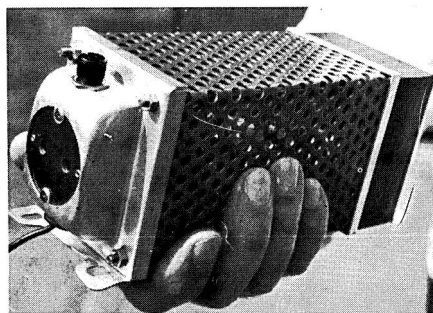
W911

Stethoclip for W211 earphones. £1 8s.

★ Indicates entry is illustrated



Uher A401



Valradio DC Converter

Uher A401 Timer ★

Self-starting synchronous clock mechanism with hour and minute hands. A third hand indicates time over a 24-hour period (i.e. operates at half speed of normal hour hand). This third hand operates switch striker.

72 selectors round perimeter of clock, spaced at 20-minute intervals, permit on-off-on-off switching in sequence, i.e. up to 36 on and 36 off operations within every 24-hour period. Accuracy is \pm two minutes of the set time. Price: £15 15s.

VALRADIO LTD

Browells Lane, Feltham, Middlesex.

Tel: 01-890 4837/4242.

Service agents: Vibro Supply, 57 Fortess Road, London, NW5. Tel: 01-485 5165.

DC converters ★

Designed for operating tape recorders and similar mains equipment from ship's supply 110V DC and/or 220V DC. Prices from £14 14s 6d.

Transverter B12/30S

Input 12V DC. Output: 50 Hz \pm 1/4 Hz sine wave at 30W. Suitable for negative or positive earthed input. Built-in switch socket. Supplied complete with input lead. Size: 8 x 6 x 4in. Weight: 8 lb. Prices from £18.

Transverter B12/120S

Input: 12V DC. Output: 115-230V 50 Hz \pm 1/4 Hz sine wave at 120W. Prices from £47 2s.

Transverter B12/200S

Input: 12V DC. Output: 115-230V 50 Hz \pm 1/4 Hz sine wave at 200W. Prices from £67 12s.

Frequency changer

AC-AC, suitable for records, films, television programme special effects. Prices: (100W) from £32 6s 9d; (200W) from £52.

WAL

Sole distributor: A. C. Farnell Ltd, Consumer Division, Farnell House, 81 Kirkstall Road, Leeds, LS3 1HR. Tel: Leeds 35111.

WAL Hi-Gain pre-amplifier

Mono transistorised battery operated pre-amplifier with high amplification and built-in tape equalisation (CCIR at 7 1/2 i/s) for playback direct from a tape head. Output obtainable from fully modulated tape approximately 100 mV. Switched equalisation permits straight line amplification for microphone, etc. Gain with input not exceeding 2,500 ohms 200 times; without equalisation, gain is 2,000 times. Price: £7 16s; pair for stereo £15.

WAL D-Mag

Pinpoint eraser for striped film, tapes and tape heads. Nylon-cushioned probes. Weight: 9 1/2 oz. Size: 2in sq x 1in wide. Psn 200-250V 50-100 Hz. Consumption: 110 mA at 240V. Price: £3 (plus 15s 5d PT).

WAL professional tape eraser

Will erase both sides of a 7in tape reel in 30 secs and sound from 16 mm 10in aluminium reels. Weight: 7 lb. Size: 6 1/2 x 4 3/4 x 3 3/4 in. Psn 200-250V 50 Hz, or 110-125V 60 Hz. Finish: oyster hammer grey. Price: £8 18s 6d (plus £2 7s PT).

New design! New chassis! More bands! More features built in! Finer performance than ever before!

all-new Zenith
TRANS-OCEANIC®
Royal 7000



Receives Standard Broadcast, FM, European Longwave . . . Marine, Weather, Ship-to-Ship and Ship-to-Shore, Time Signals, FAA Weather-Navigation . . . Amateur, CW and SSB signals...plus the new VHF crystal-controlled Weather Band. Bandsread tuning on the most popular 31, 25, 19, 16 and 13 meter International Shortwave Bands.

Now, in one masterful stroke, Zenith obsoletes would-be imitations with the most ingenious integration of power, sensitivity, and tuning versatility ever designed into its world-famous Trans-Oceanic multi-band portable radio.

Beat Frequency Oscillator control receives CW and SSB transmissions intelligibly.

"Norm-Sharp" IF Switch on front panel helps eliminate adjacent channel interference on SSB signals as well as AM and CW.

Manual Gain Control permits navigational direction finding; adjustable to insure maximum sensitivity for SSB and CW. Functions automatically in "Normal" setting.

Tuner output jack feeds tape recorder or external amplifier speaker system.

AC power supply built-in permits operation on either 115V or 230V with batteries automatically disconnected.

Plug-in earphone for private listening is standard equipment.

Adjustable hair-line for most accurate indexing of logging scale.

Rotary Slide-Rule Dial with large, easy-to-read numerals for quick, easy band and station selection.

Tuning Meter lets operator tune receiver visually as well as audibly. Aids in determining a null for direction finding.

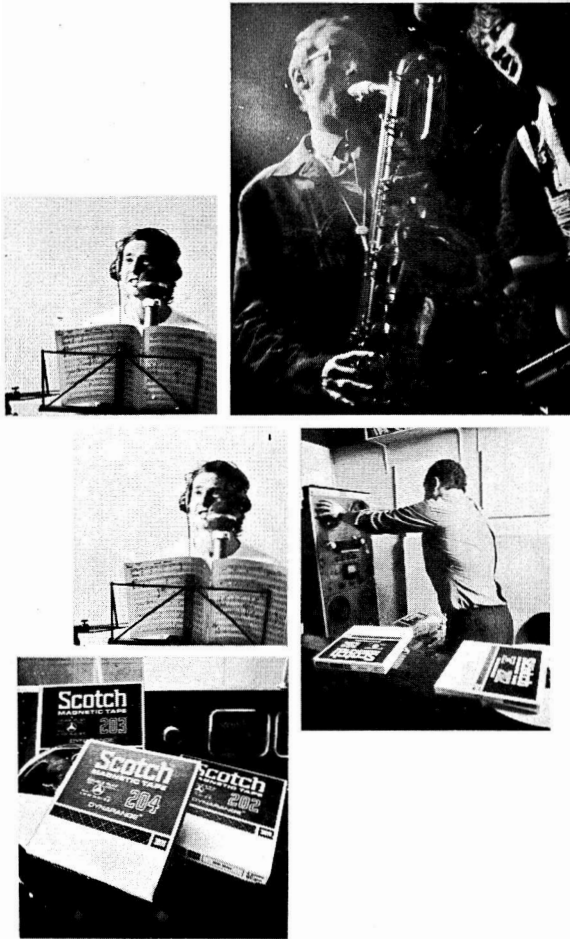
Azimuth bearing indicator built into slide-in door panel for aid in radio navigation.

Up to 300 hours operation on "D" flashlight batteries available anywhere. Battery

Level Indicator. New 24-Hour World-Map Time Zone Indicator. Log Book. On-Off Dial Light. Tilt-Out Chart Light. New rugged cabinet of diecast zinc in Ebony color, high impact Cycloac™ with padded vinyl sides. 9 3/8" high, 13 3/4" wide, 6 1/4" deep.

Ask to see, to hear, to test the new Zenith Royal 7000 Trans-Oceanic at United Mercantile Company, Ltd., Sovereign House, 13-14 Queen Street, Mayfair, London, W. 1. Or write now for additional information.

ZENITH
The Quality Goes In
Before The Name Goes On®



Scotch Magnetic Tape

Recording studios use it every day



3M and 'Scotch' are trademarks

Directory of Magnetic Tape

★ Indicates entry is illustrated

AGFA-GEVAERT

Agfa-Gevaert Ltd, Brent House,
950 Great West Road, Brentford, Middlesex.
Tel: 01-560 2072/5.

PE.31

Long play. 4in, 450ft 13s 4d; 4½in, 600ft £1 1s 4d; 5in, 900ft £1 6s 4d; 5½in, 1,200ft £1 12s 6d; 7in, 1,800ft £2 8s 6d; 8½in, 2,400ft £3 1s 2d; 10in, 3,280ft £4 6s 2d; 10½in, 4,200ft £5 6s 3d.

PE.31K

As PE.31, but in Novodur plastic library case, following sizes only: 3in, 210ft 8s 3d; 4in, 15s 2d; 4½in £1 3s 2d; 5in £1 8s 2d; 5½in £1 14s 7d; 7in £2 10s 11d.

PE.31R

As PE.31, but in round clear plastic pack: 3in 6s 2d; 4in 12s 2d; 4½in £1 0s 2d; 5in £1 5s 2d; 5½in £1 11s 2d; 7in £2 7s 2d.

PE.41

Double play. 4in, 600ft £1 1s 4d; 4½in, 900ft £1 6s 4d; 5in, 1,200ft £1 12s 4d; 5½in, 1,800ft £2 8s 6d; 7in, 2,400ft £3 0s 6d; 8½in, 3,280ft £4 6s 2d; 10in, 4,600ft £6 6s 2d.

PE.41K

As PE.41, but in Novodur case: 3in, 300ft 12s 3d; 4in £1 3s 2d; 4½in £1 8s 2d; 5in £1 14s 2d; 5½in £2 10s 7d; 7in £3 2s 11d.

PE.41R

As PE.41, but clear round plastic pack: 3in 10s 2d; 4in £1 0s 2d; 4½in £1 5s 2d; 5in £1 11s 2d; 5½in £2 7s 2d; 7in £2 19s 2d.

PE.36

Long play, low noise tape in cardboard box: 8½in £3 4s 2d; 10in £4 10s 2d; 10½in £5 11s 3d.

PE.36K

As PE.36, but Novodur case: 5in £1 9s 2d; 5½in £1 15s 7d; 7in £2 12s 11d.

PE.46

Double play, low noise, cardboard box: 8½in £4 10s 2d.

PE.46K

As PE.46, but Novodur case: 5in £1 15s 2d; 5½in £2 12s 7d; 7in £3 4s 11d.

PE.66K

Triple play, low noise, in Novodur case: 3in, 450ft 16s 3d; 4in, 900ft £1 9s 2d; 4½in, 1,200ft £1 15s 2d; 5in, 1,800ft £2 12s 2d; 5½in, 2,400ft £3 4s 7d; 7in, 3,600ft £4 17s 11d.

Compact Cassettes ★

Low noise tape: C.60 17s 4d; C.90 £1 4s 4d; C.120 £1 12s 4d.

Splicing Tape

33ft of ¼in 4s.

Leadertape

80ft of 1¼in, red, white, green, yellow, 4s.

Silver Stop Foil

33ft of ¼in 6s 6d.

BASF UNITED KINGDOM LTD

197 Knightsbridge, London, SW7.
Tel: 01-584 5080.

SP 52

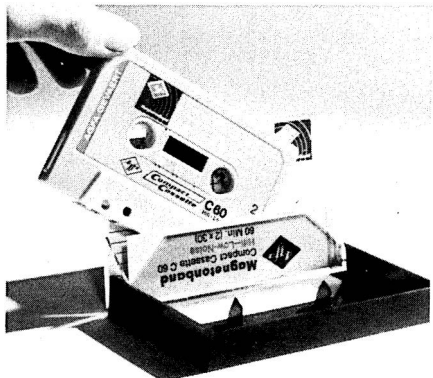
Standard play. Round pack: 4in, 300ft 13s; 5in, 600ft £1 2s 6d; 5½in, 900ft £1 10s 6d; 7in, 1,200ft £1 15s 6d. In plastic swivel box, prices are: 5in £1 6s 3d; 5½in £1 14s 5d; 7in £1 19s 7d.

LP 35

Long play. Round pack: 3in, 210ft 9s; 4in, 450ft 19s; 4½in, 600ft £1 2s 6d; 5in, 900ft £1 10s 6d; 5½in, 1,200ft £1 15s 6d; 7in, 1,800ft £2 12s 6d. In plastic swivel box: 3in (mailing box) 11s 4d; 4in £1 2s 7d; 4½in £1 6s 1d; 5in £1 14s 3d; 5½in £1 19s 6d; 7in £2 16s 7d. Also available in LH low-noise high-output version as follows: 5in £1 17s 9d; 5½in £2 3s 5d; 7in £3 2s 1d.

DP 26

Double play. Round pack: 3in, 300ft 12s; 4in, 600ft £1 2s 6d; 4½in 900ft £1 10s 6d; 5in, 1,200ft £1 15s 6d; 5½in, 1,800ft £2 12s 6d; 7in, 2,400ft £3 5s 6d. In plastic swivel box: 3in (mailing box) 14s 4d; 4in £1 6s 1d; 4½in £1 14s 1d; 5in £1 19s 3d;



Agfa-Gevaert Compact Cassette

★ Indicates entry is illustrated

5 $\frac{3}{4}$ in £2 16s 5d; 7in £3 9s 7d. In LH low-noise high-output version: 5in £2 3s 3d; 5 $\frac{3}{4}$ in £3 1s 1d; 7in £3 16s 7d.

TP 18

Triple play. Round pack: 3in, 450ft 19s; 3 $\frac{1}{4}$ in, 600ft £1 2s 6d; 4in, 900ft £1 10s 6d; 4 $\frac{1}{4}$ in, 1,200ft £1 15s 6d; 5in, 1,800ft £2 12s 6d; 5 $\frac{3}{4}$ in, 2,400ft £3 5s 6d; 7in, 3,600ft £4 2s 6d. In plastic swivel box: 3in (mailing box) £1 1s 10d; 3 $\frac{1}{4}$ in £1 6s 1d; 4in £1 14s 1d; 4 $\frac{1}{4}$ in £1 19s 1d; 5in £2 16s 3d; 5 $\frac{3}{4}$ in £3 9s 5d; 7in £4 6s 7d. In LH version: 5in £3 1s 9d; 5 $\frac{3}{4}$ in £3 16s 5d; 7in £4 15s 1d.

Special requirement tapes

SP 52 on 8 $\frac{1}{4}$ in spool, LP 35 on 8 $\frac{1}{4}$, 10 and 10 $\frac{1}{2}$ in spools and LP 35 LH on 8 $\frac{3}{4}$, 10 and 10 $\frac{1}{2}$ in spools are available, in cardboard boxes. Prices on application.

Compact Cassettes

BASF low-noise tape in KK8 swivel box for posting or use stacked as book: C60 17s 6d; C90 £1 5s; C120 £1 13s 6d; (all including 4d PT). In normal pack: C60 17s 7d; C90 £1 5s 1d; C120 £1 13s 7d; (all including 5d PT).

EMI

EMI Tape Ltd, Blythe Road, Hayes, Middx.
Tel: 01-573 3888. Telex: 22417.
Cables: Emitape, London.

88 Standard Play

Polyester base: 3in, 175ft 8s 10d; 4in, 300ft 12s 1d; 5in, 600ft £1 3s 10d; 5 $\frac{3}{4}$ in, 900ft £1 11s 7d; 7in, 1,200ft £1 19s 9d; 8 $\frac{1}{4}$ in, 1,800ft £3 3s 6d.

99 Long Play

Polyester base: 3in, 210ft 10s 6d; 4in, 450ft 16s 6d; 5in, 900ft £1 11s 8d; 5 $\frac{3}{4}$ in, 1,200ft £1 19s 7d; 7in, 1,800ft £2 16s 2d; 8 $\frac{1}{4}$ in, 2,400ft £4.

100 Double Play

Polyester base: 3in, 300ft 16s; 4in, 600ft £1 8s; 5in, 1,200ft £2 6s 10d; 5 $\frac{3}{4}$ in, 1,800ft £3 1s 10d; 7in, 2,400ft £4 6s 5d.

300 Triple Play

Polyester base: 3in, 450ft £1 4s 7d; 4in, 900ft £2 2s 4d; 5in, 1,800ft £3 13s 2d.

HMV Voice Letter

V2/2: 3in on lightweight spool in mailing pack. 40 mins playing time on $\frac{1}{4}$ -track recorder at 3 $\frac{3}{4}$ i/s. Price: 6s.

Emitape Compact Cassettes

C.60 17s 7d; C.90 £1 5s 1d; C.120 £1 13s 7d.

Leader Tape

White, red, yellow, blue, orange, green, grey. Price: 4s 6d.

Adhesive Jointing Tape

$\frac{3}{8}$ in 4s 9d; $\frac{1}{2}$ in 7s 6d.

Metallic Stop Foil

Price: 6s 6d.

FERRODYNAMIC INTERNATIONAL

Leda Tapes (Despatch Dept),
17 Leigh Park Road, Leigh-on-Sea, Essex.

Standard Play

Acetate base: 5in spool 600ft 8s 9d; 7in spool 1,200ft 13s 6d.

Long Play

Acetate base: 5in spool 900ft 11s; 5 $\frac{3}{4}$ in spool 1,200ft 13s 6d; 7in spool 1,800ft 16s. Polyester base: 7in spool 1,800ft 21s 9d.

Double Play

Polyester base: 5in spool 1,200ft 16s; 5 $\frac{3}{4}$ in spool 1,800ft 22s 6d; 7in spool 2,400ft 25s.

GRUNDIG (Great Britain) LTD

Newlands Park, London, SE26.
Tel: 01-778 2211.

GT11

Triple play: 4 $\frac{1}{4}$ in spool 1,200ft £2 9s 6d.

GL15 Hi-Fi

Long play: 5 $\frac{3}{4}$ in spool 1,200ft £1 19s 6d.

GD15 Hi-Fi

Double play: 5 $\frac{3}{4}$ in spool 1,800ft £2 15s.

GL18 Hi-Fi

Long play: 7in spool 1,800ft £3 15s.

GD18

Double play: 7in spool 2,400ft £3 17s 6d.

C60

Compact cassette. 60 minutes playing time at 1 $\frac{7}{8}$ i/s. Price: 17s.

C90

Compact cassette. 90 minutes playing time at 1 $\frac{7}{8}$ i/s. Price: £1 5s 4d.

DC90

Cassette. 90 minutes playing time. Price: £1 10s.

DC120

Cassette. 120 minutes playing time. Price: £1 15s 6d.

Note. Grundig prices include purchase tax where applicable.

LEDA TAPE

Leda Tapes, 17 Leigh Park Road,
Leigh-on-Sea, Essex.

Standard Play

PVC base: 3in spool 150ft 2s 6d; 4in spool 300ft 4s 3d; 5in spool 600ft 8s 9d; 5 $\frac{3}{4}$ in spool 900ft 10s 6d; 7in spool 1,200ft 12s 6d.

Long Play

PVC base: 3in spool 225ft 3s 3d; 4in spool 450ft 5s 6d; 5in spool 900ft 10s 3d; 5 $\frac{3}{4}$ in spool 1,200ft 12s 6d; 7in spool 1,800ft 17s 9d.

Double Play

Polyester base: 3in spool 300ft 4s 6d; 4in spool

600ft 8s 6d; 5in spool 1,200ft 15s 9d; 5½in spool 1,800ft 19s 9d; 7in spool 2,400ft 22s 6d.

Triple Play

Polyester base: 3in spool 600ft 9s 3d; 4in spool 900ft 13s 3d; 5in spool 1,800ft 23s 6d; 5½in spool 2,400ft 29s 9d; 7in spool 3,600ft 39s 9d.

MASTERTAPE

Mastertape (Magnetic) Ltd,
Blackthorne Road, Poyle Trading Estate,
Colnbrook, near Slough, Bucks.
Tel: Colnbrook 2431.

Mastertape

Reels are complete with leaders, trailers and stop foils. The 3in, 4in and 8½in reels are packed in original carton pack. The 5in, 5½in and 7in reels are packed in black one-piece plastic type boxes with gold lettering.

Standard

Colour code red: 3in spool 150ft 5s 6d; 4in spool 300ft 10s; 5in spool 600ft £1 0s 6d; 5½in spool 900ft £1 7s 6d; 7in spool 1,200ft £1 13s 6d.

Long Play

Colour code yellow: 3in spool 225ft 8s 6d; 4in spool 450ft 12s 6d; 5in spool 900ft £1 8s; 5½in spool 1,200ft £1 15s; 7in spool 1,800ft £2 10s; 8½in spool 2,400ft £3 12s 6d.

Super Play

Colour code orange: 3in spool 800ft £1 12s 6d; 4in spool 1,200ft £2 5s.

Double Play

Colour code blue: 3in spool 300ft 12s 6d; 4in spool 600ft £1 1s; 5in spool 1,200ft £2 2s; 5½in spool 1,800ft £2 15s; 7in spool 2,400ft £3 17s 6d.

Triple Play

Colour code green: 3in spool 600ft £1 2s; 4in spool 900ft £1 10s; 5in spool 1,800ft £2 17s 6d; 5½in spool 2,400ft £3 19s 6d; 7in spool 3,600ft £5.

Mini-Voice Letter

In mailing carton: 3in spool 100ft Standard tape, 3s 3d.

Senda-Message

In mailing envelope: 1½in spool 100ft Triple play tape, 3s.

NEW INTERNATIONAL

E. R. (Factors) Ltd, 374/378 Harrow Road,
London, W9. Tel: 01-286 0361.

American-made tapes.

Standard Play

Acetate base: RT17, 5in spool 600ft 12s; RT24, 5½in spool 900ft 14s; RT10, 7in spool 1,200ft 18s 9d. Mylar base: RT22, 7in spool 1,200ft 16s 10d.

Long Play

Acetate base: RT20, 3in spool 225ft 5s 6d; RT18, 5in spool 900ft 14s 3d; RT14, 5½in spool 1,200ft 18s 9d; RT11, 7in spool 1,800ft £1 1s 6d. Mylar base: RT16, 5½in spool 1,200ft £1 1s 6d; RT12, 7in spool 1,800ft £1 8s 3d.

Double Play

Mylar base: RT23, 5in spool 1,200ft 19s 8d; RT15, 5½in spool 1,800ft £1 7s; RT13, 7in spool 2,400ft £1 12s 6d.

Triple Play

Mylar base: RT21, 3½in spool 600ft 14s; RT25, 5½in spool 2,400ft £1 10s; RT19, 7in spool 3,600ft £3 3s 6d.

International Cassettes

C60 12s 6d; C90 18s 6d; C120 £1 6s.

PHILIPS ELECTRICAL LTD

Century House, Shaftesbury Avenue,
London, WC2.

Tel: 01-437 7777. Cables: Philamps, London.

Philips hi-fi low-noise tapes are all in free library boxes except for Audio Letter.

Standard Play (Green)

4in, 300ft 15s; 5in, 600ft £1 6s; 5½in, 900ft £1 14s 3d; 7in, 1,200ft £1 19s 7d.

Long Play (Red)

3in, 210ft 11s; 4in, 450ft 19s; 5in, 900ft £1 9s; 5½in, 1,200ft £1 16s 3d; 7in, 1,800ft £2 11s 7d.

Double Play (Blue)

3in, 300ft 14s 7d; 4in, 600ft £1 6s; 5in, 1,200ft £1 19s; 5½in, 1,800ft £2 16s 9d; 7in, 2,400ft £3 19s 7d.

Triple Play (Grey)

3in, 240ft £1 2s; 4in, 900ft £1 19s; 5in, 1,800ft £3 6s.

Audio Letter

3in, 200ft Standard play tape. Price: 6s.

CE.10 Endless Loop

Approx 195ft. Playing time: 40 mins at 1½ i/s. Price: £3 11s.

C.30 Postal Pack Compact Cassette

Playing time: 30 mins. Price: 10s 7d.

Compact Cassettes

Low-noise tape. Playing times: C.60, 1 hour, 17s 7d; C.90, 1½ hours, £1 5s; C.120, 2 hours, £1 13s 7d.

SCOTCH

Minnesota Mining and Manufacturing Ltd,
3M House, Wigmore Street, London, W1.
Tel: 01-486 5522.

175

Standard play. Polyester base: 5in, 600ft £1 1s 4d; 5½in, 850ft £1 8s 5d; 7in, 1,200ft £1 15s 6d.

★ Indicates entry is illustrated

215

Long play. Polyester base: 3in, 300ft 9s 7d; 4in, 450ft 14s 9d; 5in, 900ft £1 8s 4d; 5½in, 1,200ft £1 15s 5d; 7in, 1,800ft £2 10s 6d; 8¼in, 2,400ft £3 13s 3d.

220

Double play. Tensilised polyester base: 3in, 400ft 16s 7d; 4in, 600ft £1 5s 3d; 5in, 1,200ft £2 2s 4d; 5½in, 1,800ft £2 15s 11d; 7in, 2,400ft £3 18s.

290

Triple play. Tensilised polyester base: 3in, 600ft £1 4s 10d; 4in, 900ft £1 19s 3d.

Dynarange 202

Plastic library cases. Standard play. Polyester base: 5in, 600ft £1 5s 7d; 5½in, 850ft £1 14s 4d; 7in, 1,200ft £2 13s 6d.

Dynarange 203

Plastic library cases. Long play. Polyester base: 5in, 900ft £1 13s 10d; 5½in, 1,200ft £2 2s 7d; 7in, 1,800ft £3; 8¼in, 2,400ft £4 4s 4d.

Dynarange 204

Double play. Polyester base: 3in, 400ft 19s 3d; 4in, 600ft £1 9s 3d. In library cases: 5in, 1,200ft £2 7s 10d; 5½in, 1,800ft £3 3s 1d; 7in, 2,400ft £4 9s.

One-Five Special

Letter tape on 3in spool in handy pack ready for posting. Up to 15 minutes. Price: 5s 4d.

Compact Cassettes

Scotch low-noise tape treated with Superlife: C60 17s 6d; C90 £1 5s; C120 £1 13s 6d.

SYNCHROTAPE

Sole distributors: Adastra Electronics Ltd, 167 Finchley Road, Swiss Cottage, London, NW3. Tel: 01-624 8164.

Standard Play ★

PVC base: 3in spool 150ft 4s 9d; 5in spool 600ft 15s; 5½in spool 900ft 18s 6d; 7in spool 1,200ft £1 2s 6d.

Long Play

PVC base: 2¾in spool 200ft 5s 9d; 3in spool 225ft 6s 3d; 4in spool 450ft 12s; 5in spool 900ft 18s 6d; 5½in spool 1,200ft £1 2s 6d; 7in spool 1,800ft £1 8s 6d.

Double Play

Tensilised polyester base: 2¾in spool 300ft 8s 9d; 3in spool 300ft 8s 9d; 4in spool 600ft 18s; 5in spool 1,200ft £1 8s 6d; 5½in spool 1,800ft £1 16s; 7in spool 2,400ft £2 8s.

Triple Play

Tensilised polyester: 3in spool 450ft 13s 9d; 4in spool 900ft £1 7s; 5in spool 1,800ft £2 5s; 5½in spool 2,400ft £2 17s 6d; 7in spool 3,600ft £3 15s.

Except for 2¾in and 3in spools, all Synchronotape tapes have leader, trailer and double metallic stop-foils.

TAPE 70

Leda Tapes, 17 Leigh Park Road, Leigh-on-Sea, Essex.

Standard Play

PVC base: 3in, 150ft 3s 3d; 4in, 300ft 6s 6d; 5in, 600ft 11s 6d; 5½in, 900ft 14s 6d; 7in, 1,200ft 17s 6d.

Long Play

PVC base: 3in, 225ft 4s 3d; 4in, 450ft 7s 6d; 5in, 900ft 14s 6d; 5½in, 1,200ft 17s 6d; 7in, 1,800ft £1 5s.

Double Play

Polyester base: 3in, 300ft 6s 6d; 4in, 600ft 12s; 5in, 1,200ft £1 2s 6d; 5½in, 1,800ft £1 9s 6d; 7in, 2,400ft £1 17s 6d.

Triple Play

Polyester base: 3in, 600ft 13s; 4in, 900ft 17s 6d; 5in, 1,800ft £1 15s; 5½in, 2,400ft £2 8s 6d; 7in, 3,600ft £3 2s 6d.

TELEFUNKEN

Distributors: A.E.G. (Great Britain) Ltd, AEG House, Chichester Rents, Chancery Lane, London, WC2. Tel: 01-242 9944.

Endless Tape Cassette

Price: £3 7s 3d (plus 16s 8d PT).

TONEMASTER TAPES

Chart Edge Ltd, 18/21 Jermyn Street, London, SW1. Tel: 01-734 1443.

Standard Play

PVC base: 3in, 150ft 2s 5d; 4in, 300ft 6s; 5in, 600ft 7s; 5½in, 900ft 9s; 7in, 1,200ft 10s.

Long Play

PVC base: 3in, 225ft 3s; 4in, 450ft 6s 7d; 5in, 900ft 9s; 5½in, 1,200ft 12s; 7in, 1,800ft 14s.

Double Play

Polyester base: 3in, 300ft 5s 5d; 4in, 600ft 7s 5d; 5in, 1,200ft 13s 5d; 5½in, 1,800ft 18s; 7in, 2,400ft £1 2s.

Triple Play

Polyester base: 3in, 600ft 9s 7d; 4in, 900ft 13s; 5in, 1,800ft £1 5s; 5½in, 2,400ft £1 15s; 7in, 3,600ft £2 5s.

Leaders and stop foils on LP, DP and TP 5in to 7in. Tonemaster tapes are British made and supplied sealed in individual boxes. Postage 3s on orders up to £3; over £3 post free. By return postal service.

Directory of Test Tapes and Discs

★ Indicates entry is illustrated

A.P.A.E.

Association of Public Address Engineers,
394 Northolt Road, South Harrow, Middlesex.
Tel: 01 422 4825.

A.P.A.E. Test Disc

7in 45rpm double-sided mono disc for testing sound systems, particularly public address and sound reinforcement installations.

Side One consists of three minutes of male speech followed by three minutes of female speech. At end of male speech there is a period of 30 seconds of 'off-mic' speech to illustrate correct microphone technique.

Side Two starts with 60 test phrases selected for phonetic balance. The next two bands are 1,000 Hz tone and warble tone, for equipment line-up and measurement with sound level meters. Final two bands are white noise and pink noise. Produced primarily for A.P.A.E. members the record is now available generally. Price: 15s (plus 1s 6d postage).

THE DECCA RECORD CO LTD

Decca House, 9 Albert Embankment,
London, SE1. Tel: 01-735 8111.

How to give yourself a stereo check-out ★

Stereo SKL-4861. The record is designed to provide a means for the exacting listener to check the performance of his equipment without the need for expensive and complicated instruments. Side One starts with a short explanation of the purpose of the record and there is a detailed account of each band and how the information should be used on the sleeve. Side One: (1) Introduction, (2) left-right channel identification, speaker balance, channel phasing, (3) mono music, (4) tone controls, (5) sound colouration, (6) stereo music, (7) groove-jumping and distortion, (8) silent grooves. Side Two: (1) live versus recorded sound, (2) wow and flutter, (3) anti-skating band, (4) crosstalk, (5) musical show-piece. Price: £1 17s 6d.

EMI ELECTRONICS LTD

Installation and Maintenance Division,
Hayes, Middlesex.
Tel: 01-573 3888. Cables: Emidata, London.

Type TBT.1A

Full track tape, 7½ i/s, 100 µSec. CCIR characteristic. Range 40 Hz-12 KHz. Price: £4 (plus PT).

Type TBT.2A

Full track tape, 3¾ i/s, 120 µSec. CCIR characteristic. Range 40 Hz-8 KHz. Price: £4 (plus PT).

EMI RECORDS

(Gramophone Co Ltd), EMI House,
20 Manchester Square, London, W1.
Tel: 01-486 4488.

TCS 101

12in stereo (45/45) frequency test disc covering the range 30 Hz to 20 KHz, with fixed bands on alternate left and right channels. Follows RIAA curve, with level reduced by 6 dB above 10 KHz. Both sides identical. Price: £1 17s 6d.

TCS 102

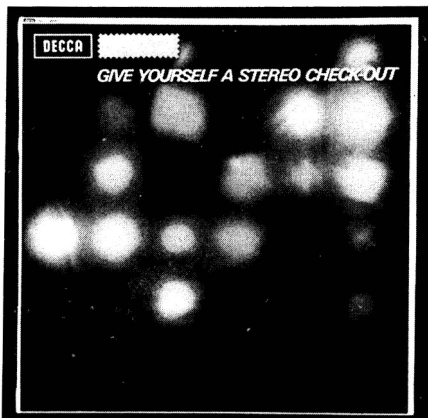
12in stereo (45/45) frequency test disc covering same range as TCS 101, but with gliding tone. Side A, left channel; side B, right channel. Price: £1 17s 6d.

TCS 104

12in mono (lateral) frequency test disc covering same range as TCS 101, with fixed bands on one side and gliding tone on the other. Price: £1 17s 6d.

TCS 105

12in vertical-cut frequency test disc covering



Decca—How to give yourself a stereo check-out

★ Indicates entry is illustrated

same range as TCS 101, with fixed bands on one side and gliding tone on the other. Price: £1 17s 6d.

HI-FI SOUND

Distributors: Howland-West Ltd,
2 Park End, South Hill Park, London, NW3.
Tel: 01-794 6666/6033.

Test record HFS69

Side 1. Test 1, channel recognition, phasing and balance using transient random noise bursts with spoken announcements recorded in free-air conditions; test 2, white noise (monophonic) for subjective evaluation of pickups and speakers and for setting up tape recorder bias and heads; test 3, determination of side-thrust adjustment and minimum tracking weight of pickup by means of lateral and vertical modulations in four different bands; test 4, applause—for identifying greatest possible number of individual sounds; test 5, music.

Side 2. Test 1, reference level and channel separation at 1 KHz 5 cm/sec 45 degrees. Test 2, pink noise producing constant energy per octave; test 3, tone bursts—eight bands of 1 KHz tone in bursts on separate channels at 7 or 10 cm/sec; test 4, wow and flutter, lateral cut 5 cm/sec 3 KHz for use with wow and flutter meters, also concentricity check; test 5, rumble, lateral cut 10 cm/sec 1 KHz tone followed by unmodulated grooves. Price: £1 10s (including PT).

TUTCHINGS ELECTRONICS LTD

14 Rook Hill Road, Friars Cliff,
Christchurch, Hants. Tel: Highcliffe 2019.

Test Tape No. 1

Pure tones 40 Hz-10 KHz with voice identification of each band. Recorded to CCIR 70 µSec characteristic at $7\frac{1}{2}$ i/s. Track 2 carries continuous 7.5 KHz tone for azimuth alignment. 3in spool. Price: £1 10s (including postage).

Test Tape No. 2

Pure tones 40 Hz-7.5 KHz with voice identification of each band. Recorded to NAB 90 µSec +3180 µSec characteristic at $3\frac{3}{4}$ i/s. Track 1 carries four identical frequency runs. Track 2 is recorded with continuous 5 KHz tone for azimuth alignment. 3in spool. Price: £1 10s (including postage).

Test Tape No. 3

White noise, one third octave bands 40 Hz-10 KHz with voice identification of each band. Recorded to CCIR 70 µSec characteristic at $7\frac{1}{2}$ i/s. 3in spool. Price: £1 10s (including postage).

Test Tape No. 4

White noise, one octave bands 100 Hz-6.4 KHz

centre frequencies with voice identification of each band. Track 2 carries full range unfiltered white noise. Recorded to CCIR 70 µSec characteristic at $7\frac{1}{2}$ i/s. 3in spool. Price: £1 10s (including postage).

Test Tape No. 5

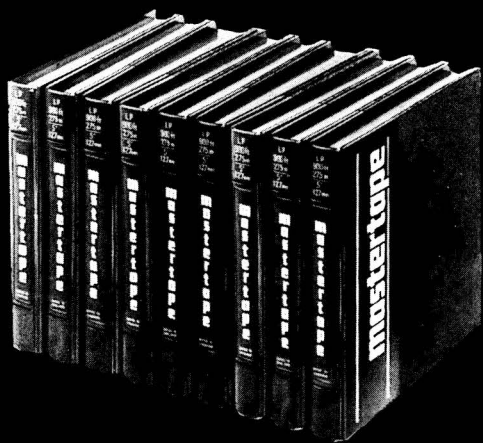
Azimuth and vertical head alignment tape. Full track unfiltered white noise with track 3 blank. Can be used without test equipment at all tape speeds on two- or four-track recorders. 3in spool. Price: £1 10s (including postage).

Full-track recordings of any single frequency can be supplied with low wow and flutter content at £1 5s per 3in spool.



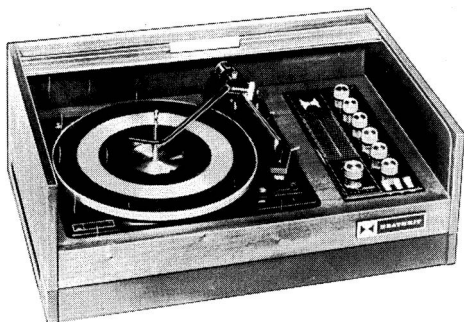
mastertape

IN THE DISTINCTIVE TAPE BOOKS



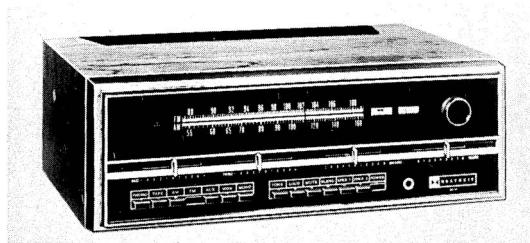
Manufactured in England by
Mastertape (Magnetic) Limited. Colnbrook, Slough, Bucks.

HEATHKIT are the kit people



for
**'Stereo
Compacts'**

for
**'Tuner/
Amplifiers'**



in fact for everything that's
excellent in HiFi equipment



a Schlumberger Company

★ FREE Catalogue

Your enquiries will be
welcomed

HEATH (Gloucester) Ltd Dept. HY. GLOUCESTER
ENGLAND Tel. 29451

SHOWROOMS: LONDON 233 Tottenham Court Rd. Tel. 01 636 7349
BIRMINGHAM: 17-18 St Martins Hse, Bull Rg 021 643 4386

Directory of Constructional Kits

Abbreviations: **HC**=handling capacity; **FR**=frequency range; **Rec**=recommended; **Psn**=power supply needed.

★ indicates model is illustrated.

RICHARD ALLAN RADIO LTD

Bradford Road, Gomersal, Cleckheaton,
Yorkshire. Tel: Cleckheaton 2442/3.

Twin Assembly ★

Speaker kit comprising CC8 bass/midrange driver and 460TC treble unit, CN54 crossover, BAF wadding, Vynair fret material (with choice of three patterns), foam backing sheet, detailed assembly instructions, fixing screws, terminals, etc. FR: 40 Hz-17 KHz. HC: 10W RMS. Impedance: 4-8 or 15 ohms. Recommended cabinet size: 20×12×9in. Price: £8 3s (plus £1 17s PT).

Triple Assembly

Speaker kit comprising CG12 bass driver, CP8 mid-range unit, CB4 treble unit, ¼-section printed circuit crossover, BAF wadding, Vynair fret material (with choice of three patterns), foam backing sheet, detailed assembly instructions, fixing screws, terminals, etc. FR: 30 Hz-17 KHz. HC: 15W RMS. Impedance: 4-8 or 15 ohms. Recommended cabinet size: 25×15½×12½in. Design based on Richard Allan Pavane enclosure. Price: £18 10s (no PT).

Super Assembly

Speaker kit comprising CG12 Super bass driver, CB8 mid-range unit, CB4 treble unit. ½-section crossover network. FR: 30 Hz-17 KHz. HC: 20W RMS. Impedance: 8 or 15 ohms. Recommended cabinet size: 25×15½×12½in. Design based on Richard Allan Pavane enclosure. Price: £21 15s (no PT).

CONNOISSEUR

A. R. Sugden & Co (Engineers) Ltd,
Market Street, Brighouse, Yorkshire.
Tel: Brighouse 2142. Cables: Connoisseur,
Yorkshire.

BD1 Turntable kit

Description and specification as for BD1 motor unit. (See Motor Unit section.) Easy one-hour

assembly. No soldering. Price: £9 9s (plus £2 4s 5d PT).

EATON AUDIO FITMENTS

Leopold Street, Long Eaton, Nottingham,
NG10 4QF. Tel: Long Eaton 2662/2818.

Wharfedale Unit 3 cabinet kit

Made to Wharfedale specification from ½in material accurately machined for simplicity of assembly, with the main parts veneered (unpolished) in teak, mahogany and walnut. All kits are complete with screws for fixing the back, bolts for fixing fret panel, and fret material. Baffle holes are cut and cabinets veneered all four sides. Prices: small cabinet 14×9¾×8¾in £4 19s. Large cabinet 11½×21×9½in £5 15s.

Wharfedale Unit 4 cabinet kit

Made to Wharfedale specification from ⅝in material accurately machined for ease of assembly. Main parts veneered (unpolished). All kits complete with screws, bolts and fret material. Finish: teak veneer. Largest size recommended: 24×14×12in. Price: £8 5s.

Wharfedale Unit 5 cabinet kit

Full details and price to be announced.

Wharfedale Pipe kits

Column cabinets using specially designed filter and absorbent pads of bonded acetate fibre. Designed for a single full range 8in speaker (rec. Super 8/RS/DD). FR: 40 Hz-20 KHz. Suitable for 15 ohm amplifiers; other impedances by matching transformer WMT1. Dimensions: 3ft high by 11in diameter. Power handling capacity:



Richard Allan Twin Assembly

★ Indicates entry is illustrated

6W RMS. Also kit for 10in drive unit (Super 10/RS/DD). FR 30 Hz-20 KHz. Prices on request.

HART ELECTRONICS

321 Great Western Street, Manchester, 14.

Tel: Rusholme 2212/3.

Bailey 20W amplifier

Power amplifier: 20W with total HD 0.1% at 1 KHz. H and N: -80 dB. Proof against damage by short circuits. Four transistors. Pre-amplifier: five-transistor circuit with feedback triple front end giving 23 dB overload capacity with HD less than 0.02%. Described in 'Wireless World' Nov and Dec 1966. Price: (kit for power amplifier) £7 5s; (kit for mono pre-amp) £7 4s 6d; (kit for stereo pre-amp) £14 10s; (kit for power supply) £5 10s 6d.

Dinsdale 10W amplifier

Output: 10W per channel into 15 ohms. Printed circuit construction, six transistors per power amplifier, three transistors per pre-amp. Described in 'Wireless World' Jan and Feb 1965 (reprints available from Hart Electronics, price 5s 6d post paid). Price: (kit for mono pre-amp and amplifier) £9 18s; (kit for stereo pre-amp and amplifier) £20 8s; (kit for power supply unit) mono £4 10s 6d, stereo £5 8s.

HEATHKIT

Manufactured by Heath (Gloucester) Ltd,

Bristol Road, Gloucester.

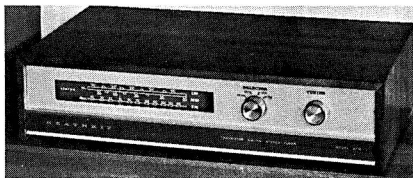
Tel: Gloucester 29451.

TFM-1

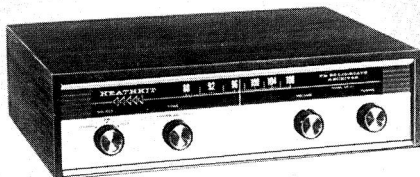
Tuner. Comprises TFM-T1 tuner unit and TFM-1S (stereo) IF strip and power supply. Range: 88-108 MHz. Variable tuning. Ratio detector. Sensitivity: 2 μ V for 20 dB quieting. Aerial input 75 ohms coaxial. Output: 250 mV. Multiplex decoder fitted. All transistor. Mains: 200-250V 50-60 Hz. Size: $15\frac{3}{8} \times 3\frac{3}{8} \times 10\frac{1}{2}$ in. Price: £24 18s for both units. Cabinet £3 16s. Also available ready assembled.

AFM-2 ★

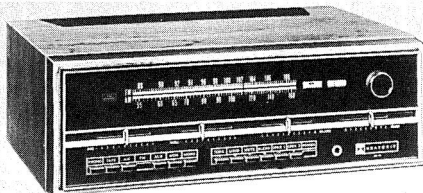
Transistor AM/FM stereo-mono tuner. Range: VHF 88-108 MHz, MW 192-555 m, LW 1,000-1,800 m. Variable tuning. Ratio detector. AFC. AGC. 18 transistors, 7 diodes. Sensitivity: 2 μ V for 20 dB quieting. Aerial input (VHF): 75 ohms coaxial. Output: 300 mV with 30% modulation. Stereo multiplex decoder fitted. Automatic stereo indicator light. Edge-lit slide rule scale and flywheel tuning. Internal AM ferrite rod aerial. Pre-assembled and aligned front-end. Separate AM and FM printed boards. Walnut or teak veneered cabinet optional extra. Mains: 105-125V, 210-250V 50-60 Hz. Consumption:



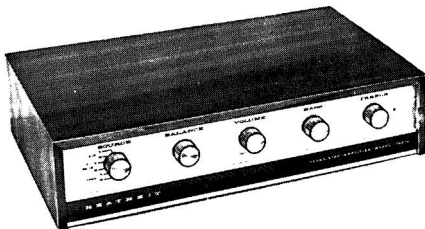
Heathkit AR-27 tuner/amplifier



Heathkit AR-27



Heathkit AR-19 tuner/amplifier



Heathkit TSA-12



Heathkit AR-14



Heathkit AR17

10W. Size: $15\frac{1}{2} \times 10\frac{1}{4} \times 3\frac{7}{8}$ in. Weight (less cabinet): 8 lb. Price (kit): £37 12s.

AJ-14

FM stereo tuner. 88-108 MHz. Variable tuning. Ratio detector. Four-stage IF amplifier. Sensitivity: $5 \mu\text{V}$. Aerial impedance: 300 ohms balanced, 75 ohms coaxial. Output: 700 mV. Decoder included. Mains: 105-125, 230-250V AC. Size: $11\frac{3}{4} \times 9\frac{3}{4} \times 2\frac{5}{8}$ in. Weight: $4\frac{1}{4}$ lb. Finish: walnut or teak. Prices: AJ-14 in kit form £24 18s; cabinet in either finish £3 10s extra.

AR-27 ★

FM mono tuner/amplifier. 88-108 MHz. Variable tuning. Ratio detector. Sensitivity: $5 \mu\text{V}$. Aerial impedance: 300 ohms balanced. Output: 7W (music). Output impedance: 4-16 ohms. FR 25 Hz-70 KHz ± 1 dB (at 1W). PU input: 5 mV. HD $< 1\%$. 13 transistors, 6 diodes. Mains: 105-125V, 210-240V AC. Horizontal or vertical mounting. Size: $3 \times 12 \times 10\frac{3}{8}$ in. Finish: walnut veneer. Prices: AR-27 in kit form £22 10s; cabinet £3 10s extra.

AR-19 ★

AM/FM stereo tuner/amplifier. Range: FM 88-108 MHz, MW 187-545 m. Variable tuning. Aerial impedance: 300 ohms balanced, 75 ohms coaxial. Output: 20W RMS per channel. FR 6 Hz-35 KHz -1 dB (at 1W). HD $< 0.1\%$. PU input: 2.4 mV. 108 transistors, 45 diodes. Five integrated circuits. Flywheel tuning. Linear motion bass, treble and volume controls. Internal ferrite rod for AM. Finish: oiled pecan wood with black front panel. Prices: £108 in kit form; AE-19 cabinet £12 12s extra.

TSA-12 ★

Integrated stereo transistor amplifier. Inputs: PU 5 mV 47K, radio 300 mV 180K, aux 300 mV 180K. Controls: selector, balance, volume, bass -15 dB + 14 dB at 20 Hz, treble -12 dB and $+14$ dB at 20 KHz. Output: 12W RMS per channel (8 ohm load). 8W RMS per channel (15 ohm load). HD 1% or less, 20 Hz-20 KHz at rated output. Noise level: -50 dB (PU), -60 dB (radio and aux). Mains: 100-125, 200-250V 50-60 Hz. Size: $15\frac{1}{2} \times 10 \times 3\frac{7}{8}$ in. Weight: 11 lb. Price (kit): £32 16s.

AA-15

Transistorised stereo integrated amplifier. Power output: 150W music. Distortion: $< 0.5\%$ at full output. FR: 8 Hz-40 KHz ± 1 dB at 1W. Controls: volume, balance, treble, bass, various switch functions, tuner input jack and L.S. switch. Psn: 120-240V 50 Hz. Price: (kit) less cabinet £101 14s. Walnut veneered cabinet £12 12s.

AR-14 ★

FM stereo, with multiplex decoder. Range: 87.5-108 MHz. Tuning: variable. Ratio detector.

Sensitivity: $2 \mu\text{V}$. Aerial impedance: 75 ohms coaxial, 300 ohms balanced. Output voltage: 300 mV. AFC. Power output: 10W RMS per channel. HD better than 1% 20 Hz-20 KHz. FR 15 Hz-50 KHz at 10W. Feedback: 38 dB. Noise level: 80 dB (power amp). Output impedance: 4-16 ohms. Output transistors: 2N2148/40465. Psn 120 or 240V 50 or 60 Hz. Inputs: gram, 4.5 mV, 50K, 60 dB noise level; aux, 300 mV, 100K, 65 dB noise level. Controls: source, treble, bass, volume, phase, tuning. Dimensions: $3\frac{7}{8} \times 15\frac{1}{4} \times 12$ in. Price: in kit form £54 (including PT).

AR-17 ★

FM stereo tuner/amplifier with multiplex decoder. Range: 87-108 MHz. Ratio detector. Sensitivity: $2.5 \mu\text{V}$. Aerial: 75 ohms coaxial or 300 ohms balanced. AFC. Power output: 5W RMS per channel. HD better than 1% 20 Hz-30 KHz. FR 25 Hz-35 KHz ± 1 dB. Feedback: 32 dB. N/L: 80 dB (power amp). Output impedance 4-16 ohms. Output transistors: BD131, BD132. Psn 120-240V 50 or 60 Hz. Inputs: gram, 5 mV, 50K, -45 dB noise level; aux, 300 mV, 150K, -55 dB noise level. Controls: function, tuning, volume, tone. Dimensions: $3 \times 12 \times 10\frac{3}{8}$ in. Price: in kit form £36 10s.

AA-14

Stereo amplifier. Power output: 10W per channel, 4-16 ohms. HD 0.5% or less at 1 KHz. FR 15 Hz-50 KHz ± 1 dB. Feedback: 38 dB. N/L: 80 dB power amp. Output transistors 2N2148/40465. Psn 120-240V 50 or 60 Hz. Dimensions: $3\frac{1}{2} \times 12\frac{1}{2} \times 9\frac{5}{8}$ in. Inputs: aux, 300 mV, 180K, -65 dB N/L; tuner, 300 mV, 18K, -63 dB N/L; gram, 4.5 mV, 47K, -60 dB N/L. Controls: bass, treble, source, volume. Psn 120-240V 50 or 60 Hz. Price: in kit form £30.

AD-27

FM stereo compact system. Transistorised. Range: 87.5-108 MHz. Variable tuning. AFC. Multiplex decoder fitted. Controls: FM tune, source, volume, balance, bass, treble, phase, power on/off, speakers on/off, stereo/mono. Power output: 10W RMS per channel. FR: 6 Hz-100 KHz ± 3 dB. Output impedance: 4-16 ohms. Distortion: less than 1% from 12 Hz-60 KHz. Motor unit: BSR MA70. Pickup cartridge: Shure M44MB. Overall dimensions: $7\frac{3}{8} \times 21\frac{1}{8} \times 14\frac{11}{16}$ in. Speakers: Berkeley, Avon, Ambassador. Finish: teak or walnut. Price: in kit form £82.

AJ-15

Transistorised stereo tuner. Features: FET devices in tuner section; crystal filters in IF stages; integrated circuits in IF stages; noise suppression circuitry; adjustable stereo phase control; two tuning meters with variable tuning; two adjustable stereo phone outputs; outputs for amplifier and tape recorder; panel illumina-

★ Indicates entry is illustrated

tion. Price: (kit) less cabinet £137 6s. Walnut veneered cabinet £12 12s.

AA-22U ★

Transistorised stereo integrated amplifier. Inputs: PU 6 mV, radio 250 mV, tape 250 mV, aux 1 250 mV, aux 2 250 mV. Controls: balance, selector switch, mode switch, volume, bass, treble, filter, filter (3-position; flat, 4 KHz, 8 KHz, 12 dB/octave). Noise - 50 dB on PU, -65 dB all other inputs. Output: 20W per channel RMS. Distortion 0.3% at 20W. FR 15 Hz-30 KHz 1 dB. Feedback 35 dB. Output: imp 4, 8 or 16 ohms. Pre-set gain controls accessible from the front. Mains 110, 200-250V 50-60 Hz. Size: $15\frac{1}{2} \times 3\frac{3}{8} \times 12\frac{3}{4}$ in. Price (kit): less cabinet £42 16s; cabinet £4 extra.

STR-1 ★

Stereo tape recorder. $\frac{1}{4}$ -track. Speeds: $1\frac{7}{8}$, $3\frac{3}{4}$ and $7\frac{1}{2}$ i/s. Max spool capacity: 7in. W and F: $7\frac{1}{2}$ i/s 0-15%; $3\frac{3}{4}$ i/s 0-25%; $1\frac{7}{8}$ i/s 0-35%. H and N: $7\frac{1}{2}$ i/s 5.5 dB; $3\frac{3}{4}$ i/s 4.7 dB; $1\frac{7}{8}$ i/s 4.2 dB. FR: $7\frac{1}{2}$ i/s 40 Hz-18 KHz; $3\frac{3}{4}$ i/s 40 Hz-12 KHz; $1\frac{7}{8}$ i/s 40 Hz-7.5 KHz. Replaychar: DIN. Level indicator: meter. Rewind time: 1,500ft $1\frac{1}{2}$ min. Inputs: mic, 0.35 mV, 50K; aux, 50 mV, 100K. Outlets: extension speaker, 4W, 8 ohms; external amplifier, 1V, 1K. Audio output: 4W RMS. Speaker size: 8×5 in. Transistorised. One motor. Tape deck: TD10. Dimensions: $7\frac{7}{8} \times 19\frac{1}{2} \times 15\frac{1}{2}$ in. Weight: 30 lb. Superimposing. Straight through amplifier. Input mixing. Sound on sound. Common stacked head. Psn 220-250V 50 Hz. Price: in kit form £65.

SSU-1

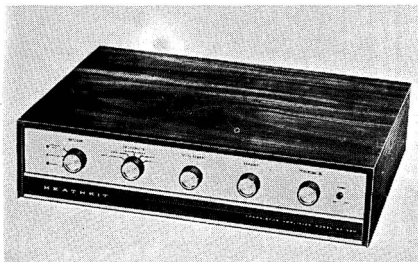
Speaker system kit. Comprises 8in and 4in matched drive units, and ducted-port bass reflex cabinet. Response 40 Hz-16 KHz ± 5 dB. Crossover frequency 3 KHz. Impedance 15 ohms. Size: $23 \times 11\frac{1}{2} \times 11\frac{3}{4}$ in. Available for horizontal or vertical mounting. Price complete (kit): £13 4s; (legs) 16s extra.

Cotswold

High fidelity three speaker system. Drive units are 12in bass, 8×5 in elliptical, and pressure tweeter. Range 30 Hz-20 KHz. Two volume controls. Celotex lined enclosure. In white wood ready cut and drilled. Dimensions: $26 \times 23 \times 14\frac{1}{2}$ in. Price complete with crossover unit, etc (kit): £28 12s.

Berkeley

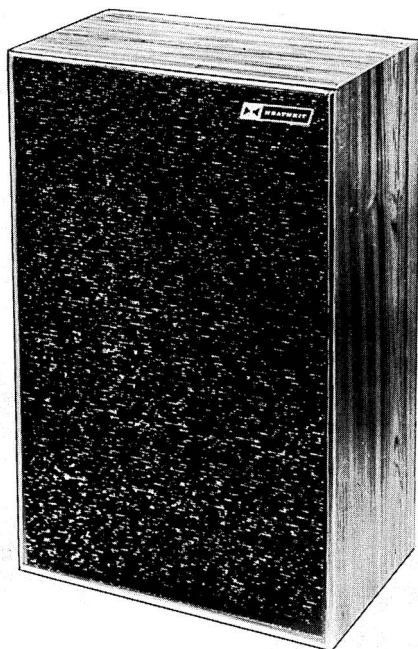
Infinite baffle hi-fi enclosure with speakers and cross-overs. One 12in low-resonance bass unit, one 4in middle and top unit. Inductance/capacitance cross-over at 900 Hz. Handling capacity 15W RMS. Kit includes ready finished cabinet shell. Finish: oiled walnut or teak veneer. Size: 26in high, 17in wide, $7\frac{3}{4}$ in deep. Price (kit): £21 4s.



Heathkit AA-22U stereo amplifier



Heathkit STR-1



Heathkit Ambassador speaker

Avon

Infinite baffle bookcase enclosure with two units. One 6in high compliance bass driver, one 3in tweeter. Fully finished walnut or teak veneered cabinet. Size: $7\frac{3}{4} \times 13\frac{1}{2} \times 8\frac{3}{4}$ in. Price: (kit) £13 8s.

Ambassador ★

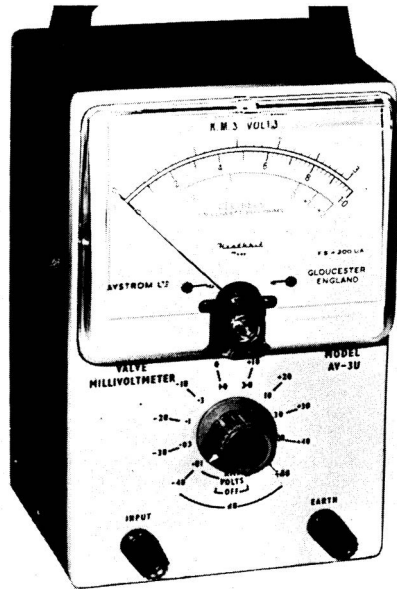
Enclosure with three units and crossovers. Infinite baffle. 12in bass driver, 5in enclosed chassis mid-range unit, 1in pressure tweeter. Crossover frequencies: 1 KHz and 6 KHz. FR 30 Hz-20 KHz. HC 20W RMS. Impedance 8 ohms. Size: $28 \times 18 \times 11\frac{1}{2}$ in. Weight: 45 lb. Finish: teak or walnut veneers. Lined 12 mm Celotex. Ceramic magnet units. Price: in kit form £29 16s.

C-3U

Resistance-capacitance bridge. Self-contained and powered. Capacitance range 0.00001 to 1,000 microfarads. Resistance range 100 ohms to 5 megohms. Power factor and leakage also indicated. Polarising voltage available from 5 to 450V. Price (kit): £12 8s.

AV-3U ★

Audio valve millivoltmeter. Measures voltages as low as 1 mV to a maximum of 300V at high impedances in 10 ranges. Frequency range 10-400,000 Hz. Uses a $4\frac{1}{2}$ in meter. Cathode follower output. Price (kit): £19 16s.



Heathkit AV-3U audio millivoltmeter

309-CU

RF probe. Extends the range of a valve voltmeter to 100 MHz. Uses a printed circuit board. Price (kit): £3 4s.

AW-1U

Audio wattmeter. Uses external loads or the following internal loads: 3, 8, 15 and 600 ohms. 5 power ranges from 0.5 mW to 50 watts. $4\frac{1}{2}$ in meter calibrated in watts and dB. Price (kit): £23 14s.



Heathkit AO-1U audio generator

AO-1U ★

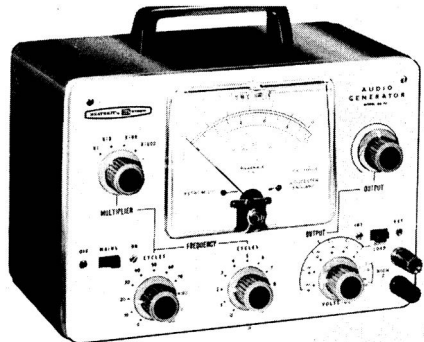
Inexpensive audio generator covering 20 Hz-150 KHz sine wave, 20 Hz-25 KHz square wave. Output up to 10V RMS sine wave or 80V peak-to-peak square wave. Size: $9\frac{1}{2} \times 6\frac{1}{2} \times 5$ in. Price (kit): £14 16s.

IM-58U

Low-priced audio distortion meter. Simple to use. Measures distortion at frequencies between 20Hz and 20 KHz. Size: $13 \times 7 \times 8\frac{1}{2}$ in. Price (kit): £35 14s.

IG-82U

Audio generator covering 20 Hz-1 MHz. Sine and square wave available simultaneously. Sine wave output up to 10V RMS, square wave output up to 10V peak-to-peak. Rise time 0.15 µSec. Size: $13 \times 8\frac{1}{2} \times 7$ in. Price (kit): £25 16s.



Heathkit AG-9U audio generator

AG-9U ★

Audio signal generator. Range: 10 Hz-100 KHz.

★ Indicates entry is illustrated

Distortion less than 0.1% from 20 Hz to 20 KHz. Decade switching over 8 voltage ranges from 3 mV to 10V monitored. Uses 4½in meter. Price (kit): £28.

IM-18U

Valve voltmeter kit. Printed circuit. Measures AC volts (0.1-5, 5, 15, 50, 150, 500, 1,500) RMS. AC volts (0.4, 14, 40, 140, 400, 1,400, 4,000) peak-to-peak, DC volts (0.1-5, 5, 15, 50, 150, 500, 1,500). Ohms (with 10 ohms centre) × 1, 10, 100, 1,000, 10K, 100K, 1 megohm, 0.1 ohms to 1,000 megohms with internal battery. Input resistance: 11 megohms. 200 μA meter movement. Price (kit): £16 14s.

IM-28U ★

Laboratory valve-voltmeter kit. Printed circuit. Gimballed mounting, for viewing from any angle. Measures AC volts (0.1-5, 5, 15, 50, 150, 500, 1,500 RMS); AC volts (0.4, 14, 40, 140, 400, 1,400, 4,000 peak-to-peak). DC volts (0.1-5, 5, 15, 50, 150, 500, 1,500). Ohms (with 10 ohms centre) X1, X10, X100, X1000, 10K, 100K, 1 megohm. 0.1 ohms to 1,000 megohms with internal battery. Input resistance: 11 megohms. 200 μA meter movement. Price (kit): £23 18s.

OS-2 ★

Service oscilloscope. 2½in tube. Vertical bandwidth 2 Hz to 3 MHz. Automatic lock-in sync. Mu-metal CRT shield. Printed circuit. Switched ext/int Y plate connections. Vertical amplifier: sensitivity 100 mV/cm, input impedance: 3.3 megohms shunted by 20 pF, response 2 Hz-3 MHz ± dB. Horizontal amplifier: sensitivity 100 mV/cm, input impedance: 10 megohms shunted by 20 pF, response 2 Hz-3 MHz. Time base: 20 Hz-200 KHz in four steps. Size: 5 × 7½ × 12in. Weight: 9¾ lb. Price (kit): £27 16s.

IO-18U ★

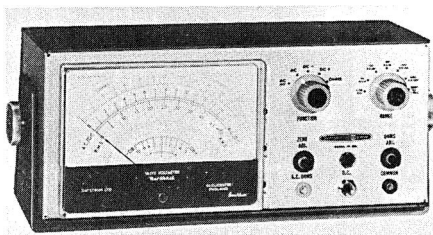
General purpose oscilloscope kit. 5in flat face CR tube. Printed circuits. Vertical band-width 3 Hz to 4.5 MHz. Built-in 1V calibrator. Y-sensitivity 10 mV RMS per cm at 1 KHz. X-sensitivity 50 mV RMS per cm at 1 KHz. Price (kit): £38 18s.

S-3U

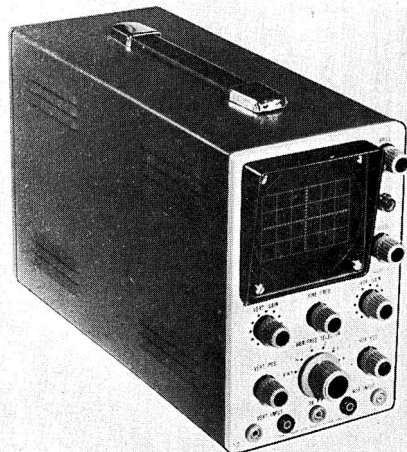
Electronic Switch (oscilloscope trace doubler). Converts a single beam oscilloscope to double beam. Switching rates 150, 500, 1,500, 5,000 and 15,000 Hz. Signal frequency response 0-100 KHz ± 1 dB. Signal input range 0.1 to 1.8V RMS. Price (kit): £15 10s.

HELME

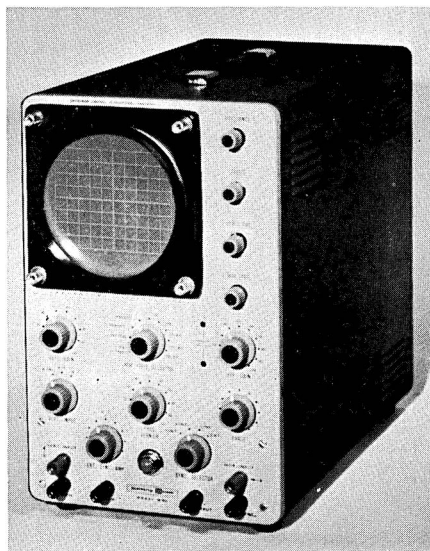
P. F. and A. R. Helme, Summerbridge,
Harrogate, Yorks.
Tel: Darley 279.



Heathkit IM-28U valve voltmeter



Heathkit OS2 oscilloscope



Heathkit IO-18U oscilloscope

Range of easy-to-assemble speaker enclosures for the home constructor ★

Each kit comprises fully finished and polished outer shell (veneered natural teak), set of terminals, wire, uncut baffle, brown Vynair covering. All nuts, bolts and screws are included, also BAF wadding for inside cabinet.

All cabinets are infinite baffle type. Speaker units are not specified but internal volume of cabinet will provide guide together with speaker unit literature and data.

Helme cabinet kits include:

Kit 3

Size: $7\frac{1}{2} \times 7 \times 6$ in. Volume: 3 litres. Price: from £4 12s 6d.

Kit 7

Size: $12 \times 8 \times 7$ in. Volume: 7 litres. Price: from £6 5s.

Kit 10

Size: $14 \times 9 \times 7$ in. Volume: 10 litres. Price: from £7.

Kit 16

Size: $18 \times 10 \times 9$ in. Volume: 16 litres. Price: from £9.

Kit 20

Size: $20 \times 11 \times 9$ in. Volume: 20 litres. Price: from £11 5s.

Kit 25

Size: $21 \times 11 \times 10$ in. Volume: 25 litres. Price: from £11 15s.

Kit 60

Size: $29 \times 21 \times 9$ in. Volume: 62 litres. Price: from £18 10s.

Kit 100

Size: $31 \times 21\frac{1}{2} \times 12$ in. Volume: 100 litres. Price: from £20 10s.

Kits available with baffle boards cut to take units at slight extra cost. Kits 25, 60 and 100 available only to special order.

HENELEC ELECTRONIC PRODUCTS

Henry's Radio Ltd, 303, 309, 354, 356, Edgware Road, London, W2. Tel: 01-723 1008.

PA25 Power Module

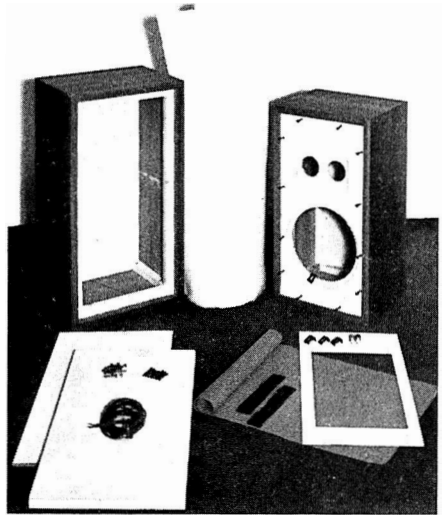
Output: 25W RMS into 8 ohms. Input: 600 mV 15K. Power response: -1 dB 11 Hz-40 KHz. FR: 11 Hz-100 KHz -1dB. Rise time 10 KHz: $2\frac{1}{2}$ μ /secs. HD: 0.3% at 25W RMS at 1 KHz. Edge connector. Size: $5 \times 3 \times 2$ in. Price: £7 10s.

PA50 Power Module

Output: 50W RMS into 4 ohms. Inputs: 700 mV 15K. Size: $5 \times 3 \times 4$ in. All other details as for PA25. Price: £9 10s.

MU442 Mains Unit

Output sufficient to power two PA25 modules or



Helme Cabinet kit (speakers)

one PA50 module. Edge connector for direct connection to power amplifiers. Size: $6\frac{1}{2} \times 3\frac{3}{8} \times 5\frac{1}{2}$ in. Price: £6.

MS18 Stereo Preamplifier

Self-powered. Inputs: mag PU, ceramic PU, aux, radio. Output: adjustable 0-1V. Push-button input selector. Stabilised power supply. Price: £15 10s.

MP9-2 Mono Preamplifier

Self-powered. Inputs: ceramic PU, aux, radio, mic (50K dynamic). Mic input has mixing facility. Push-button input selector. Stabilised power supply. Output: 0-1V. Price: £8 10s.

MPA12/3 and MPA12/15

Power modules. Output: 12W RMS. Input: 100 mV 33K. FR: 20 Hz-18 KHz 3 dB. Output impedance: (MPA12/3) 3-4 ohms, (MPA12/15) 12-16 ohms. Power supply: (MPA12/3) 18V 0.8A peak, (MPA12/15) 36V 0.4A peak. Prices: (MPA12/3) £4 10s; (MPA12/15) £5 5s.

MU24/40 Power Supply

Mains supply unit for powering one or two MPA12 amplifier modules. Price: £4 17s 6d.

Other products available in kit or ready built form include electronic organs. Full details on request.

KEF ELECTRONICS LTD

Tovil, Maidstone, Kent.
Tel: Maidstone 57258. Cables: KEF, Maidstone.

★ Indicates entry is illustrated

Keftkit 2 ★

B139 and T15 drive units on $22\frac{1}{2} \times 13\frac{1}{2} \times 4\frac{1}{2}$ in baffle with brown grille cloth. HC 25W. FR 35 Hz-30 KHz. Impedance 8 ohms. Price: £25 10s.

Keftkit 3

B139, B110 and T27 units on $28 \times 14 \times 10\frac{1}{2}$ in baffle with brown grille cloth. HC 30W. FR 30 Hz-30 KHz. Impedance 8 ohms. Price: £37 10s.

Keftkit 4

B110 and T27 units on $12\frac{3}{8} \times 8\frac{3}{8} \times 4\frac{1}{2}$ in baffle with brown grille cloth. HC 15W. FR 45 Hz-30 KHz. Impedance 8 ohms. Price: £14 14s 6d (plus £3 19s PT).

M.A.C. LTD

Ripley, Surrey.

AAU-2, AAU-3 and AAU-4

Audio interconnecting adaptor unit kits at approx 20 per cent saving compared with commercially built models. All kits supplied with step-by-step instructions, panels ready punched and drilled, fitted with appropriate sockets, ready cut wires, and all necessary plugs, leads, screws and nuts, etc. Prices: AAU-2 £3 3s; AAU-3 £3 5s; AAU-4 £3 10s.

AAU-K

Audio adaptor unit kit enables dealers and enthusiasts to build their own particular switching circuits. Complete chassis includes sub-panel with 20 wiring pins, rear panel with 4 phono sockets, or with 5-pin DIN socket (AAU-KD). 3-way switch positions engraved on fascia. Price: £2 17s.

Full details of the facilities offered by these kits are listed in the sections for pickup accessories, tape accessories, speaker accessories or headphones.

MULLARD LTD

Mullard House, Torrington Place, London, WC1. Tel: 01-580 6633.

Unilex

Four modules—preamplifier, two power amplifiers and one power supply unit—expressly designed for do-it-yourself enthusiasts. Available from radio component shops and audio dealers throughout the UK.

The modules can be interconnected without soldering. No electronic knowledge is required to build up a low-cost stereo amplifier.

An illustrated booklet, *Do-it-yourself stereo*, is also available from audio dealers, price 5s. This booklet provides all the information the do-it-yourself man (or woman) needs to build a stereo system, complete with cabinets, incorporating Mullard modules.

Full details of specifications and prices were not available as this edition of the Hi-Fi Year Book went to press.

PEAK SOUND (Harrow) LTD

32 St Judes Road, Engelfield Green, Egham, Surrey. Tel: Egham 5316.

Construction kits containing the following modules are available. Prices on application.

1-FET/3G

Tuner module. Range: 87.5-108.5 MHz. Variable tuning. Wide band ratio detector. Tuning indicator available. Sensitivity: 2 μ V for 30 dB quieting when used with IFA/4S IF amplifier module. Aerial: 75 ohm coax and 300 ohm balanced. Output for IFA/3S or IFA/4S modules. Multiplex decoder available. Switchable AFC. Psn 12V DC; power supply available. Dual gate FET 3-gang tuning capacitor. Made for Peak Sound by Dormer and Wadsworth. Size: $3 \times 2\frac{1}{2} \times 1\frac{1}{8}$ in. Price: £9 (plus £2 4s PT).

2-FET/4G

Tuner module. Range: 87.5-108.5 MHz. Variable tuning. Wide band ratio detector. Tuning indicator available. Sensitivity: 2 μ V for 30 dB quieting when used with IFA/4S IF amplifier module. Aerial: 75 ohm coax and 300 ohm balanced. Output for IFA/3S or IFA/4S modules. Multiplex decoder available. Switchable AFC. Psn 12V DC; power supply available. Two dual gate FETs. Silver-clad chassis. Four-gang tuning capacitor. Made for Peak Sound by Dormer and Wadsworth. Size: $3 \times 2\frac{1}{2} \times 1\frac{1}{8}$ in. Price: £10 10s (plus £2 11s 4d PT).

1-FA/3S

Amplifier module. Three tuned stages employing silicon transistors. AGC. Printed circuit module with edge connectors. For use with tuner modules above. 150 mV output. Size: $6\frac{1}{2} \times 2\frac{1}{4} \times \frac{3}{4}$ in. Price: £8 5s.

1-FA/4S

IF amplifier module. Three tuned stages employing silicon transistors. AGC. Printed circuit module with edge connectors. For use with tuner modules above. 150 mV output. Size: $6\frac{1}{2} \times 2\frac{1}{4} \times \frac{3}{4}$ in. Price: £8 5s.

SCU 400

Preamplifier stereo module. Inputs: PU (mag) 2.5 mV, RIAA equalised, 68K; PU (ceramic) 5 mV, low impedance equalised, 68K; Aux 60 mV, 80K; for 60 dB (nominal) noise level depending on overall component layout. Output: 400 mV. Psn 20-28V DC, 5 mA. Controls: volume, balance, treble (± 12 dB at 10 KHz), bass (± 12 dB at 100 Hz), function selector, filter (9 KHz at 12 dB per octave), mono/stereo. Size: $7 \times 2 \times 1\frac{1}{4}$ in. Price: £15 15s.

PA/25-15

Power amplifier module. 25W into 15 ohms. HD below 0.1%. FR: 20 Hz-20 KHz -1 dB at 20W at less than 0.25% distortion. Noise level better than 80 dB down. Input for rated output, 500 mV. 2N5192 and 2N5195 transistors. Psn 68V DC, 1 amp. Size: $5\frac{1}{4} \times 3\frac{1}{2} \times 1$ in. Price: £11 15s.

PA/12-15

Power amplifier module. 12W into 15 ohms at 40V DC supply voltage. HD less than 0.1%. FR: -1 dB at 1W, 10 Hz-45 KHz. Feedback 43 dB. Input for rated output 400 mV. Output impedance 8 to 15 ohms. Psn 12 to 50V DC. Size: $5 \times 3\frac{3}{4} \times 1\frac{1}{2}$ in. Price: £5 19s 6d.

ES/10-15

Enclosure kit (Baxandall). All machining completed ready for assembly. Filling material, pure silk grille cloth, screws, etc. Afrosmosia finish. FR flat from 100 Hz to 10 KHz. 10W. Size: $18 \times 9\frac{1}{2} \times 12$ in. Price: £6 3s 6d (plus 12s 8d PT).

ES/10-15

Speaker unit and equaliser. Baxandall designed full range equalised Hi-Fi speaker for ES/10-15 enclosure kit above. Paper cone, plasticised surround. 1in copper voice coil. 10W. FR: 60 Hz to 16 KHz. Recommended crossover, 100 Hz. Size: 9×5 in (nominal). Price: £3 18s 9d (plus 10s 1d PT).

PEERLESS

Distributor: P. F. & A. R. Helme, Summerbridge, Harrogate, Yorks. Tel: Darley 279.

Peerless speaker kits are of 8 ohms impedance. A range of crossover networks is available ready wired and assembled on printed circuit boards. All kits are complete with crossover network or components.

2-8 kit

$6\frac{1}{2}$ in bass and $2\frac{1}{2}$ in HF units. HC: 10W. FR: 50 Hz - 18 KHz. Crossover: 4 KHz. Price: £5 7s 6d (plus £1 6s 6d PT).

2-10 kit

5in bass and 2in HF units. HC: 10W. FR: 50 Hz - 18 KHz. Crossover: 5 KHz. Price: £8 5s (plus £2 0s 10d PT).

3-15 kit

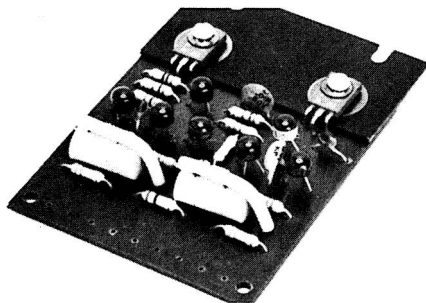
8in bass, 5in mid-range and 2in tweeter. HC: 15W. FR: 45 Hz - 18 KHz. Crossover: 750 Hz and 4 KHz. Price: £10 (plus £2 9s 5d PT).

3-25 kit

12in bass, 5in mid-range and 2in tweeter. HC: 25W. FR: 40 Hz - 18 KHz. Crossover: 750 Hz and 4 KHz. Price: £15 17s 6d (no PT).

20-2 kit

8in bass and $2\frac{1}{4}$ in HF units. HC: 30W. FR:

**Sinclair Z-50**

40-20 KHz. Crossover: 2.5 KHz. Price: £10 2s 6d (plus £2 10s PT).

20-3 kit

8in, 5in and $2\frac{1}{4}$ in units. HC: 40W. FR: 40 Hz - 20 KHz. Crossover: 1,500 Hz and 6 KHz. Price: £15 2s 6d (plus £3 14s 10d PT).

4-30/12 kit

12in bass, 7×5 in mid-range and two $2\frac{1}{2}$ in tweeters. HC: 40W. FR: 30 Hz - 18 KHz. Crossover: 500 Hz and 3.5 KHz. Price: £25 7s 6d (no PT).

SINCLAIR RADIONICS LTD

22 Newmarket Road, Cambridge.
Tel: Cambridge 52996.

Sinclair Z-12

Transistorised mono amplifier module. Eight transistors. Output into 3 ohm load: 5W RMS at 12V, 8W RMS at 15V, 13W RMS at 18V. Output into 1.5 ohm load: 10W RMS at 12V, 16W RMS at 15V. FR 15 Hz-50 KHz ± 1 dB. Sensitivity: 2 mV into 2K. Signal-to-noise: better than 60 dB. Total distortion less than 1%. Size: $3 \times 1.8 \times 1.3$ in. Quiescent consumption on 12V: 15 mA. DC supply required 6-20V. Price: £4 9s 6d (ready built). PZ4 power supply unit: Price £4 19s 6d extra.

Sinclair Z-30

Transistorised mono amplifier module. Nine silicon transistors. Output: 15W RMS into 8 ohms (35V supply), 20W into 3 ohms (30V supply). FR: 30 Hz-300 KHz ± 1 dB. HD: 0.02% at full output into 8 ohms and at all lower power levels. SN: better than 70 dB. Input: 250 mV into 100K. Output impedance: 3-15 ohms. Full instruction manual and circuit diagram supplied with each module. Price: £4 9s 6d (ready built and tested).

Sinclair Z-50 ★

Transistorised mono amplifier module. Similar specification to the Z-30 but uses higher power transistors. Output: 40W RMS into 3-4 ohms, 30W RMS into 8 ohms. Price: £5 9s 6d.

★ Indicates entry is illustrated



Wharfedale Unit 4

Power supply units

(PZ-5) 30V un stabilised. Suitable for two Z30 and Stereo 60. Price: £4 19s 6d. (PZ-6) 35V stabilised. Suitable for two Z-30 and Stereo 60 when low efficiency speakers used. Price: £7 19s 6d. (PZ-8) 45V for use with Z-50 amplifiers (less mains transformer). Price: £5 19s 6d.

SME LTD

Steyning, Sussex, BN4 3LN.

Tel: Steyning 2228.

Model 2000

Plinth system parts available separately, as follows:

Components

Base: teak, rosewood or walnut, £12 7s (plus £3 0s 5d PT); Motor board: teak, rosewood or walnut, £3 19s 6d (plus 19s 5d PT); Acrylic lid: £7 17s 6d (plus £1 18s 6d PT). Spring mounts: (set of four) £3 3s 6d (plus 15s 6d PT); Hinge (left or right) £2 6s 3d.

Accessories

P.1 spacer to adjust height difference when arm is used with a deep turntable, 15s (plus 3s 8d PT). Pickup mounting boards: TD124/3009 for model 3009 on Thorens TD124, £2 17s 6d (plus 14s PT); TD124/3012 for model 3012 on Thorens TD124, £3 10s (plus 17s 1d PT); TD125/3009 for model 3009 on Thorens TD125, £2 17s 6d (plus 14s PT); TD125/3012 for model 3012 on Thorens TD125, £3 10s (plus 17s 1d PT); TD150/3009 for model 3009 on Thorens TD150, £2 17s 6d (plus 14s PT); TD150/3012 for model 3012 on Thorens TD150, £3 10s (plus 17s 1d

PT). Mounting brackets: PS200/TD125 for fitting Thorens TD125 to motor board, £1 2s 6d (plus 5s 6d PT).

WELBROOK

Welbrook Engineering & Electronics Ltd,
Brooks Street, Stockport, SK1 3HT, Cheshire.
Tel: 061-480 4268.

AMP103

Mono or stereo solid state amplifier module. HD: <0.1% at all levels. FR: 30 Hz-30 KHz -1 dB. Feedback: 34 dB. NL: -80 dB. Input voltage RMS: 100 mV into 100K. Output: 15W. Impedance: 0.25 ohms. Output transistors: two 2N3055. Psn: 45V at 0.7A. Dimensions: 6 1/2 x 3 x 2 1/2 in (stereo version). Control unit: any having 100 mV output. Prices: mono £8; stereo £15.

Ferranti equipment

Devices and printed circuit boards for all Ferranti amplifier and tape amplifier designs. Full details on request.

See Amplifier Section for details of Welbrook W20 and W30 amplifiers.

WHARFEDALE

Rank Wharfedale Ltd, Bradford Road, Idle, Bradford, Yorks. Tel: Bradford 612552.

Unit 3 kit

Do-it-yourself hi-fi two-speaker kit comprising 3in tweeter and 8in bass unit. Suitable for output impedance 4-8 ohms. HC 15W RMS. Crossover supplied operates at 1,750 Hz. The tweeter has Acoustiprene dome diaphragm. Acoustic wadding, mounting bolts and connecting wire, etc, are included. Price: £8 14s 9d (plus £2 2s 9d PT).

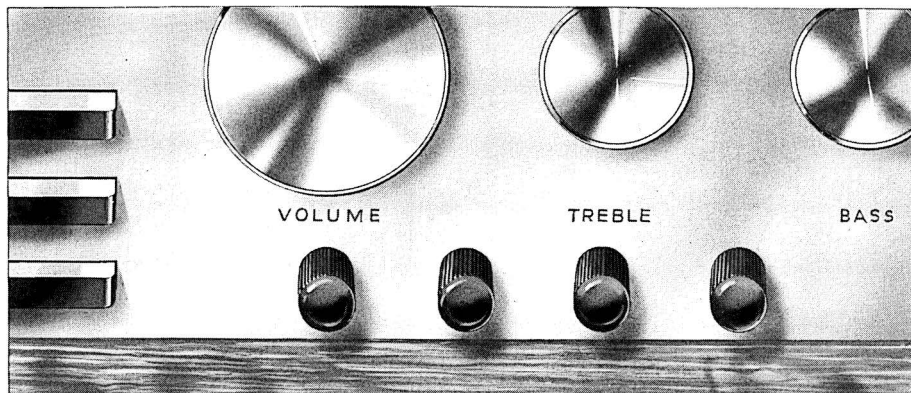
Unit 4 kit ★

Two-speaker kit for floor-standing enclosure. Incorporates 12in bass driver and 3in treble unit. Four-element crossover. When assembled into suitable enclosure is equivalent to Wharfedale Melton. Price: £16.

Unit 5 kit ★

Three-speaker kit for floor-standing enclosure. Incorporates 12in bass driver, 5in mid-range unit and 1in tweeter. Six-element crossover network. When assembled into suitable enclosure is equivalent to Wharfedale Dovedale. Price: £23 10s.

Wharfedale kits include speakers, crossover network, acoustic wadding, mounting bolts, connecting wire and full instructions. No expert technical knowledge needed. Cabinets are not included.



As well as the record shop **E.M.G.** have an exceptionally well appointed equipment department

It contains a most attractive array of products acknowledged to be the best of their kind available, and selected for their excellent performance, quality and reliability. What you will find there covers a usefully wide price range. More important, however, is the extent to which E.M.G. will willingly go to ensure customer satisfaction. Make your requirements known to E.M.G. and you can depend on receiving thorough and impartial advice. This might mean substituting a single item in an existing installation, a conversion and modern-

isation of what you have already, or a complete new installation. When you become a customer of E.M.G., you will find that service can go on long past the time of your purchase and that the Company identifies itself with your interests completely. There is no better way to ensure good listening. For a start, might we suggest, without obligation, a demonstration in our showroom? You will find our approach to high fidelity very much what you have always wanted.

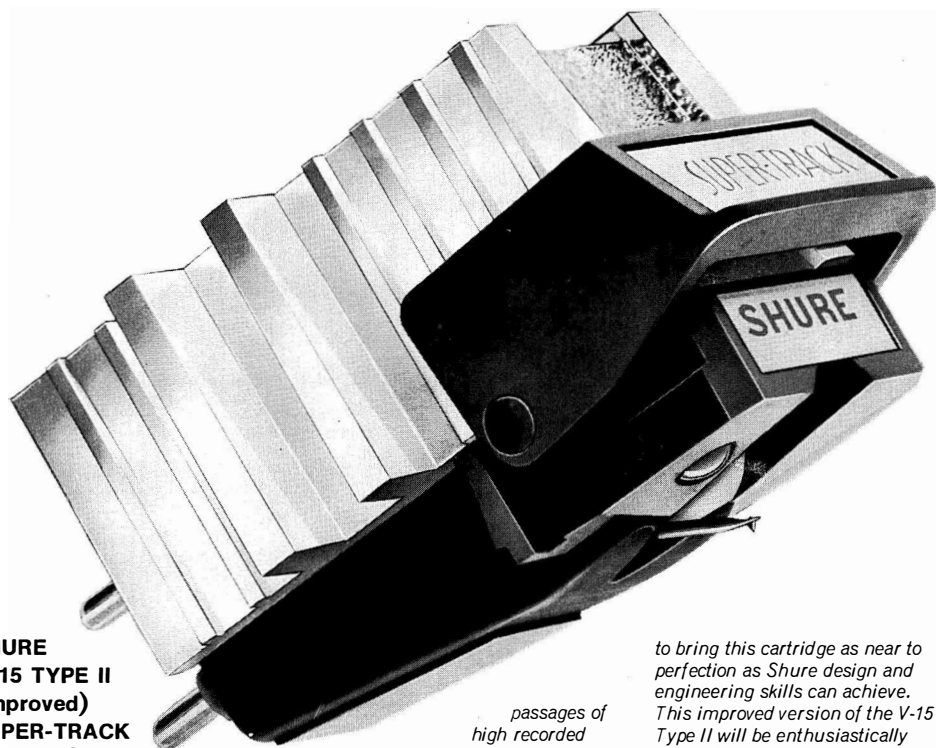
There is also the record shop for records of classical and serious modern works and the E.M.G. Monthly Letter (30/- post free for twelve months) to inform and advise on current releases. A well organised records-by-post department serves those unable to call in person.

E.M.G. HANDMADE GRAMOPHONES LIMITED
26, SOHO SQUARE, LONDON, W1V 6BB

Telephone 01-734 4331

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the top trackability cartridge



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This magnificent cartridge continues to sell throughout the world at an unequalled rate. The Shure V-15 Type II stands alone because it is the first cartridge designed to match in every respect the performance of your records, even the most difficult ones to track. It is unique in its ability to track

passages of high recorded velocity at $\frac{3}{4}$ to $1\frac{1}{2}$ grammes without distortion and loss of fidelity.

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to bring this cartridge as near to perfection as Shure design and engineering skills can achieve. This improved version of the V-15 Type II will be enthusiastically received by the perfectionist who demands, and is happy to pay for, audio equipment of supreme excellence.

SHURE V-15 TYPE II (Improved) SUPER-TRACK with bi-radial elliptical stylus (.0002 inch x .0007 inch)—15° tracking—unique "flip-action" built-in stylus guard.

-now even better!

Directory of Microphones

Abbreviations: **FR**=frequency response; sensitivity is quoted in -dB (dB down) relative to 1V/dyne/cm².

★ indicates model is illustrated.

ACOS

Cosmocord Ltd, Eleanor Cross Road,
Waltham Cross, Herts.

Tel: Waltham Cross 27331.

Mic 70/12

Omni-directional moving coil. FR: 80 Hz-12 KHz (10 dB down at 50 Hz and 15 KHz). Impedance: 200 ohms. Rec load: 200 ohms-10K. Sensitivity: -80 dB re 1V/ μ b. Price: £7 10s.

Mic 70/11

Omni-directional moving coil. FR: as for Mic 70/12. Impedance: 50K nominal. Sensitivity: -57 dB re 1V/ μ b. Price: £8 8s.

ADASTRA ELECTRONICS LTD

167 Finchley Road, Swiss Cottage,
London, NW3. Tel: 01-624 8164/5.

Imp-Verta ★

Matches low impedance microphones, PU cartridges and tape heads into high impedance amplifier inputs. Solid state printed circuit device using silicon transistor. Automatically switched internal 9V battery. Negligible drain. Conversion factor approximately 20 (depending on load). Virtually no hum or signal loss. Metal case, black crackle finish. Size: 5 × 1½ × 1¼ in. Price: £3 10s.

A.K.G.

Distributors: A.K.G. Equipment Ltd,
182/184 Campden Hill Road, Kensington,
London, W8. Tel: 01-229 3695.

C12A ★

Professional condenser microphone. Variable polar diagram covering cardioid, omni, figure-of-eight and six intermediate positions. FR 10 Hz-20 KHz. Sensitivity -68 dB. Impedance 50 and 200 ohms. Rec load >150 and 500 ohms. Fitting: ⅜ in whit, ½ in 26 tpi, ⅝ in 27 tpi. Metal case finished matt silver. Price: £140.

C24 ★

Stereo condenser. Sensitivity 1 mV/bar. Imp 200 or 500 ohms. Response 30 Hz-20 KHz. Omni-directional cardioid; bi-directional, hyper-cardioid. Plus 5 intermediate patterns. Sensitivity approx 1 mV per microbar (at 200 ohms output terminals) -33 dB re 1 milliwatt at a sound pressure of 10 dynes/cms. Crosstalk between channels <40 dB throughout entire range. Imp <200 ohms when delivered. 50 ohms by changing solder connections. N.24 power supply unit. Remote control unit. Twin remote control cable. Price: £270.

C41

FET condenser microphone with cardioid, sharp cardioid or omni-directional capsule. FR 20 Hz-20 KHz. Prices: microphone, preamplifier and one capsule £45 10s; mains power unit with outputs for four microphones £42 nett; battery power unit £16 10s.

D11D-HL ★

Moving coil cardioid microphone. Incorporates adaptor to change polar response from cardioid to super- and hyper-cardioid. FR 80 Hz-15 KHz. Front-to-back ratio: 16 dB. Impedance: 500 ohms or 50K. Sensitivity: 72.5 dB at 500 ohms, 54 dB at 50K. Price: £9.

D12 ★

Moving coil with cardioid directional pattern. Response 40 Hz-12 KHz ±4 dB. Front to back ratio 15 dB. Sensitivity -77 dB. Imp 60 ohms, or to order. Price: £30.

D14 ★

Dynamic cardioid microphone. Imp 60-40,000 ohms. Response 50 Hz-15 KHz. On/off switch. Swivel joint fits all stand threads. Supplied with 5½ yds two-core screened lead. Weight: 8 oz. Price: £10 15s.

D19C

Moving coil with cardioid directional pattern and bass cut switch. Response: 40 Hz-16 KHz. Impedance: 60 or 200 ohms. Price: £18.

D19E

Moving coil with cardioid directional pattern. Response 40 Hz-16 KHz. Built-in transformer provides 3 different impedances: 50, 200 ohms. 50K. Price: £22 10s.

D58 ★

Moving coil, close-talk microphone. Response 50 Hz-12 KHz. Sensitivity 0.1 mV/bar. Imp 60 or 200 ohms. Price: £11 15s.

D109 ★

Omni-directional moving coil. FR 50 Hz-15 KHz ±3.5 dB. Sensitivity -98 dB. Impedance: 60 and 200 ohms. Rec load ≥400 ohms. Hand and lavalier type. Supplied with lavalier cord. Higher frequencies boosted when lavalier attached. Metal case nickel plated. Price: £12.

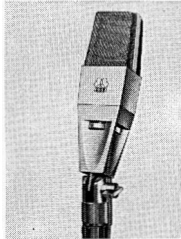
★ Indicates entry is illustrated



Adastra Imp-Verta



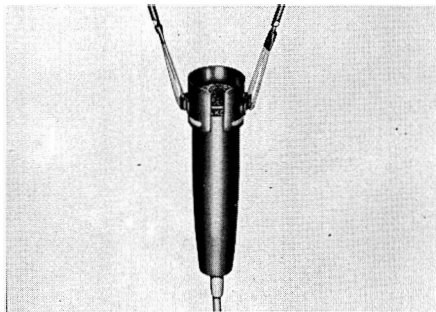
AKG D11D



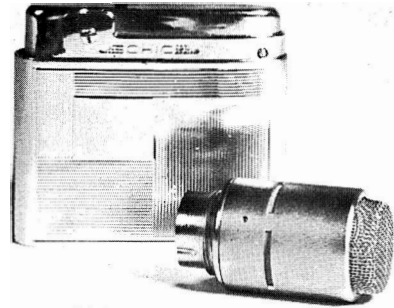
AKG C12A



AKG C24



AKG D109



AKG D58 moving coil



AKG D12 moving coil



AKG D501 cardioid moving coil



AKG D14 cardioid

D190

Uni-directional moving coil microphone. Robust construction. FR 30 Hz-16 KHz. Ideal for sound recording and public address systems. Complete with Cannon XLR 3-11C connector. Prices: low impedance (60 or 200 ohms) £18 5s; high impedance £19 5s.

D200C

Two-system cardioid microphone. Incorporates two moving coils, one covering the low and the other the high frequencies. FR 40 Hz-16 KHz. Sensitivity 0.16 mV/microbar. Imp 200 ohms. Price: £24 10s.

D.202E1 ★

Similar specification to D.202ES except it is supplied without on/off switch and has three-position bass attenuation step switch (0, -7 dB and -20 dB) instead of potentiometer. Individually calibrated frequency response curves supplied with each microphone. Price: £37.

D202ES ★

Moving coil microphone with marked cardioid response (-20 dB minimum). FR 30 Hz-15 KHz ± 2 dB. Sensitivity -53 dB. Impedance 200 ohms. Rec load ≥ 400 ohms. Stand fitting swivel adaptor, $\frac{3}{8}$ in Whit, $\frac{1}{2}$ in 26 tpi, $\frac{5}{8}$ in 27 tpi. On-off switch and variable bass control providing 0 to -20 dB at 50 Hz. Strong black metal case with sintered bronze grille. Price: £32.

D224 ★

Mono moving coil. Sensitivity: -78 dB re 1V/ μ b. Cardioid response. FR: 20 Hz-20 KHz ± 2 dB. Impedance: 200 ohms. Rec load: 500 ohms or more. Fitting: $\frac{3}{8}$ in Whit, $\frac{1}{2}$ in 26 tpi, $\frac{5}{8}$ in 27 tpi. Features bass cut switch. Finish: metal satin silver. Price: £55 10s (DIN connector); £57 (Cannon).

D501 ★

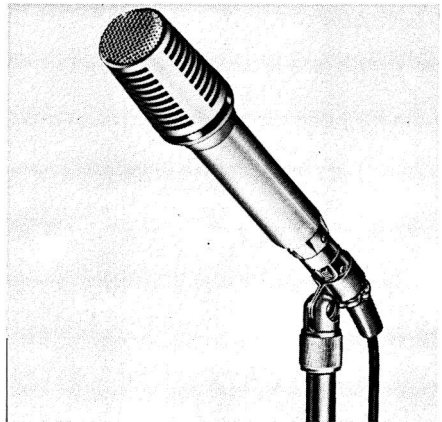
Moving coil cardioid and omni-directional model. FR 50 Hz-15 KHz ± 3.5 dB. Sensitivity -73 dB. Impedance 60 or 200 ohms. Rec load: ≥ 400 ohms. Hand or stand type. Fitting: $\frac{3}{8}$ in Whit, $\frac{1}{2}$ in 26 tpi, $\frac{5}{8}$ in 27 tpi. Omni/cardioid switch. Remote control switch. Built-in windshield. Quick release adaptor. Leatherette carrying bag. Moulded case with metal grille. Price: £13 10s.

D707 ★

Mono moving coil. Sensitivity: -74 dB re 1V/ μ b. Cardioid response. FR: 80 Hz-16 KHz ± 3.5 dB. Impedance: 200 ohms. Rec load: 400 ohms or more. Fitting: $\frac{3}{8}$ in Whit, $\frac{1}{2}$ in 26 tpi, $\frac{5}{8}$ in 27 tpi. Finish: metal satin silver. Price: £13 (DIN connector); £15 10s (Cannon).

D.1000 ★

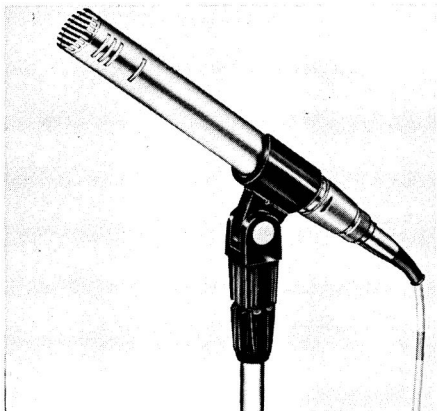
Moving coil cardioid microphone with three-position switch giving three different sounds. Developed especially for electronic musicians



AKG D200E



AKG D202CS

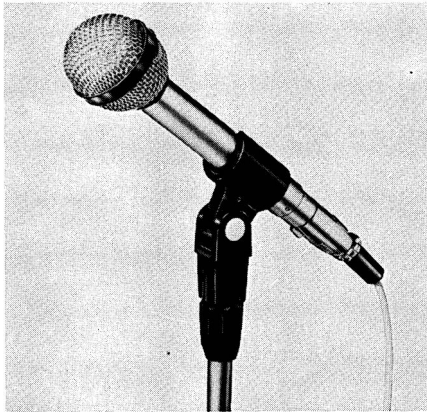


AKG D224CS

★ Indicates entry is illustrated



AKG D202 moving coil



AKG D707



AKG D1000C

where feedback is important. Impedance 60 or 200 ohms. FR: position 1, 40 Hz-16 KHz; position 2, 70 Hz-16 KHz; position 3, 100 Hz-16 KHz. Front-to-back ratio: 20 dB. Sensitivity: -78 dB at 60 ohms, -72 dB at 200 ohms. Various finishes offered including studio grey and 24 carat gold. For high impedance inputs a lead with line transformer is available. Sensitivity at high impedance: -50 dB. Price: from £29 according to requirements.

ST200

Microphone floor stand. Telescopic. Height: 42 to 77in. Three collapsible feet with main support locking device. Anti-vibration characteristics. Microphone may be clamped to face any direction. Price: £18 10s.

K58

Microphone headset. Incorporates microphone D58 and headset K50 (see Headphone Section). Price: £14 10s.

BANG & OLUFSEN UK LTD

Eastbrook Road, Gloucester, GL4 7DE.

Tel: Gloucester 21591.

BM6 ★

Pressure gradient ribbon microphone. Figure-of-eight. Three-position switch for speech, music and off. Impedance 180 ohms. FR: 30 Hz-13 KHz ± 2 dB. Size: 7in high, 1in diameter. Price: £27 10s in presentation case with desk stand and lead.

BM7

Adding the BM7 microphone converts the BM6 to a BM5 mono/stereo microphone. Records in both MS and A-B method. Size: 10½in high, 1in diameter. Price: £11.

BM5 ★

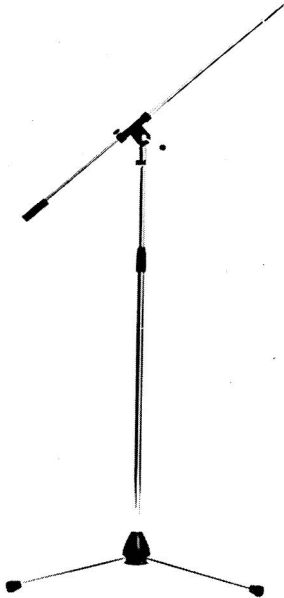
Stereo microphone comprising BM6 and BM7. FR 30 Hz-13 KHz ± 2 dB. Imp 180 ohms per channel. Price: £38 10s in presentation case with desk stand and lead.

Beomic 1000 ★

Moving coil omni-directional. FR: 50 Hz-17 KHz (+2 dB -5 dB). Sensitivity 80 dB below 1V/microbar. Imp 200 ohms. Hand type with removable table stand. Taper fitting for B & O floor stand and boom arm. Supplied with transparent or black container and anti-microphonic table stand. Satin chrome. Price: £10 10s.

Beomic 2000

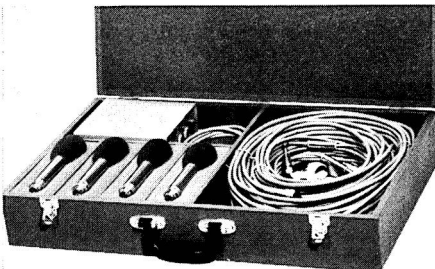
Moving coil cardioid (omni-directional capsule unit available as optional extra). FR: 50 Hz-15 KHz. Sensitivity: -80 dB. Impedance: 200 ohms. Rec load: 200 ohms. Hand microphone with foldaway legs and threaded socket for stand. Continental thread. Price to be announced.



Bang & Olufsen floor stand



Bouyer 709 cardioid moving coil



Calrec capacitor microphones

Table Stand

Tripod stand to fit B and O microphones. Price: £1 10s.

Floor Stand

Stable floor stand for B and O microphones. Black and chrome. Price: £9 5s.

Boom Arm

Adjustable boom arm to match floor stand above. Price: £6.

6001

Microphone line transformer. Five-pin DIN socket at one end, three-pin DIN plug at the other. Plugs into tape recorders with high impedance input (50K). Fully screened. £3 10s.

BOUYER

Distributors: Douglas A. Lyons and Associates Ltd, 8 Ryecotes Mead, Dulwich, London, SE21. Tel: 01-693 2855.

709 ★

Moving coil microphone with marked cardioid response. Rear to front attenuation 20 dB. FR 150 Hz-14 KHz ± 3 dB. Sensitivity -63 dB reference 1V/dyne/cm². Impedance 20 ohms. Rec load 20-150 ohms. Robust construction. Stand fitting with flexible stem. Hand grip available. Price: (cardioid head) £12 10s. Fittings extra as required.

710

Similar to 709 but with extended bass response and super cardioid response pattern. Suitable for close-talking applications. Impedance 200 ohms. Price: (cardioid head) £25 10s. Fittings extra as required.

BRITISH RADIO CORPORATION LTD

Thorn House, Upper St Martin's Lane, London, WC2. Tel: 01-836 2444.

Cardioid microphone

Dynamic microphones with variable cardioid characteristics. Switch positions for optimum results on speech and music. Supplied complete with desk stand and tripod adaptor. Low impedance version TA/24. High impedance version TA/20. Price on application.

CALREC

Calder Recordings Ltd, Regent Street, Hebden Bridge, Yorkshire. Tel: Hebden Bridge 2159.

CM600 ★

General purpose condenser microphone. Omni-directional. FR: 20 Hz-20 KHz. ± 2 dB. Output: 1.5 mV/microbar. Impedance: 50 ohms (un-balanced). Rec load: 30-500 ohms (adjustment on mic). Slim hand or stand mic. Robust

★ Indicates entry is illustrated

encapsulated FET amplifier. Optional windshield. Three-pin DIN lock-ring connectors. Two-year guarantee. Price: £23 4s.

CM652

Condenser microphone with accurate cardioid pattern. Other details as for CM600. Price: £28 11s.

CM654

Condenser microphone with cardioid pattern and reduced bass response for close-talking applications. Other details as for CM600. Price: £29 6s.

CM800

Miniature studio condenser microphone. Omni-directional. FR: 20 Hz-20 KHz ± 2 dB. Output: 0.25 mV/microbar. Impedance: 50 ohms (balanced). Rec load: 30-200 ohms (adjustment on mic). Slim hand or stand mic. Robust encapsulated FET amplifier. Optional windshield. Three-pin DIN lock-ring connectors. Two year guarantee. Price: £43.

CM850

Miniature studio condenser microphone with accurate directional pattern and reduced low frequency response for close-talking applications or boom use. Other details as for CM800. Price: £46.

CM1000

Studio condenser microphone. Omni-directional. FR: 20 Hz-20 KHz ± 2 dB. Output: 0.3 mV/microbar. Impedance: 50 ohms. Rec load: 30-200 ohms (adjustment on mic). Slim hand or stand mic. Cannon XLR connectors. Robust encapsulated FET amplifier. Two year guarantee. Optional windshield. Price: £44 6s.

CM1050

Studio cardioid microphone with accurate directional pattern. Other details as for CM1000. Price: £48 16s.

Wide range of accessories including battery power units, mains power units, connecting leads, windshields, jacks, plugs, adaptors, presentation boxes, twin screened cables, etc. Full details and price list on request.

CMS.1

Aluminium microphone stand. Finish: natural aluminium and black. Price: £7 2s.

CBA.1

Aluminium boom arm. Finish: natural aluminium and black. Price: £5 10s.

EAGLE PRODUCTS

Distributors: B. Adler & Sons (Radio) Ltd, Coptic Street, London, WC1.
Tel: 01-636 9606/7. Cables: Reldab, London.

DM16HL ★

Mono moving coil. Omni-directional. FR 40 Hz-15 KHz ± 3 dB. Sensitivity: -62 dB. Impedance: 500 ohms and 50K. Stand mic. Fitting: 15.5×1 mm thread. Built-in impedance switch. Finish: satinised alloy. Price: £6 12s 4d.

DM18HL ★

Mono moving coil. Omni-directional. FR 60 Hz-12 KHz ± 3 dB. Sensitivity: -57 dB. Impedance: 600 ohms and 50K. Built-in impedance switch. Rec load: 600 ohms and 50K. Stick mic for hand or stand. Fitting: 15.5×1 mm thread. Complete with desk stand. Finish: black anodised aluminium. Price: £7 6s 6d.

DM31C ★

Mono moving coil. Cardioid. FR 40 Hz-13 KHz. Sensitivity: -52 dB. Impedance: 50K. Rec load: 50K. Stick mic for hand or stand. Fitting: 15.5×1 mm thread. Built-in on/off switch. Finish: satinised stainless steel. Price: £7 14s 4d.

DM34C ★

Mono moving coil. Cardioid. FR 50 Hz-13 KHz ± 3 dB. Sensitivity: -55 dB. Impedance: 50K. Rec load: 50K. Stick mic for hand or stand. Fitting: 15.5×1 mm thread. Built-in on/off switch. Finish: satinised stainless steel. Price: £6 12s 4d.

DM58HL ★

Mono moving coil. Cardioid. FR 35 Hz-15 KHz ± 3 dB. Sensitivity: -68 dB. Impedance: 200 ohms and 50K. Rec load: 200 ohms and 50K. Stand mic. Fitting: 15.5×1 mm thread. On/off switch. Anti-pop and boom mesh cover. Finish: satinised stainless steel. Price: £11 0s 6d.

UD50HL ★

Mono moving coil. Cardioid. FR 40 Hz-14 KHz ± 3 dB. Sensitivity: -62 dB. Impedance: 600 ohms and 50K. Hand and stand mic. Fitting: 15.5×1 mm thread. Built-in on/off switch. Finish: satinised stainless steel. Price: £8 7s 6d.

ELECTRO-VOICE

UK agents: Hisonic Ltd, Tovil, Maidstone, Kent.
Tel: 0622 57258. Cables: KEF, Maidstone.

642 ★

Moving coil. Cardiline uni-directional. FR: 30 Hz-10 KHz. Sensitivity -48 dB. Imp 50, 150, 250 ohms. Transformer fitted. Cardioid up to 500 Hz, sharply directional above. Price: £119.

635A

Moving coil. Omni-directional. FR: 80 Hz-13 KHz. Sensitivity -55 dB. Imp 150 ohms or high Z. Transformer fitted. Price: £32 1s 8d.

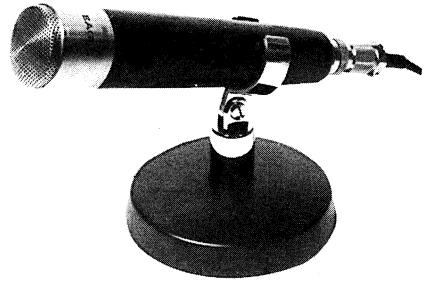
649B

Lavalier moving coil microphone. Omni-directional. FR: 100 Hz-9 KHz ± 3 dB. Sensitivity

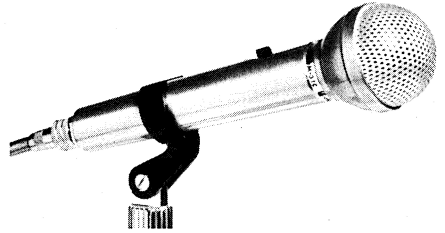
MICROPHONES



Eagle DM16HL



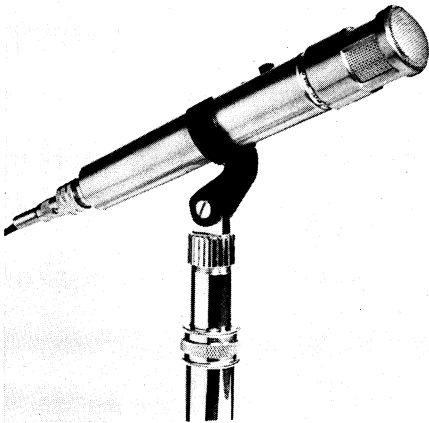
Eagle DM18HL



Eagle DM31C



Eagle DM58HL



Eagle DM34C



Eagle UD50HL

★ Indicates entry is illustrated

—61 dB. Imp 20-250 ohms. Transformer fitted. Weight only $1\frac{1}{2}$ oz (less cable). Price: £31 15s 10d.

668

Moving coil. Cardioid. FR: 40 Hz-10 KHz. Sensitivity —51 dB. Imp 50, 150, 250 ohms. Transformer fitted. Integral equaliser. Windshield and shockmount included. Designed specially for boom operation. Price: £194 16s 8d.

643

Moving coil. Super cardioid. FR: 30 Hz-10 KHz. Sensitivity —48 dB. Imp 50, 150, 250 ohms. Transformer fitted. Super directional with in-built 100 Hz high-pass filter. Long range pickup. Windshield and shockmount included. Price: £507 10s.

RE15

Cardioid microphone. FR: 80 Hz-15 KHz. Acceptance angle; 150 deg. Impedance: 150 ohms. Output level: —56 dB. Finish: matt satin nickel. Integral bass compensation switch. Price: £77 8s 10d.

644

Uni-directional line microphone. FR: 40 Hz-10 KHz. Output: —53 dB. Acceptance angle: 90 deg. Combination cardioid and distributed front opening instrument. Impedance change without tools by moving a single pin. Price: £31 17s.

654A

Dynamic omni-directional microphone. FR: uniform from 50 Hz-15 KHz. Sensitivity: —151 dB. Output level: —57 dB. Impedance: 50-250 ohms, line balanced to ground and phased. Finish: non-reflecting grey. Dimensions: $6\frac{1}{8} \times 1\frac{1}{4}$ in dia. Weight (less cable) 7 oz. Price: £30 6s 8d.

676

Dynamic cardioid microphone. FR: uniform 60 Hz-15 KHz. Impedance: 150 ohms and high impedance, selectable. Output level: —57 dB for 150 ohms. Sensitivity: —151 dB. Finish: pressure-cast zinc alloy satin chrome. Dimensions: $7\frac{7}{8} \times 1\frac{1}{4}$ in dia. Weight (less cable): 12 oz. Price: £28 16s 4d.

602TR

Hand-held differential transistorised. Price: £26 16s 8d.

603TR

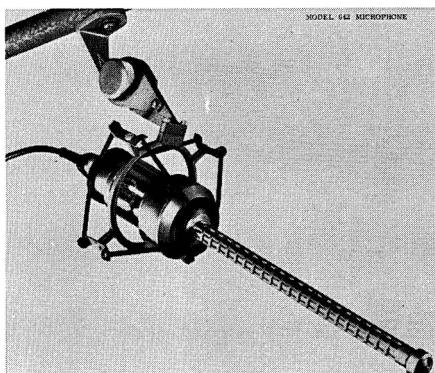
Hand-held differential transistorised. Price: £40 9s 10d.

623

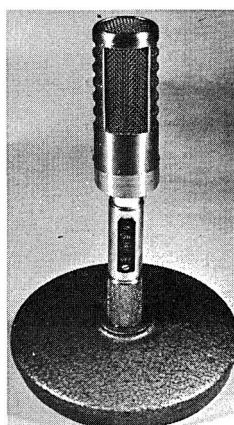
Omni-directional. Price: £16 11s.

FILM INDUSTRIES LTD

Station Avenue, Kew Gardens, Surrey.
Tel: 01-940 8078.



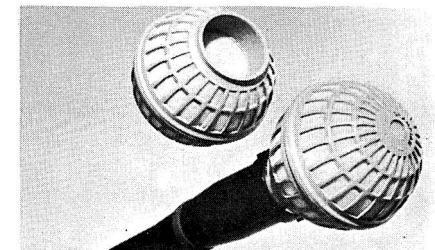
Electro-Voice 642



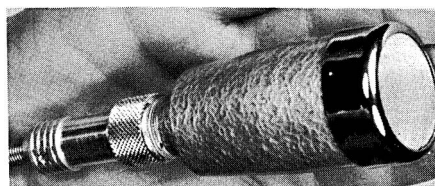
*Film industries M8S ribbon
on S.6. desk stand*



*Film industries M8 ribbon
on S.6. desk stand*



Grampian DP4 and windshield



Grampian DP6

M8 ★

Ribbon. FR: 50 Hz-13 KHz. Figure-of-eight polar diagram. Available matched to all impedances up to 57K. Plug and socket joint between microphone head and flexible. Fitted with 12ft screened cable, other lengths to order. Table, desk and floor stands available. Price (all impedances): £10 19s; (with on/off switch): £13 1s.

M8A

Ribbon. Similar unit to M8 but without plug and socket connection between head and flexible. Small detachable desk stand provided. Other stands available. Available in all impedances up to 57K. Price: £10 10s; (with on/off switch): £12 2s 6d.

M8S ★

Ribbon. Similar unit to M8 but with angled base in place of flexible. Small detachable desk stand provided. Other stands are available. Available in all impedances up to 57K. Price: £10 5s; (with on/off switch): £11 17s 6d.

Microphone stands

Desk, table and floor stands. Grey hammer finish with cast iron bases. Stems in satin chrome. Prices from £1 5s.

Matching transformer

In mu-metal screened case for fitting into microphone lead. Impedance ratio: 30 ohms to 60K. Price: £3 10s.

Microphone switch assembly

Suitable for use with all microphones. Price on request.

FOSTER

Distributors: E. R. Factors Ltd,
378 Harrow Road, Paddington, London, W9.
Tel: 01-286 9530.

DF-71C

Mono dynamic omni-directional. Impedance: 50K. FR: 100 Hz-10 KHz. Removable windshield, stand adaptor and neck harness supplied. Finish: black enamel and satin chrome. Price: £5 19s 6d.

DF-72BC

Mono omni-directional dual impedance dynamic. Impedance: 600 ohms or 50K. FR: 80 Hz-12 KHz. On/off switch. Windshield and stand adaptor supplied. Price: £6 19s 6d.

B-1402

Two-section chrome table stand, 9½in closed, 14in extended. Black enamel base. Price: £1 15s.

B-1403

Three-section floor stand. Chrome stem. Heavy cast base. 22in closed, 55½in extended. Price: £3 19s 6d.

B-1404

Three-section floor stand with folding base. Chrome stem. Closed 22in, open 60in. Enamelled tripod legs. Price: £3 19s 6d.

B-1410

Three-section floor stand with folding tripod base. Closed 22in, extended 62in. Chrome finish. Friction ring extension locks. Includes B-1415 33in boom arm. Counterbalanced. Complete with stand tilt adaptor and locking bolts. Price: (complete) £7 19s 6d.

B-1411

Two-section heavy duty floor stand. Price: £7 19s 6d.

B-1416

Counterbalanced boom arm for B-1411. Price: £4 4s.

GRAMPIAN REPRODUCERS LTD

Hanworth Trading Estate, Feltham, Middx.
Tel: 01-894 9141. Cables: Reamp, Feltham.

DP4/H ★

Moving coil. FR: 50-15,000 Hz. Sensitivity — 52 dB, — 70 dB, — 86 dB, for high, medium and low impedance. 50,000, 600 and 25 ohms. Tubular case. Price including lead: high or medium impedance: £11 5s; low impedance £9 10s.

DP6 ★

Moving coil. Omni-directional. FR: 200 Hz-15 KHz. Sensitivity — 87 dB (25 ohms), — 75 dB (200 ohms), — 50 dB (600 ohms), — 52 dB (50K). Built-in transformer fitted to all but low impedance model. Price: (low impedance) £9 10s; (other three models) £11 5s.

GRI

Ribbon. Unequal figure-of-eight. Response 40 Hz-15 KHz. Sensitivity — 90 dB (25 ohms), — 81 dB (200 ohms), — 76 dB (600 ohms), — 58 dB (50K). Imp 25, 200, 600 ohms, 50K. Built-in transformer. Easily replaceable ribbon. Price: (25/30 ohms and 200 ohms) £12 15s; (600 ohms and 50K) £12 15s; (in padded instrument case) £14 5s.

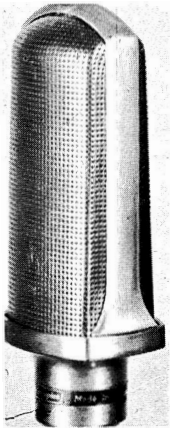
GR2 ★

Details as for GR1, but equal figure-of-eight response.

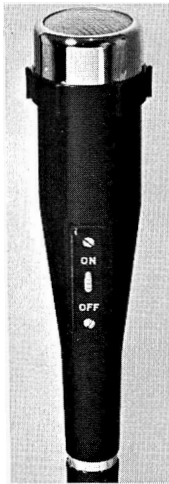
GC1 series ★

Moving coil cardioid microphones. FR: 40 Hz-12 KHz ± 5 dB. Metallic diaphragms. Interchangeable leads. Various stands and accessories. Imp GC1/L 25 ohms, rec load 15-50 ohms; GC1/X 200 ohms, rec load 150-300 ohms; GC1/M 600 ohms, rec load 500-1,000 ohms; GC1/50K, rec load 50K and upwards. Sensitivities: GC1/L — 86 dB, GC1/X — 75 dB, GC1/M — 70 dB, GC1/H — 52 dB. Prices: GC1/L £15; GC1/X £16; GC1/M, GC1/H £16 15s.

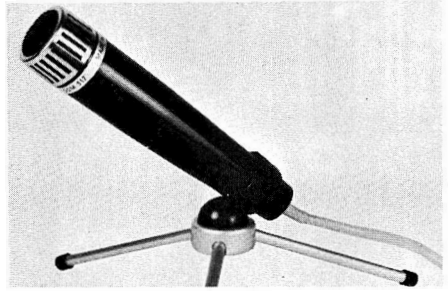
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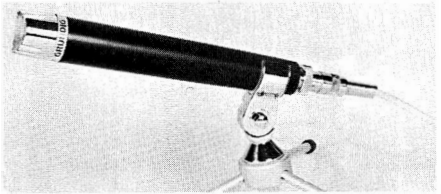
Grampian GR2 ribbon



Grampian DP8



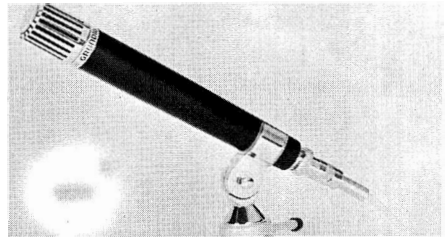
Grundig GDM317



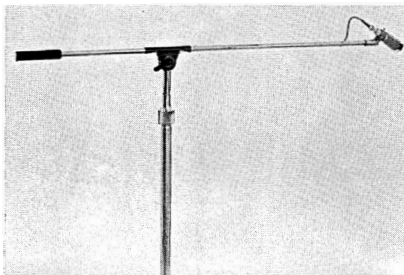
Grundig GDM321



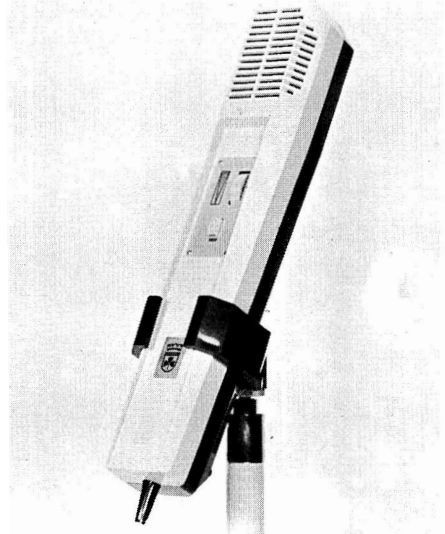
Grampian GCI on circular base



Grundig GDM322



Grampian boom arm



Grundig GDM328

DP8 series ★

Moving coil omni-directional microphones. FR: 50 Hz-15 KHz \pm 5 dB. Built-in on/off switch. Interchangeable leads. Hand type with swivel holder for stand use. Sensitivities, impedances and rec loads as for DP4 series. Prices: DP8/L £11 5s; DP8/X, DP8/M, DP8/H £12 15s.

Boom arm ★

Suitable for use with various types of mics and stands. The clamp, locked by a single lever, allows the reach and angle to be readily adjusted as required. Length: 34in. Weight: 1 $\frac{3}{4}$ lb. Thread termination for mic $\frac{5}{16}$ in BSF male, thread termination for stand $\frac{5}{16}$ in \times 27 tpi female. Supplied with adaptor to $\frac{5}{16}$ in BSF female. Adaptors for other sizes available. Price: £6 12s 6d.

Windshields

For use with DP4, DP6 and DP8 mics. Pressure moulded cage with an inner lining and acoustic resistance network to reduce air turbulence to a low value. Size: 2 $\frac{3}{4}$ in diameter. Weight: $\frac{3}{4}$ oz. Price: £1 1s.

GRUNDIG (Great Britain) LTD

Newlands Park, Sydenham, London, SE26.
Tel: 01-778 2211.

GDM317 ★

High quality directional moving coil microphone with cardioid response. Recommended for acoustically unfavourable conditions. Output impedance: 200 ohms and 22K (dual). FR: 50 Hz-12.5 KHz. Supplied with tripod table stand. Price: £10 10s.

GDM321 ★

Moving coil stick microphone. Dual low/high impedance, 200 ohms/100K. FR: 40 Hz-20 KHz. Supplied with adjustable table stand. Price: £17 17s.

GDM322 ★

Moving coil stick microphone with cardioid response. Dual low/high impedance, 200 ohms/100K. FR: 50 Hz-17 KHz. Supplied with adjustable table stand. Price: £19 19s.

GDM328 ★

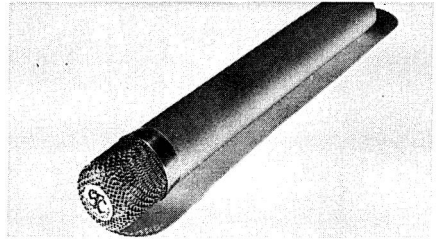
Transistorised reverberation microphone. Reverb on-off switch. Controllable up to 2 secs delay. Dual low/high impedance, 250 ohms/10K. Power supply: PP3 battery. Price: £35 15s.

S15 stand

General-purpose folding stand. Opens to 5ft. Folded size: 16 \times 2 $\frac{1}{4}$ in. Price: £5 2s.

ITT-STC

ITT Components Group Europe,
Standard Telephones & Cables Ltd,
Electro-Mechanical Product Division,
West Road, Harlow, Essex.
Tel: Harlow 26811.



ITT 4136

4037

Omni-directional moving coil stick microphone for field work and P.A. Extremely rugged in construction. FR: 80 Hz-10 KHz. Impedance 30 ohms or 300 ohms. Sensitivity -76 dB. Long (A) or short (C) models available. Price: £27.

4038

Studio ribbon microphone. Accurate figure-eight response. Flat frequency response 30 Hz-15 KHz. Impedance 30 ohms or 300 ohms. Sensitivity -85 dB. Non-linear distortion 0.1%. Controlled transient response. Price: £60.

4104

Broadcast quality commentator's noise-cancelling ribbon lip microphone. Output -82 dB. Impedance 30 or 300 ohms. Price: £75.

4105A

Cardioid moving coil microphone specially designed for speech. Flat response 60-10,000 Hz. Impedance 30 ohms. Sensitivity -82 dB. Front to back ratio 15-20 dB. Price: £27.

4136 ★

Condenser cardioid microphone, uniform polar frequency response. Front/back ratio better than 20 dB. FR: 40 Hz-18 KHz. Impedance 30 or 300 ohms. Sensitivity -50 dB at 300 ohms. FET head amplifier. Phantom power supply for combined mains and battery supply unit. Complete system with windshield and connecting cable. £110.

LEM

Distributors: Douglas A. Lyons and Associates Ltd, 8 Ryecotes Mead, Dulwich, London, SE21. Tel: 01-693 2855.
Cables: Daliona London, SE21.

DH80

Miniature moving coil. Omni-directional. FR 70 Hz-14 KHz \pm 4 dB. Imp 50 ohms or 80K. Sensitivity (low imp) -82 dB, (high imp) -52 dB. May be used as hand microphone, desk stand, or attached to floor stand. Price: (low imp) £6 5s; (high imp) £7 18s 6d.

★ Indicates entry is illustrated

DO35 ★

Miniature lavalier moving coil microphone. Omni-directional. FR 80 Hz-12 KHz. ± 3 dB. Sensitivity -80 dB. Imp 200 ohms. Can also be used as hand or stand microphone. Size: $2\frac{1}{2}$ in long, $\frac{7}{8}$ in diameter. Weight: $1\frac{1}{4}$ oz. Price: £18 10s.

DO21B

Studio-quality omni-directional moving coil microphone. FR 30 Hz-16 KHz. ± 3 dB. Imp 50 ohms or 200 ohms. Sensitivity (200 ohms) -77 dB. Individually calibrated response curves. Suitable for hand or stand use. Price: £18 15s.

DO20

Hand or stand type moving coil microphone. Omni-directional. FR 40 Hz-15 KHz. Impedance 50 ohms, 200 ohms or 80K. Sensitivity 50 ohms -82 dB, 200 ohms -76 dB, 80K -50 dB. Internal element resiliently mounted to avoid mechanical shock. Price: £12 10s.

LONDON MICROPHONE CO LTD

Eardley House, 182-184 Campden Hill Road, London, W8. Tel: 01-727 0711/3 and 5008.

LM200

Dynamic mono dual impedance microphone. Cardioid response. FR: 50 Hz-15 KHz. Impedances: 200 ohms or 50K. Sensitivity: -50 dB re $1\text{V}/\mu\text{b}$. Weight: $4\frac{1}{4}$ oz. Finish: black plastic. Price: £5 15s.

LM300

Directional microphone with sharp cardioid characteristic giving very good front/back discrimination for speech purposes. Available in 200 ohm and dual impedance (200 ohm, 50K) versions. Metal case with quick-release mounting clip. FR: 50 Hz-18 KHz. Sensitivity: -74 dB (200 ohm); -50 dB (dual impedance). Prices: 200 ohm, £11 10s; dual imp, £12 10s.

LUSTRAPHONE LTD

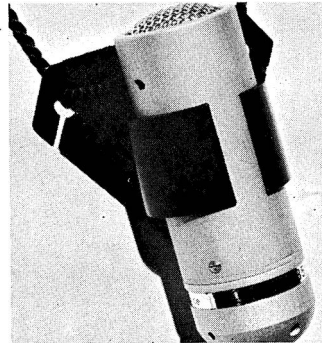
St George's Works, Regent's Park Road, London, NW1. Tel: 01-722 8844.

4-20

Mono, moving coil, omni-directional stick type with clip for stand mounting. FR: 50 Hz-15 KHz ± 5 dB. Sensitivity: -80 dB ref $1\text{V}/\mu\text{b}$. Impedance: multiple, 30 ohms, 200 ohms, 600 ohms or higher. Built-in windshield and anti-noise protection. Finish: black and silver anodised aluminium. Price: £15 15s.

4-30

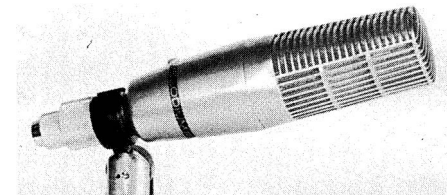
Mono, moving coil cardioid stick type with clip for stand mounting. Sensitivity: -78 dB ref $1\text{V}/\mu\text{b}$. Impedance: multiple, 30 ohms, 200 ohms, 600 ohms or higher. FR: 50 Hz-15 KHz ± 3 dB. Built-in windshield and anti-noise protection. Finish: black and silver anodised aluminium. Price: £20 5s.



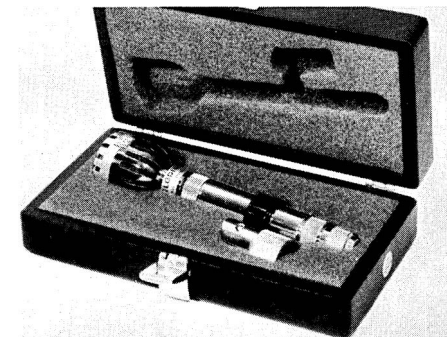
Lem DO35 moving coil



Melodium 76A



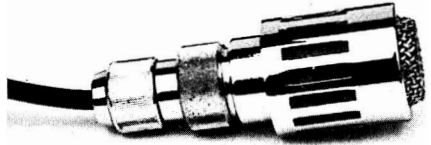
Melodium RM6



Melodium 78/118

4-50

Mono bi-directional ribbon stick type with clip for stand mounting. Sensitivity: -86 dB (at 600 ohms). Impedance: multiple, 30 ohms, 200 ohms, 600 ohms or 50K. FR: 50 Hz-17 KHz ± 3 dB. Built-in windshield and anti-noise protection. Finish: black and silver anodised aluminium. Price: £18 18s.

*Melodium C121A***4-70**

Mono uni-directional hand-held twin ribbon. Sensitivity: $500 \mu\text{V}$ at 600 ohms, close distance within acceptance angle of 30° . Impedance: multiple, 30 ohms, 200 ohms, 600 ohms or 50K. FR: 50 Hz-12 KHz ± 3 dB. Built-in windshield and anti-noise protection. Finish: black and silver anodised aluminium. Price: £27 15s.

*Melodium 77A***4-65**

Axially mounted dual head bi-directional ribbon. FR: 50 Hz-14 KHz. Sensitivity: -82 dB each channel. Price: £26 5s.

5-01

Hand, stick or clip microphone. Moving coil. FR: 50 Hz-12 KHz. Sensitivity: -80 dB. Price: £10.

5-02

Same as 5-01 but with built-in switch. Price: £11.

5-11

Miniature moving coil lavalier microphone with neck harness. FR: 70 Hz-11 KHz. Sensitivity: -75 dB. Price: £10 2s.

Wide range of swan neck mounts, adaptors, table and floor stands and microphone accessories.

MELODIUM

Distributor: Keith Monks (Audio) Ltd,
5 Fleet Road, Fleet, near Aldershot, Hants.
Tel: Fleet 7316.

76A/128 ★

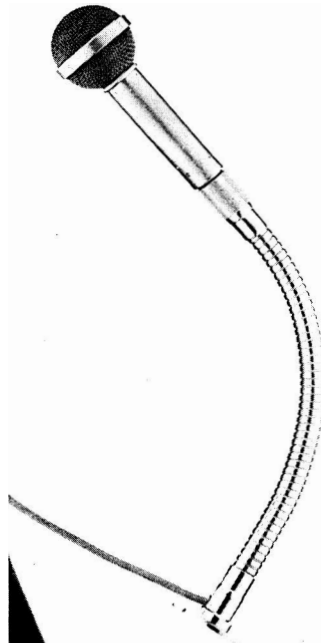
Moving coil, cardioid. FR: 100 Hz-15 KHz (3 dB). Sensitivity: -63 dB (0 dB = $1 \text{ mW}/10$ microbars) 30 ohms or 600 ohms impedance. Stick type, head removable for fitting to swan neck. $\frac{1}{2}$ in Whit thread. Switch available on mic, or swan neck. Windshields available. Price: (head) £12; (stick, low impedance) £21 1s; (stick, high impedance) £25 14s.

77A

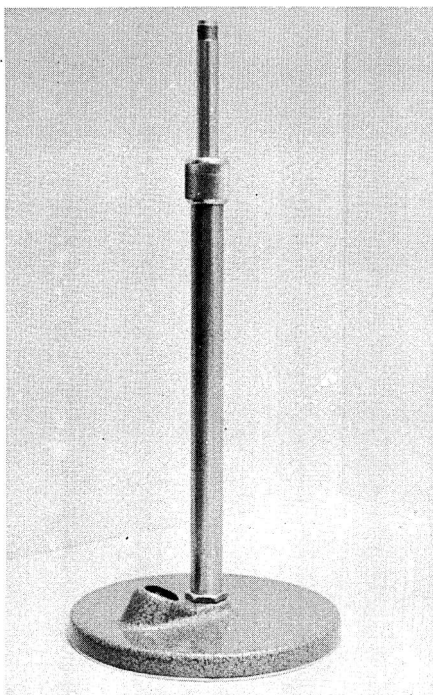
Moving coil omni-directional. FR: 40 Hz-17 KHz ± 3 dB. Sensitivity: -72 dB = 0.25 mV . 600 ohms impedance. Hand stick. Clamp fitting with $\frac{1}{2}$ in Whit. Windshields available. Black plastic. Price: £29 16s.

78A or 78A/128

Moving coil cardioid. FR: 50 Hz-15 KHz ± 3 dB. Sensitivity: -67 dB (0 dB = $1 \text{ mW}/10$ microbars, $0.042 \text{ mV}/\text{microbar}$). 30 ohms or

*Melodium C133 with 326 gooseneck*

★ Indicates entry is illustrated



Keith Monks BS/1 stand

600 ohms impedance. Stick, head removable for fitting to swan neck. Clamp or swan neck fitting, $\frac{1}{2}$ in Whit. Switch available on microphone or swan neck. Windshields available. Steel. Price: (Head) £14 16s (Stick. Low impedance) £23 17s; (Stick. High impedance) £28 10s.

RM6 ★

Ribbon bi-directional. FR: 30 Hz-18 KHz ± 2 dB. Sensitivity: (200 ohms) -56 dB 0.16 mV/microbar, (50 ohms) -61 dB 0.09 mV/microbar (0 dB=1 mW/10 microbar), 50 ohms or 200 ohms impedance. Stick. Clamp fitting. Four position sensitivity and on/off switch. Steel. Price: £43 15s.

C121 ★

Moving coil. Cardioid. Noise-cancelling miniature. FR: 150 Hz- 14 KHz ± 3 dB. Sensitivity: -89 dB (0.036 mV). Removable head for fitting to swan neck or for use as stick mic. Price: (head) £11 12s; (as stick mic) £16 15s; (on swan-neck and table stand) £19 5s.

C133 ★

Moving coil. Cardioid. Stick type mic. FR: 50 Hz-15 KHz ± 3 dB. Sensitivity: -83 dB (0.072 mV) at 30 ohms, -71 dB (0.28 mV) at 600 ohms. Built-in pop shield. With or without on-off switch. Melodium or three-pin DIN screened plug. Price: (less on-off switch) £15 12s; (with

on-off switch) £17 12s. Lead, plug and clamp extra.

Optional accessories

Wide range of plugs, sockets, adaptors, clamps, goosenecks, stands, stereo bars, mounting blocks, windshields, lavalier cords, transformers and adaptors. Full details and prices on request.

KEITH MONKS (Audio) LTD

5 Fleet Road, Fleet, near Aldershot, Hants.

Tel: Fleet 7316.

Microphone stands ★

High quality chrome finish. Detachable legs with rubber feet. Nylon bushes. Model MS/S: (36-60in) £6 15s. Model MS/M: (36-69in) £8 15s. Model MS/P: (44-67in) £10 15s. Model MS/L: (40-72in) £11 15s. Model MS/C: (cast base) £6 15s. Model BS/1: (banqueting stand 14-24in) £5 5s. Model BS/2: (as BS/1 but 20-36in) £6 15s. Model TV/1: (TV interview stand) £10 15s. Model TS/1: (table stand) £3 3s.

Boom arms

For use with most Keith Monks microphone stands. Thread adaptors available for use with other makes of stand. Model BA/S: (38in) £4 10s. Model BA/A: (42in) £5 15s. Model BA/L: (64in) £9 5s. Model TV/1B: (12in boom arm) £5. Model BA/C: (suitable for use with MS/C) £5. Thread adaptors: 5s.

NEUMANN GMBH

Sole UK Agents: F. W. O. Bauch Ltd,
49 Theobald Street, Boreham Wood, Herts.
Tel: 01-953 0091.

U67 ★

Condenser. Switchable: omni-directional, cardioid, figure-of-eight. FR: 30 Hz-16 KHz ± 2 dB. Sensitivity across 1K: 2 mV/dyne/cm² in cardioid, 1.1 mV/dyne/cm² in omni-directional, 1.4 mV/dyne/cm² in figure-of-eight. Impedance 50 or 200 ohms. Built-in transformer. Special sensitivity and bass cut switches. Printed circuit. Pressure gradient mic. Price on application.

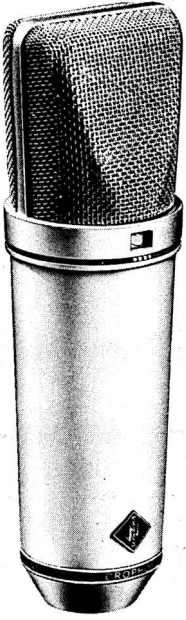
M269c

Condenser. Remote controlled: omni-directional, cardioid, figure-of-eight (continuously variable). FR: 30 Hz-16 KHz ± 2 dB. Sensitivity across 1K: 0.9 mV/dyne/cm² in omni-directional, 1.0 (1.55) mV/dyne/cm² in cardioid, 1.1 mV/dyne/cm² in figure-of-eight. Impedance 50 or 200 ohms. Built-in transformer. Special sensitivity and bass cut switches. Printed circuit. Remote controlled pressure-gradient mic. Price on application.

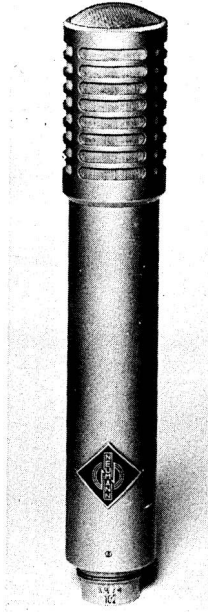
M49c

Condenser. Remote controlled: omni-directional, cardioid, figure-of-eight (continuously variable). FR: 35 Hz-15 KHz ± 2 dB. Sensitivity

MICROPHONES



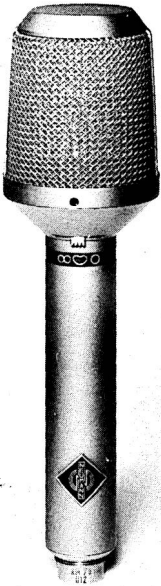
Neumann U67



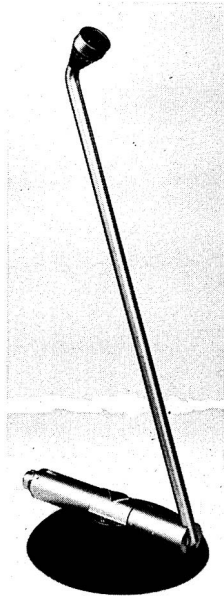
Neumann KM74



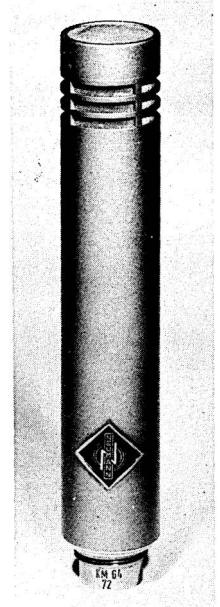
Neumann SM69



Neumann KM76



Neumann KM64P



Neumann KM64

★ Indicates entry is illustrated

across 1K: 0.7 mV/dyne/cm². Imp 50 or 200 ohms. Built-in transformer. Remote controlled pressure-gradient mic. Price on application.

M50c

Condenser. Omni-directional. FR: 40 Hz-16 KHz ± 2 dB. Sensitivity across 1K: 1.5 mV/dyne/cm². Imp 50 or 200 ohms. Built-in transformer. Pressure mic. Price on application.

KM53c ★

Condenser. Omni-directional. FR: 40 Hz-15 KHz ± 2 dB. Sensitivity across 1K: 1.5 mV/dyne/cm². Impedance 50 or 200 ohms. Built-in transformer. Printed circuit. Miniature pressure mic. Price on application.

KM54c ★

Condenser. Cardioid. FR: 40 Hz-15 KHz ± 2 dB. Sensitivity across 1K: 1.2 mV/dyne/cm². Impedance 50 or 200 ohms. Built-in transformer. Printed circuit. Miniature pressure-gradient type mic. Price on application.

KM56c ★

Condenser. Switchable: omni-directional, cardioid, figure-of-eight. FR: 40 Hz-15 KHz ± 2 dB. Sensitivity across 1K: 0.8 mV/dyne/cm². Imp 50 or 200 ohms. Built-in transformer. Printed circuit. Miniature pressure-gradient mic. Price on application.

KM253, KM254, KM256

Condenser mics. RF-proof miniature microphones, otherwise specification as for KM53, KM54, KM56c.

KM63

Condenser. Omni-directional. FR: 40 Hz-18 KHz ± 2 dB. Sensitivity across 1K: 0.9 mV/dyne/cm². Impedance 50 or 200 ohms. Built-in transformer. Special sensitivity switch (-10 dB). Printed circuit. Miniature pressure mic. Price on application.

KM64 ★

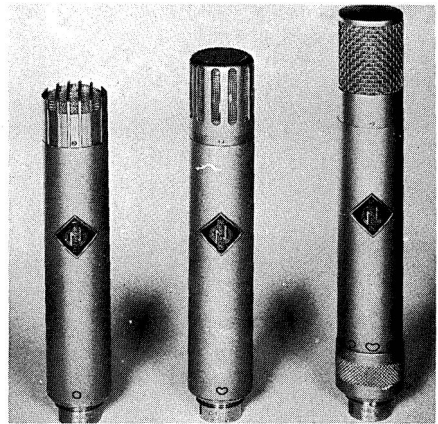
Condenser. Cardioid. FR: 40 Hz-18 KHz ± 2 dB. Sensitivity across 1K: 0.9 mV/dyne/cm². Imp 50 or 200 ohms. Built-in transformer. Special sensitivity switch (-10 dB). Printed circuit. Miniature pressure-gradient mic. Price on application.

KM64P

Announcer desk condenser microphone. Cardioid. Response up to 18 KHz with bass cut for better intelligibility. Sensitivity across 1K: 0.9 mV/dyne/cm². Impedance 50 or 200 ohms. Built-in transformer. Special sensitivity switch (-10 dB). Printed circuit. Pressure-gradient mic. Price on application.

SRM64

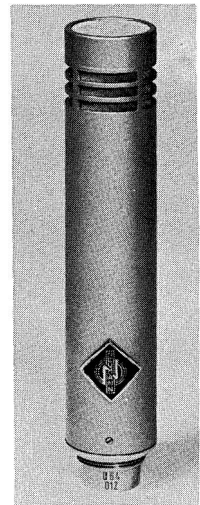
Condenser. Cardioid. FR: 40 Hz-18 KHz ± 2 dB. Sensitivity across 1K: 0.8 mV/dyne/cm². Impedance 50 or 200 ohms. Built-in transformer.



Neumann KM53c, KM54c, KM56c



Neumann U64



Neumann KM88

Special sensitivity switch (-10 dB). Printed circuit. Miniature pressure-gradient mic. Adjustable-height stand. Price on application.

KM66

Condenser. Switchable: omni-directional, cardioid, figure-of-eight. FR: 40 Hz-16 KHz ± 2 dB. Sensitivity across 1K: 2.6 mV/dyne/cm². Impedance 50 or 200 ohms. Built-in transformer. Printed circuit. Miniature pressure-gradient mic. Price on application.

U64 ★

Condenser. Cardioid. FR: 40 Hz-18 KHz ± 2 dB. Sensitivity across 1K: 1.1 mV/dyne/cm². Imp 50 or 200 ohms. Built-in transformer. Special sensitivity switch (-10 dB). Printed

circuit. Miniature pressure-gradient mic. Available with combined power units for two or six microphones. Price on application.

SM69 ★

Double or stereo condenser. Both systems separately remote controlled: omni-directional, cardioid, figure-of-eight. FR: 30 Hz-16 KHz ± 2 dB. Sensitivity across 1K: 1.5 mV/dyne/cm². Imp 50 or 200 ohms. Built-in transformers. Printed circuit. Pressure-gradient mics. Price on application.

KM73

Transistor (FET) condenser. Omni-directional. FR 40 Hz-16 KHz ± 2 dB. Sensitivity across 1K: 2.5 mV/dyne/cm². Impedance 200 ohms without transformer. Printed circuit. Miniature pressure mic. Price on application.

KM74 ★

Transistor (FET) condenser. Cardioid. FR: 40 Hz-16 KHz ± 2 dB. Sensitivity across 1K: 2.5 mV/dyne/cm². Impedance 200 ohms without transformer. Printed circuit. Miniature pressure-gradient mic. Price on application.

KM76 ★

Transistor (FET) condenser. Switchable: omni-directional, cardioid, figure-of-eight. FR: 40 Hz-16 KHz ± 2 dB. Sensitivity across 1K, 2.6 mV/dyne/cm². Impedance 200 ohms without transformer. Printed circuit. Miniature pressure-gradient mic. Price on application.

KML ★

Lavalier transistor (FET) condenser. Cardioid. FR: 40 Hz-16 KHz ± 2 dB. Sensitivity across 1K: 0.5 mV (18V) or 1.8 mV (45V) per dyne/cm². Impedance 50 or 200 ohms. Built-in transformer. Printed circuit. Battery driven (18V or 45V). Miniature pressure-gradient mic. Price on application.

U77

Condenser FET. Switchable omni-directional or cardioid or figure-of-eight. FR: 40 Hz-16 KHz. Sensitivity across 1K: 2.6 mV/microbar (omni), 5 mV/microbar (figure-of-eight), 3 mV/microbar (cardioid). Impedance 200 ohms. Pressure-gradient mic. Bass cut and sensitivity switch of -10 dB. Price on application.

KM83

FET condenser. Omni-directional. FR: 40 Hz-16 KHz. Sensitivity 0.5 mV/microbar. Impedance 50 or 200 ohms. Built-in transformer. Impedance 50 or 200 ohms. Built-in transformer. Sensitivity switch -10 dB. Price on application.

KM84

FET condenser. Cardioid. FR: 40 Hz-16 KHz. Sensitivity 0.5 mV/microbar. Impedance 50 or 200 ohms. Built-in transformer. Sensitivity switch -10 dB. Price on application.

KM86

FET condenser. Switchable to omni-directional, cardioid or figure-of-eight. FR: 40 Hz-16 KHz. Impedance 50 or 200 ohms. Built-in transformer. Sensitivity switch -10 dB. Price on application.

U87 ★

FET condenser. Switchable to omni-directional, cardioid or figure-of-eight. FR: 40 Hz-16 KHz. Impedance 50 or 200 ohms. Built-in transformer. Bass cut and sensitivity switch of -10 dB. Price on application.

KM88 ★

FET condenser. Switchable to omni-directional or cardioid. FR: 40 Hz-16 KHz. Impedance 50 or 200 ohms. Sensitivity across 1K approx 0.7 mV/microbar. Built-in transformer. Sensitivity switch -10 dB. Pressure-gradient. Price on application.

SM69 FET

Stereo transistor condenser. Both systems separately remote controlled: omni-directional, cardioid or figure-of-eight. FR: 40 Hz-16 KHz. Sensitivity across 1K 2 mV/microbar. Impedance 50 or 200 ohms. Built-in transformers. Pressure-gradient. Price on application.

PEARL

Distributors: Audio Workshops Ltd, Burnt Lodge Lane, Wallcrouch, Wadhurst, Sussex.

Tel: Ticehurst 503 and Guildford 65333.

DC20

Mono condenser microphone. Omni-directional. FR: 30 Hz-20 KHz. Sensitivity: -50 dB at 200 ohms. Impedance: 200 ohms. Rec load: not less than 200 ohms. Miniature model with stand adaptor. $\frac{5}{8}$ in \times 27 tpi. FET preamp. Shockproof boom mount. Lavalier adaptor. Mains or battery. Mono or stereo power supplies available. Size: $2\frac{7}{8} \times \frac{3}{4}$ in dia. Finish: silver grey anodised alloy with satin chrome grille. Price: $\pounds 46$ 5s.

DC21

Mono condenser microphone. Cardioid. FR: 30 Hz-20 KHz. Sensitivity: -50 dB at 200 ohms. Impedance: 200 ohms. Rec load: not less than 200 ohms. Miniature model with stand adaptor. $\frac{5}{8}$ in \times 27 tpi. FET preamp. Shockproof boom mount. Lavalier adaptor. Mains or battery. Mono or stereo power supplies available. Intended for use in pairs for stereo. Size: $2\frac{3}{4} \times \frac{3}{4}$ in dia. Finish: silver grey anodised alloy with satin chrome grille. Price: $\pounds 50$.

DC73

Mono condenser microphone. Cardioid. FR: 30 Hz-18 KHz. Sensitivity: -52 dB at 200 ohms. Impedance: 200 ohms. Rec load: not less than 200 ohms. Hand microphone, stand adaptor

★ Indicates entry is illustrated

supplied. $\frac{5}{8}$ in \times 27 tpi. FET preamp. Gooseneck and shockproof boom mount available. Electronic windshield. XLR connector to mic. Intended for use in pairs for stereo. Finish: silver grey anodised alloy with satin chrome grille. Price: £60.

EC71

Mono condenser microphone. Cardioid. FR: 40 Hz-18 KHz. Sensitivity: -58 dB at 200 ohms. Impedance: 50, 200, 600 ohms balanced or high impedance unbalanced according to power supply. Rec load: not less than 200 ohms at that output. Miniature stand microphone, adaptor supplied. $\frac{5}{8}$ in \times 27 tpi. Mono or stereo. Mains or battery. Shockproof boom mount available. Lavalier adaptor and windshield available. Intended for stereo use in pairs. Finish: silver grey alloy with satin chrome grille. Price: £38 15s.

EK71

Mono condenser microphone. Omni-directional. FR: 40 Hz-18 KHz. Sensitivity: -58 dB at 200 ohms. Impedance: 50, 200, 600 ohms balanced or high impedance unbalanced, according to power supply. Rec load: not less than 200 ohms at that output. Miniature stand mic with adaptor. $\frac{5}{8}$ in \times 27 tpi. FET preamplifier. Mono or stereo. Mains or battery power supplies available. Shockproof boom mount. Lavalier adaptor and windshield available. Finish: silver grey anodised alloy with satin chrome grille. Price: £36 5s.

F69

Mono moving coil microphone. Cardioid. FR: 50 Hz-12 KHz. Sensitivity: -70 dB at 200 ohms. Impedance: 200 ohms. Rec load: not less than 200 ohms. Hand microphone with stand adaptor. $\frac{5}{8}$ in \times 27 tpi. Gooseneck with or without switch. Shockproof boom mount. Windshield. XLR connector. Finish: silver grey anodised alloy with satin chrome grille. Price: £40.

RD16

Mono moving coil microphone. Cardioid. FR: 40 Hz-16 KHz. Sensitivity: -70 dB. Impedance: 200 ohms. Rec load: not less than 200 ohms. Small hand microphone, stand adaptor supplied. $\frac{5}{8}$ in \times 27 tpi. Gooseneck with or without switch available. XLR connector. Diaphragm of special polyester film. Windshield available. Finish: black and silver grey. Price: £21 7s 6d.

RD34

Mono moving coil. Cardioid. FR: 40 Hz-16 KHz. Sensitivity: -74 dB at 200 ohms. Impedance: 200 ohms. Rec load: not less than 200 ohms. Stand or gooseneck mounting. $\frac{5}{8}$ in \times 27 tpi. Gooseneck type with or without switch. XLR connector. Finish: black and silver grey. Price: £22 5s.

RD36

Mono moving coil microphone. Cardioid. FR:

40 Hz-16 KHz. Impedance: 200 ohms balanced or high impedance unbalanced. Sensitivity: -54 dB at high impedance, -74 dB at 200 ohms. Recommended load: not less than 200 ohms, or high impedance according to connections. Stand or gooseneck type. $\frac{5}{8}$ in \times 27 tpi. Gooseneck available. Lavalier adaptor available. Windshield available. XLR connector. Finish: black and silver grey. Price: £22 10s.

TC4

Mono condenser microphone. Cardioid. FR: 30 Hz-20 KHz. Sensitivity: -52 dB at 200 ohms. Impedance: 50 or 200 ohms. Rec load: not less than 200 ohms for that output. Stick microphone with stand adaptor. $\frac{5}{8}$ in \times 27 tpi. Double FET preamp. Shockproof boom mount with ball joint. Locking connector for mic. High vacuum condensed diaphragm. Intended for use in pairs for stereo. Finish: black anodised alloy with satin chrome grille. Price: £101.

TC4B

Mono condenser microphone. Figure-of-eight. FR: 30 Hz-20 KHz. Sensitivity: -56 dB at 200 ohms. Impedance: 50 or 200 ohms. Rec load: not less than 200 ohms at that output. Stick microphone with stand adaptor. $\frac{5}{8}$ in \times 27 tpi. Double FET preamp. Shockproof boom mount with ball joint. Locking connector for mic. High vacuum condensed diaphragm. Intended for use in pairs for stereo. Finish: black anodised alloy with satin chrome grille. Price: £106.

TC4K

Mono condenser microphone. Omni-directional. FR: 30 Hz-20 KHz. Sensitivity: -56 dB at 200 ohms. Rec load: not less than 200 ohms at that output. Stick microphone with stand adaptor. $\frac{5}{8}$ in \times 27 tpi. Double FET preamp. Shockproof boom mount with ball joint. Locking connector for mic. High vacuum condensed diaphragm. Finish: black anodised alloy with satin chrome grille. Price: £106.

PHILIPS SOUND DIVISION

Pye TVT Ltd, Orchard Road, Royston, Herts.
Tel: Royston 44141.

Philips EL.6015/11

Moving coil cardioid microphone. FR: 40 Hz-18 KHz. Impedance 500 ohms. Sensitivity: -71 dB. On-off switch. Quick-release holder for stands with $\frac{3}{8}$, $\frac{1}{2}$ or $\frac{5}{8}$ in Whit threads. 10ft twin screened lead. Price: £15 10s.

Philips EL.6016/11

Moving coil omni-directional microphone. FR: 35 Hz-18 KHz. Impedance 500 ohms. Sensitivity: -71 dB. On-off switch. Quick-release holder for stands with $\frac{3}{8}$, $\frac{1}{2}$ or $\frac{5}{8}$ in Whit threads. 10ft twin screened lead. Price: £13.

Philips EL.6025/01

Moving coil cardioid microphone. FR: 40 Hz-18 KHz. Impedance 500 ohms and 25K. Sensitivity: 500 ohms -71 dB, 25K -54 dB. Combined on-off and impedance selector switch. Fitted flexible shaft and 10ft twin screened lead. Finish: brushed satin stainless steel head and chromium plated shaft. Fits stand with $\frac{3}{8}$, $\frac{1}{2}$ or $\frac{5}{8}$ in Whit threads. Price: £20.

Philips EL.6026/11

Moving coil cardioid microphone. Similar specification to EL.6025/01 except for panel mounting (or stand mounting with LBC.1201 adaptor) and single impedance (500 ohms). No on-off switch. Price: £16 10s.

Philips EL.6033/10 ★

Moving coil. Studio quality. Switchable cardioid or omni-directional. FR: 40 Hz-18 KHz. Sensitivity: -72 dB. Source impedance 500 ohms (EL.6033/00 50 ohms). Special vibration damper optional extra. Supplied with cable and stand adaptor. Price: £28; EL.6207 vibration damper £3 10s.

Philips EL.6035/10

High quality moving coil cardioid microphone. FR: 60 Hz-17 KHz. Impedance 500 ohms. Sensitivity: -71 dB. On-off switch. Quick-release holder for stands $\frac{3}{8}$, $\frac{1}{2}$ or $\frac{5}{8}$ in Whit threads. Three-pole plug (Tuchel T3261/1) for detachable cable. Price: £26.

Philips EL.6036/10

High quality omni-directional moving coil. FR: 50 Hz-19 KHz. Impedance 500 ohms. Sensitivity -71 dB. On-off switch. Quick-release holder for stands with $\frac{3}{8}$, $\frac{1}{2}$ or $\frac{5}{8}$ in Whit threads. Three-pole plug (Tuchel T3261/1) for detachable cable. Price: £20.

Philips EL.6042/05

Professional quality omni-directional moving coil. FR: 30 Hz-20 KHz. Impedance 200 ohms. Sensitivity: -79 dB at 1 KHz reference 1V/ μ bar. Size: $5\frac{3}{8} \times \frac{3}{4}$ in. Finish: matt chrome plate. Quick-release holder-clamp for stands with $\frac{3}{8}$, $\frac{1}{2}$ or $\frac{5}{8}$ in Whit threads. Three-pole plug for twin screened cable. Individually calibrated frequency response. Price: £32.

Philips EL.6061/02

Moving coil, noise cancelling. On/off and control switch. FR: 150 Hz-15 KHz. Source impedance 500 ohms. Mounting bracket. Price: £12.

Philips LBB9001/05

Moving coil omni-directional lavalier microphone. FR: 50 Hz-15 KHz. Impedance 200 ohms. Sensitivity: -78 dB. Suitable also for hand use. Complete with neck cord and 33ft cable. Price: £12 10s.

Philips EL.6037

High quality moving coil. Cardioid. FR: 40 Hz-

18 KHz. Impedance 500 ohms and 25K. Sensitivity: -71 dB (500 ohms); -54 dB (25K). Rosewood body. Supplied with 10ft cable. Quick release adaptor. Price: £30.

Philips EL.6204

Universal microphone table stand. Provided with $\frac{3}{8}$ in Whit thread and possibility of mounting signal lamps or switches, etc. Price: £3.

Philips LBB9050/05

Studio quality dual capsule microphone with crossover filters. Moving coil. Cardioid. FR: 25 Hz-20 KHz. Impedance: 200 ohms. Sensitivity -77 dB. Quick release holder for all stands. Price: £36.

Philips LBB9500

Moving coil cardioid microphone. FR: 40 Hz-18 KHz. Impedance 500 ohms. Sensitivity -71 dB. Quick release holder. Supplied with tripod table stand and 10ft twin screened lead. Price: £18.

ET907

Telescopic floor stand with heavy base. 42in closed, 72in extended. Price: £9.

LBC1203/00

Table stand. Tripod type. Price: £1 10s.

LBC1207/00

Windshield for EL6015, 6016, 6025, 6026, LBB9500. Price: £1 5s.

LBC1209/00

Windshield for LBB9050. Price: £1 5s.

EL6207

Vibration damper for use with EL6033 on floor or table stands. Price: £3 10s.

LBC1200

Short flexible shaft fitted with socket to accept microphones EL6033, EL6035, EL6042, EL6036. Length 8in. Complete with 5 yards cable. Price: £6 10s.

LBC1205/01

Cable with switched plug for use with LBB9050, EL6042 and EL6033. Price: £5 5s.

LBC1210/00

Three-pole DIN microphone plug for use with LBB9050, EL6042, EL6033. Price: £1.

LBC1208/10

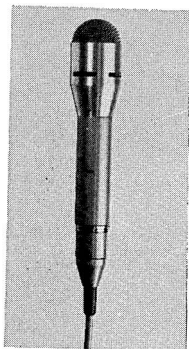
Ten metre extension cable complete with plugs. For use with LBB9050, EL6042, EL6033. Price: £4.

RESLOSOUND LTD

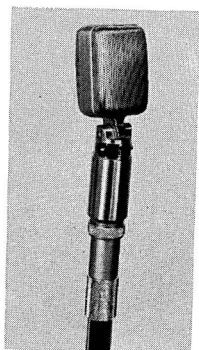
Spring Gardens, London Road, Romford, Essex. Tel: Romford 61926 (3 lines).

RBT Series ★

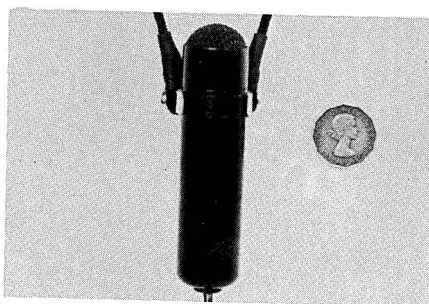
High quality miniature ribbon. FR: 40 Hz-14 KHz ± 3 dB. Figure-of-eight, modified as re-



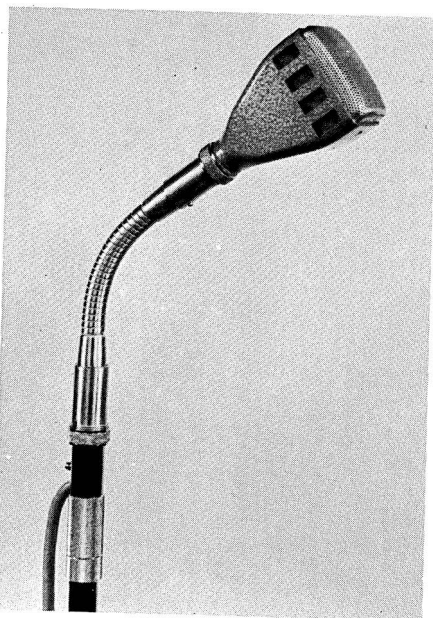
Reslo UDI



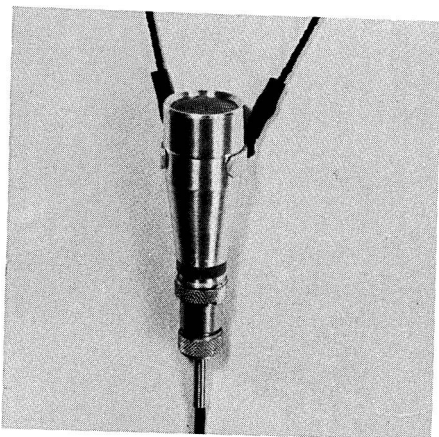
Reslo RBT



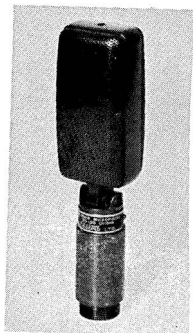
Reslo MMD/I



Reslo CR2



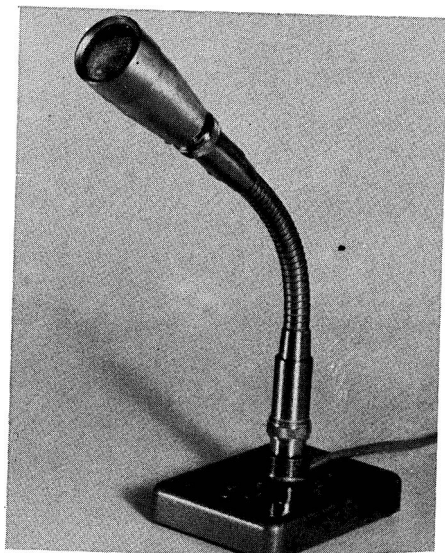
Reslo MPD/L



Reslo SRI



Reslo CPD/2



Reslo MPD/D

quired by filter pads. Sensitivity 58 dB below at 40K. Imp RBT/L 30-50 ohms; RBT/M 250 or 600 ohms; RBT/H 30-50 ohms or 40K. A switched model also available with the switch included in a slightly longer body (RBTS/L, RBTS/M, RBTS/H). Finish: satin chrome. Acoustic filter pad for close-talking use. Prices: RBT/L, RBT/M and RBT/H £15 each. For switched models add £3.

CR2 Series ★

High quality miniature ribbon. FR: 40 Hz-16 KHz (-2 dB at 60 Hz, ± 10 dB at 16 KHz). Cardioid, figure-of-eight partially suppressed at the rear. Sensitivity 58 dB below for high-Z model. Imp: L, M and H as for RBT Series. Flexible swan neck stem. Finish: satin chrome perforated front, diecast case, silver grey hammertone enamel. Prices: CR2/L, CR2/M and CR2/H £17 each.

SR1 Series ★

Professional studio ribbon. FR: 30 Hz-20 KHz $+2$ dB. Nominal figure-of-eight. Damping pads available. Sensitivity -73 dB at 300 ohms. Imp: SR1/L 30-50 ohms, SR1/M 250 or 300 ohms. Developed for use by broadcasting authorities and recording studios. Finish: satin chrome. Other finishes to quantity order. Price: (both models) £38.

VRT Series

Special miniature ribbon. FR: 30 Hz-16 KHz (-2 dB at 40 Hz, $+2$ dB at 16 KHz). Nominal figure-of-eight. Damping pads available. Sensitivity 81 dB below at 300 ohms. Impedance: VRT/L 30/50 ohms, VRT/M 300 ohms. Developed for broadcast and recording studios. Satin chrome finish. Price: (both models) £22.

MPD/2

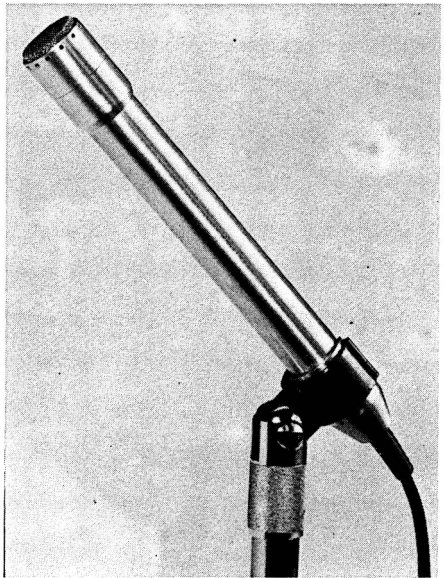
A special hand held version of MPD Series with direct feed cable. Price: (low impedance) £7, (high impedance) £7.

MMD.1 ★

Miniature dynamic lavalier lightweight microphone. FR: 50 Hz-17 KHz $+4$ dB. Presence hump between 2-5 KHz. Omni-directional. Sensitivity: -89 dB at 30-50 ohms. Dimensions: $3\frac{1}{2}$ in long, $\frac{3}{8}$ in diameter. Weight: 2 oz including cord clip and one yard cable. Finish: matt black stove lacquered. Impedance 30-50 ohms only. 18ft miniature extension cable complete with DIN plug supplied. Price: £11.

CPD Series

Cardioid pencil dynamic microphone. FR: 15 Hz-17 KHz. Uni-directional partly suppressed at rear. Rear pickup -10 - 20 dB over range 200 Hz-15 KHz. Sensitivity -88 dB at 30-50 ohms. Size: $8\frac{1}{2}$ in overall length, $1\frac{1}{2}$ in maximum diameter (head). Impedances (switched model): L=30-50 ohms, M=dual 250 or 600 ohms,



Reslo Slimline SL1

H=dual 30-50 ohms or 40K. Unswitched model in low impedance only. Finish: main case black anodised, top case natural satin anodised. Supplied with cable set and plastic stand holder. Prices: CPD/L, CPD/M and CPD/H £20 each.

UD.1 ★

Uni-directional hand or stand microphone. FR: 50 Hz-17 KHz (-4 dB at 100 Hz, $+8$ dB at 16 KHz). Rear pickup -10 to -20 dB between 200 Hz-15 KHz. Sensitivity -88 dB at 30-50 ohms. Output: average voice 6in from front of mic $150 \mu\text{V}$ (low imp), 250 - $450 \mu\text{V}$ (medium imp), 2 - 4 mV (high imp). Output increases approximately 10 times at one inch from microphone. Impedances: UD.1/L 30-50 ohms or 600 ohms; UD.1/M medium impedance, 200-300 ohms; UD.1/MT, 600-1,000 ohms; UD.1/H, high impedance. Finish: main case beige enamel, top case satin silver. Price: £22.

MPD/L

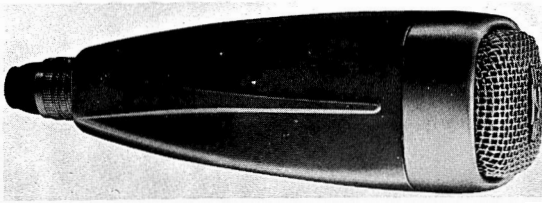
Dynamic, omni-directional, lavalier. FR: 50 Hz-15 KHz -12 dB at 100 Hz, $+4$ dB at 14 KHz. Sensitivity: 88 dB below. Impedance: low. Finish: satin anodised. Price: £10 10s.

MPD/D ★

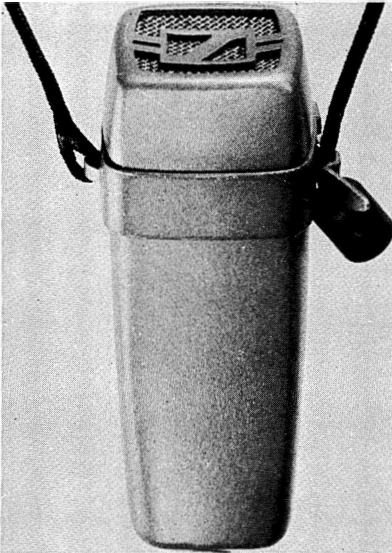
Dynamic, omni-directional, desk base fitted with 8in flexible stem. FR: 50 Hz-10 KHz. Sensitivity: 88 dB below. Impedance: low. Finish: satin anodised microphone, chrome stem, grey enamel base. Price: £12.

SL1 Slimline ★

Dynamic, omni-directional, hand type on stand.



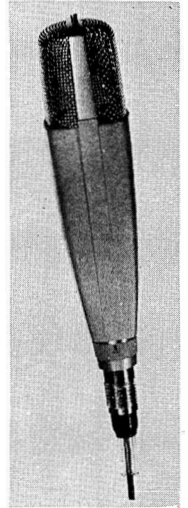
Sennheiser MD21HN



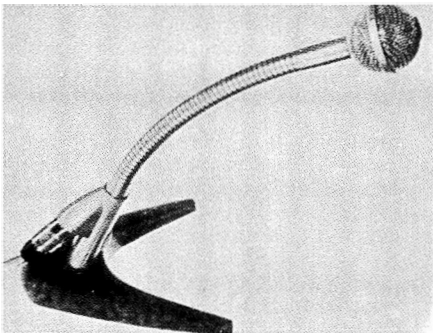
Sennheiser MD214



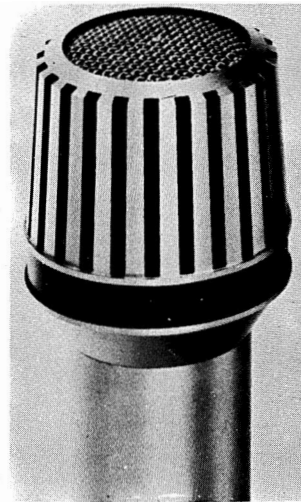
Sennheiser MD211



Sennheiser MD421HN



Sennheiser MD408



Sennheiser MD420N

FR: 100 Hz-16 KHz. Sensitivity: 84 dB below. Impedances: low, medium and high. Fitting thread: 27 tpi $\frac{3}{8}$ in; 26 tpi $\frac{1}{2}$ in. Finish: all brass finished satin chrome. Price: £38.

Coupler unit GE1

Suitable for use with any impedance microphone. Designed for external use adjacent to the tape recorder or amplifier. Gain 35-40 dB. FR: 50 Hz-20 KHz +1 dB. Fitted 36in screened lead and jack plug. Self-contained PP4 battery with average life of 1,500 hours. Price: £10 10s.

Microphone transformers MT101, MT102

Designed for internal mounting in equipment having only high impedance inputs. Input imp: MT101 15-50 ohms, MT102 300-600 ohms. Nominal output imp 100K. Response 50 Hz-15 KHz ± 2 dB. Price: MT101 £3 10s, MT102 £3 10s.

MS.110A

Adjustable floor stand. Minimum height 40in, maximum height 62in. Grey hammertone base, chrome outer and inner stem. Price: £9.

MS.175

Boom arm fitting available for use with Reslo floor stands. Price: £8 10s.

MS.200

Adjustable table stand. Minimum height 1ft 4in, maximum height 2ft 2in. Grey hammertone base with chrome stem and extension piece. Price: £7.

MS.300

Circular desk stand. Grey hammertone base fitted with 3in chrome stem. Price: £4.

MS.500

Rectangular desk base. Fitted with rubber feet. Finished in silver grey hammertone. Muting switch optional extra.

Reslo-Audac

Range of radio microphones for all purposes. Full details on request.

SENNHEISER ELECTRONIC

Distributors: Audio Engineering Ltd,
33 Endell Street, London, WC2H 9BA.
Tel: 01-836 9373.

MD.21HN ★

Omni-directional moving coil hand or stand microphone. FR: 50 Hz-15 KHz ± 3 dB. Sensitivity -53 dB. Impedance 200 ohms and 30K. Rec load 200 ohms or 100K. Light alloy case finished hammer stove enamel. Windshield MZW22 optional extra. Price (microphone): £29; (windshield MZ-W22): £5; (desk stand MZT21): £3 15s.

MD.211 ★

Omni-directional moving coil miniature studio microphone. Hand or stand use. FR: 40 Hz-20 KHz ± 2.5 dB. Sensitivity -57 dB. Impedance 200 ohms. Rec load 200 ohms. Metal case with satin chrome finish. Windshield MZW211 optional extra. Price (microphone): £46; (windshield MZW211): £6; (small tripod desk stand MZT102): £2 15s.

MD.214 ★

Omni-directional moving coil lavalier microphone. Built-in 'natural voice' equaliser to studio standards. FR specially designed for lavalier operation. Sensitivity -59 dB. Impedance 200 ohms. Rec load 200 ohms. Metal case finished special 'non-glare' enamel. Price: £38.

MD.408 ★

Super cardioid moving coil microphone with flexible shaft. FR: 100 Hz-14 KHz ± 3 dB. Impedance 200 ohms. Sensitivity -55 dB. Case of light gauze woven wire cloth. Price: £25.

MD.411HLM

Super-cardioid moving coil mono microphone. FR: 50 Hz-14 KHz ± 4 dB. Impedance: (low) 20 ohms, (medium) 800 ohms, (high) 25K. Sensitivity: 0-12 mV/ μ bar, 0-25 mV/ μ bar, 1-25 mV/ μ bar. Rec load: (low) 50-200 ohms, (medium) 1-2K, (high) 80K. Hand and stand microphone with base fitting clip. Sound from sides and rear heavily attenuated. Case of hardened plastic round metal sleeve. Finish: matt silver. Price: £16 15s.

MD.420N ★

Super-cardioid noise cancelling moving coil mono microphone. FR: 200 Hz-10 KHz (special response curve for noise cancellation). Impedance 200 ohms. Sensitivity 0-18 mV/ μ bar. Hand or stand microphone with gooseneck and large Tuchel plug. Metal case with silver finish. Model MD.420NT has built-in switch. Price: (unswitched) £21.

MD.421HN ★

Cardioid moving coil hand or stand microphone. Special frequency response with built-in variable bass attenuator. Impedance 200 ohms or 24K. Rec load 200 ohms or > 50K. $\frac{3}{8}$ in thread adaptor supplied. Light grey die-cast case. Windshield MZW22 and heavy desk stand MZT421 optional extras. Price (microphone): £40 10s; (windshield MZ-W22): £5; (desk stand MZT421): £3 15s.

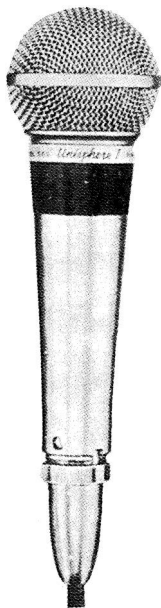
SHURE ELECTRONICS LTD

84 Blackfriars Road, London, SE1.
Tel: 01-928 3424.

55S Small Unidyne ★

Cardioid moving coil. FR: 50 Hz-15 KHz. Sensitivity -57 dB at high impedance. Source

★ Indicates entry is illustrated



Shure 565 Unisphere I



Shure 555 small Unidyne



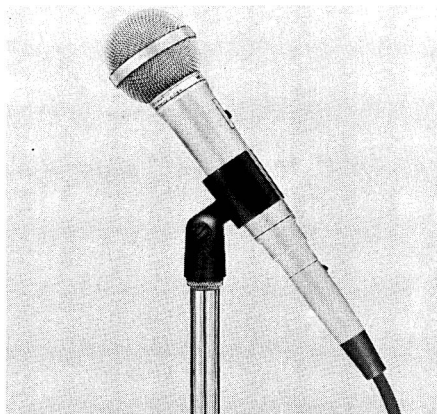
Shure Unidyne 515SA



Turner 602



Shure 545 Unidyne III



Turner 700

imp 35-50, 150-250 ohms, and high. Switched transformer built-in. Price: £30.

545 Unidyne III ★

Cardioid moving coil. FR: 50 Hz-15 KHz. Sensitivity — 55 dB. Source impedance 25-250 ohms and high. Built-in transformer. Price: £31 10s.

565 Unisphere I ★

Moving coil. Cardioid (with polar diagram uniform with frequency, symmetrical about axis). FR: 50 Hz-15 KHz. Dual impedance (50-250 ohms and high). Sensitivity: (low Z) — 78 dB, (high Z) — 55 dB. Hand or stand. Built-in wind/breath filter. Available with or without switch. Detachable 18ft three-core screened lead. Finish: satin chrome body with plated steel grille. Size: 6½in long, 2in diameter over head. Price: (565 less switch) £36; (565S with switch) £37 10s.

588SA Unisphere A

Moving coil. Cardioid. FR: 50 Hz-13 KHz. Impedance: high Z (low version 25-200 ohms available). Sensitivity: (high Z) — 59 dB, (low Z) — 81.5 dB. Hand or stand microphone supplied with swivel stand adaptor. Built-in switch with provision for locking on. Wind/breath filter. Detachable 15ft cable. Finish: satin chrome with steel mesh grille. Size: 6¾in long, 2¼in diameter. Price: (588SA high Z) £24; (588SB low Z) £22 10s.

515SA Unidyne ★

Moving coil. Cardioid. FR: 80 Hz-13 KHz. Sensitivity — 58 dB. High impedance (low impedance version available). Hand or stand. On/off switch with lock. Size: 6½in long, 1½in diameter. Satin chrome body with black grille and stainless steel screens. Price: 515SA (high impedance) £16 10s, 515SB (low impedance) £15.

TTC

Distributors: E. R. Factors Ltd, 378 Harrow Road, Paddington, London, W9. Tel: 01-286 9530.

B-1053

Mono dynamic cardioid dual impedance (600 ohms or 50K). FR: 50 Hz-12 KHz. On/off switch. Stand adaptor supplied. Finish: satin chrome. Price: £7 7s.

B-1402

Two-section chrome table stand 9½in closed, 14in extended. Black enamel base. Price: £1 15s.

B-1403

Three-section floor stand. Chrome stem. Heavy cast base. 22in closed, 55½in extended. Price: £3 19s 6d.

B-1071

Sphere type dynamic microphone. Uni-direc-



Turner 766

tion. FR: 50 Hz-15 KHz. Impedance: 600 ohms or 50K available. 10ft detachable cable. Adjustable stand mount. Price: £5 19s 6d.

B-1072

Sphere type dynamic microphone. Cardioid. Built-in filters. Hand or stand use. Dual impedance: 600 ohms and 50K. Sensitivity: — 72 dB. FR: 50 Hz-15 KHz. On-off switch. 10ft detachable cable. Adjustable stand mount. Grey metallic finish with chrome and black trim. Price: £6 12s.

B-1073

Dual impedance dynamic microphone. Cardioid. Built-in filters. Impedance: 600 ohms and 50K. On-off switch. FR: 10 Hz-15 KHz. Satin chrome finish. 10ft detachable cable. Price: £9.

TURNER

Distributors: Millbank Electronics, The Square, Forest Row, Sussex. Tel: Forest Row 2288.

602 ★

Mono moving coil microphone. Cardioid response. FR: 80 Hz-15 KHz ±4 dB. Sensitivity: — 79 dB. Impedance: 150 ohms. Stick microphone for hand or stand. Fitting: ⅝in thread 27 tpi. On-off switch. Clamp and cable supplied. Finish: satin chrome zinc alloy with cyclomac grille. Price to be announced.

700 ★

Mono moving coil microphone. Cardioid response. FR: 40 Hz-15 KHz ±4 dB. Sensitivity: (150 ohms) — 79 dB, (40K) — 55 dB. Impedance: 150 ohms, 40K. Stick microphone for hand or stand. Fitting: ⅝in thread 27 tpi. On-off switch. Cannon connector. Dual impedance. Built-in 'pop' filter. Cable and clamp supplied. Finish: satin chrome diecast zinc alloy. Price: £41 14s.

766 ★

Mono moving coil microphone. Cardioid res-

★ Indicates entry is illustrated

ponse. FR: 50 Hz-15 KHz ± 5 dB. Sensitivity: -55 dB. Impedance: 50K. Rec load: 100K. Stick microphone for hand or stand. Fitting: $\frac{5}{8}$ in thread 27 tpi. On-off switch. Blast filter. Lead and clamp. Presentation box. Finish: satin chrome steel. Price: £30 14s 6d.

866 ★

Mono moving coil microphone. Cardioid response. FR: 100 Hz-13 KHz ± 4 dB. Sensitivity: -58 dB. Impedance: 50K. Stick microphone for hand or stand. Fitting: $\frac{5}{8}$ in thread 27 tpi. Blast filter. Clamp and cable supplied. Presentation case. Finish: satin chrome steel. Price: £17 11s.

2203 ★

Mono moving coil microphone. Cardioid response. FR: 50 Hz-15 KHz. Sensitivity: -79 dB. Impedance: 150 ohms. Stick microphone for hand or stand. Fitting: $\frac{5}{8}$ in thread 27 tpi. On-off switch. Blast filter. Cannon connector. Cable and clamp supplied. Finish: satin chrome steel. Price: £39 12s 6d.

2266

Mono moving coil microphone. Cardioid response. FR: 50 Hz-15 KHz ± 5 dB. Sensitivity: -58 dB. Impedance: 50K. Stick microphone for hand or stand. Fitting: $\frac{5}{8}$ in thread 27 tpi. On-off switch. Supplied with Cannon connector, lead and presentation box. Finish: steel satin chrome. Price: £39 6s 3d.

2850 ★

Mono moving coil microphone. Cardioid response. FR: 70 Hz-10 KHz ± 4 dB. Sensitivity: -84 dB. Impedance: 150 ohms, 50K. Stick microphone for hand or stand. Fitting: $\frac{5}{8}$ in thread 27 tpi. Lightweight. On-off switch. Cable and clamp supplied. Finish: black cyclac. Price: £19 12s 5d.

35A

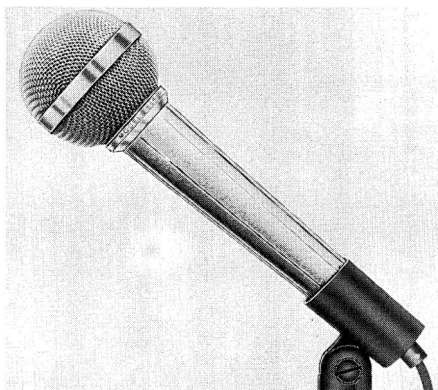
Mono moving coil lavalier microphone. Omnidirectional. FR: 80 Hz-12 KHz ± 4 dB. Sensitivity: -82 dB. Impedance: 150 ohms. Hand or lavalier. Finish: high tensile aluminium with gold finish. Price to be announced.

500

Mono moving coil microphone. Cardioid response. FR: 40 Hz-15 KHz ± 4 dB. Sensitivity: (150 ohms) -79 dB; (40K) -55 dB. Impedance: 150 ohms, 40K. Stick microphone for hand or stand. Fitting: $\frac{5}{8}$ in thread 27 tpi. On-off switch. Dual impedance. Cannon connector. Cable and clamp supplied. Satin chrome zinc alloy finish. Price: £43 18s.

2302

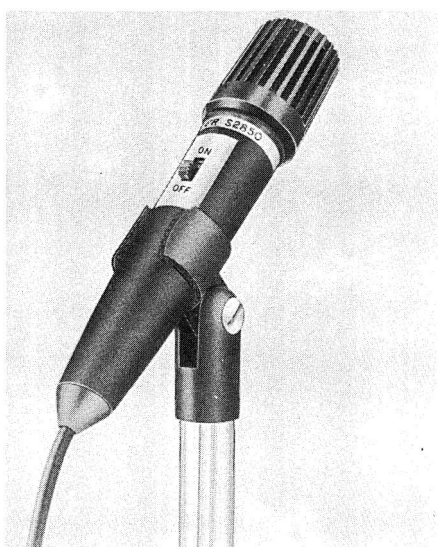
Mono moving coil microphone. Omnidirectional. FR: 50 Hz-15 KHz ± 5 dB. Sensitivity: -79 dB. Impedance: 150 ohms. Stick microphone for hand or stand. Fitting: $\frac{5}{8}$ in thread 27



Turner 866



Turner 2203

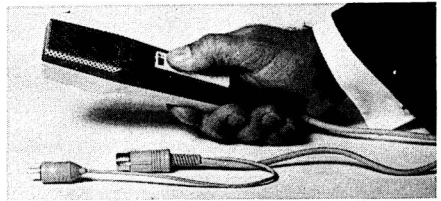


Turner 2850

tpi. On-off switch. Cannon connector. Cable and clamp supplied. Finish: steel satin chrome. Price: £32 18s.

2804

Stereo moving coil. Omni-directional. FR: 80 Hz-12 KHz ± 5 dB. Sensitivity: -63 dB. Impedance: 50K. Stick microphone. Stereo pair in presentation box. Table stands provided. Fitted jack plugs. Price: £17 11s 2d.



Uher MI 54

UHER

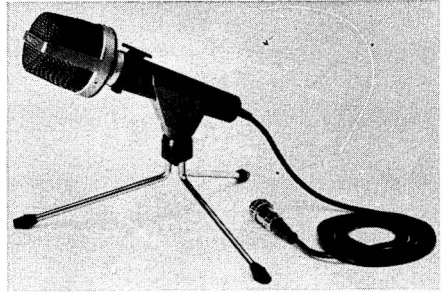
Distributors: Bosch Ltd, Rhodes Way, Radlett Road, Watford, Herts, WD2 4LB. Tel: Watford 44233.

M154 ★

Dynamic microphone with remote control switch providing: record, stop, start, rewind. FR: 50 Hz-10 KHz. Impedance 200 ohms. For use with model 5000 tape recorder. Price: £12 16s (plus PT).

M516 ★

Dynamic cardioid microphone for use with battery portable series. Remote stop/start switch. Speech/music switch. FR: 70 Hz-14 KHz. Windshield fitted. Impedance 200 ohms. Price: £14.



Uher M516

VITAVOX LTD

Westmoreland Road, London, NW9. Tel: 01-205 8671. Cables: Vitavox, London, NW9.

B50 ★

Moving coil. FR: 60 Hz-8 KHz. Sensitivity -85 dB. Source imp 25 ohms. 6ft cable. Built-in control switch. Price on application.

B54

Moving coil incorporating built-in transformer. FR: 60 Hz-8 KHz. Sensitivity -85 dB (excluding transformer). Source imp 200, 500, 10K, 100K ohms according to transformer. Built-in control switch. Price on application.

B60

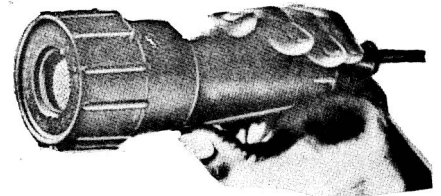
Similar specification to B50 but weather-proof version. Price on application.

B64 ★

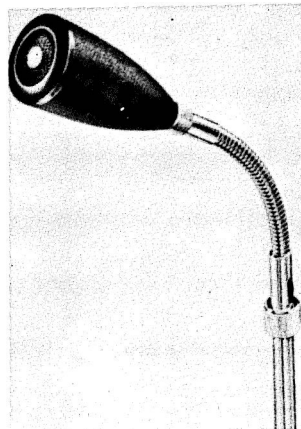
Similar specification to B54 but weather-proof version. Price on application.

M100 ★

Moving coil incorporating tapped transformer giving choice of 25, 200, 10K ohms and high impedance. FR: 50 Hz-15 KHz ± 3 dB. Sensitivity -80 dB, -71 dB, -54 dB, -44 dB according to impedance. 9ft cable and flexible support. Price on application.



Vitavox B64 moving coil

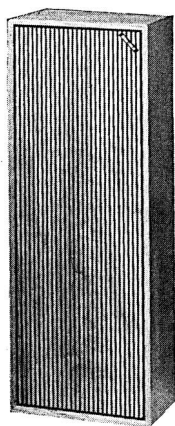


Vitavox M100

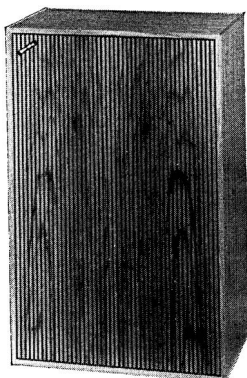
**NEW FROM
DENMARK**

Ste-ma Loudspeakers

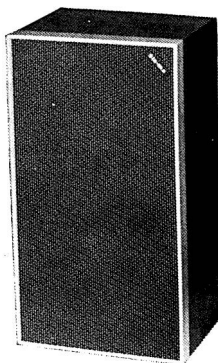
MAURITS ANDERSEN Copenhagen



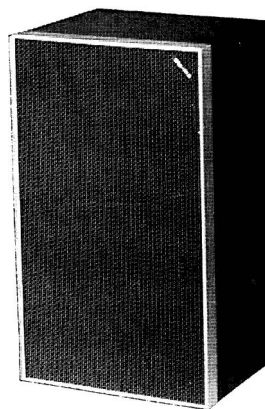
Type 275: 12 w RM 550-18.000 Hz
Imp. 8 ohms. Teak 22 gns.



Type 300: 18 watts RMS 50-20.000
Imp. 8 ohms. Teak 32 gns.



Type HI-FI 3: 30 watts RMS 35-20.000 Hz.
Imp. 8 ohms. Teak or Rosewood.
42 gns R. R. Price.



Type HI-FI 4: 35 watts RMS 30-20.000 Hz.
Imp. 8 ohms. Teak or Rosewood.
48 gns R. R. Price.



Sole United Kingdom Distributors:

GROSVENOR ELECTRONICS LTD.

25 Roman Road, London, E.2

Telephone: 01-980 1936

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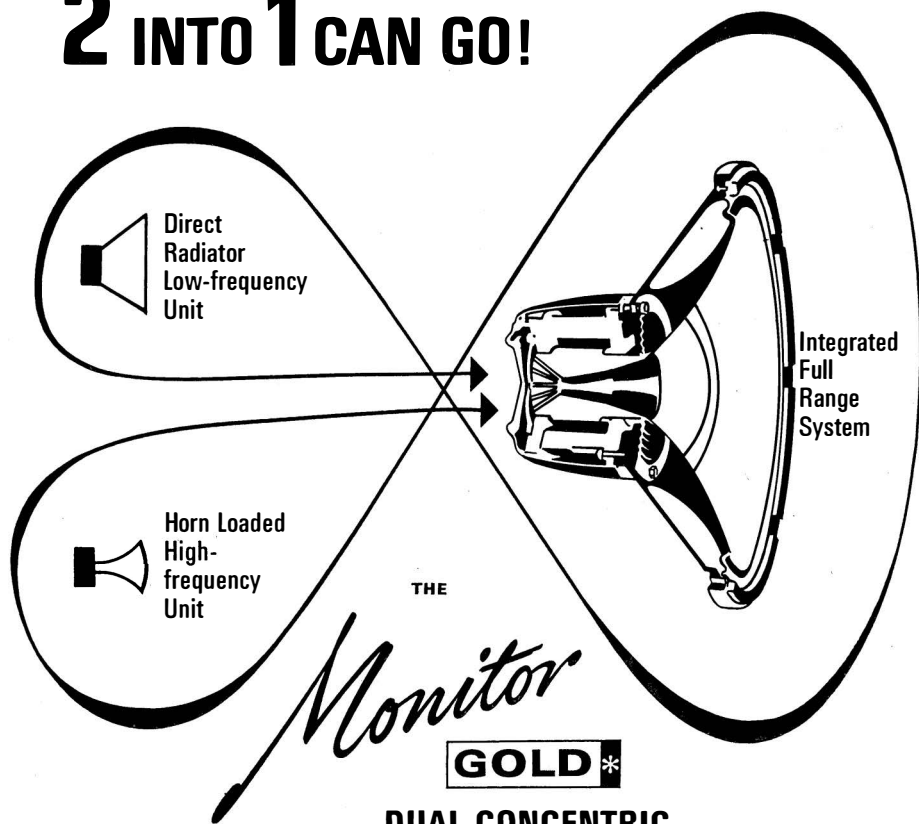
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2 INTO 1 CAN GO!



DUAL CONCENTRIC

... provides the perfect integrated source needed for stereo. The Monitor Gold is two separate transducers in a single assembly fed by a sophisticated cross-over and treble control network.

TECHNICAL SPECIFICATION

Frequency Response: 30-20,000 Hz. Power Handling Capacity: 15" 50 watts, 12" 30 watts. ILLZ 15 watts. Impedance: 8 Ω nominal, 5 Ω minimum.

The majority of Recording and T.V. Studios use TANNOY monitors



NORWOOD ROAD, WEST NORWOOD, LONDON, S.E.27 01-670 1131

Directory of Speaker Drive Units

For economy of space the following abbreviations are used: **HC**=handling capacity; **FR**=frequency range; **c/o**=cut off; **vci**=voice coil impedance; **rcf**=recommended crossover frequency. Dimensions quoted are generally nominal.

★ indicates model is illustrated.

ADASTRA ELECTRONICS LTD

167 Finchley Road, Swiss Cottage, London, NW3. Tel: 01-624 8164/5.

Top 20

Bass speaker. 12in. Fibre cone. Voice coil dia.: 1½in. Voice coil material: aluminium. Impedance: 15 ohms. Gap flux: 12,000 lines. Total flux: 80,000 maxwells. HC: 25W RMS. FR: 25 Hz-13 KHz. Price £6 6s.

Hi-Ten ★

Full range speaker. 10in. Fibre cone. vci: 8 ohms or 15 ohms. Voice coil dia.: 1in. Voice coil material: copper. Gap flux: 10,000 lines. Total flux: 38,000 maxwells. HC: 10W RMS. FR: 40-10kHz. Price: £3 (including PT).

RICHARD ALLAN RADIO LTD

Bradford Road, Gomersal, Cleckheaton, Yorkshire. Tel: Cleckheaton 2442/3. Cables: Acoustics, Bradford.

460TC

4in tweeter. Paper cone. Doped cambric surround. Alcomax II magnet. Voice coil ⅝in. Gap flux 6,000 gauss. Total flux 9,000 maxwells. HC 3W. vci: 4-8 or 15 ohms. FR: 2 KHz-17 KHz. rcf 5 KHz. Price £1 7s (plus 6s 2d PT).

CB8

8in mid-range. Paper cone, doped cambric surround, voice coil 1in. Ceramic magnet. Gap flux 12,000 gauss. Total flux 48,000 maxwells. HC 5W. vci: 4-8 or 15 ohms. FR: 45 Hz-10 KHz. Price £3 12s (plus 16s 4d PT).

CB8T

8in paper cone plus tweeter inner. Doped cambric surround. Voice coil 1in. Ceramic magnet. Gap flux 12,000 gauss. Total flux 48,000 maxwells. HC 5W. vci: 4-8 or 15 ohms.

FR: 45 Hz-15 KHz. Price: £3 15s (plus 16s 11d PT).

CB4 Tweeter

4in paper cone. Doped cambric surround. Ceramic magnet. Voice coil ⅝in. Gap flux 10,000 gauss. Total flux 15,000 maxwells. HC 3W. vci: 4-8 or 15 ohms. FR: 2 KHz-17 KHz. rcf 5 KHz. Price: £1 15s (plus 7s 11d PT).

CC8

8in bass/mid-range unit. Paper cone. Doped cambric surround. Ceramic magnet. Voice coil 1in. Gap flux: 12,000 gauss. Total flux: 48,000 maxwells. HC: 5W. vci: 4-8 or 15 ohms. FR: 35 Hz-10 KHz. Price: £3 12s (plus 16s 4d PT).

CF8

8in unit. Paper cone. Moulded polyurethane surround. Ceramic magnet. Resonance 25 Hz. Voice coil 1in. Gap flux: 14,000 gauss. Total flux: 56,000 maxwells. HC: 6W. vci: 4-8 or 15 ohms. FR: 25 Hz-8 KHz. Price: £5 5s (plus £1 3s 9d PT).

CG8T

8in paper cone, doped cambric surround plus tweeter inner. Voice coil 1in. Ceramic magnet. Gap flux 14,000 gauss. Total flux 56,000 maxwells. HC 6W. vci: 4-8 or 15 ohms. FR: 45 Hz-15 KHz. Price: £5 8s (plus £1 4s 6d PT).

CG8

8in paper cone, doped cambric surround. Voice coil 1in. Gap flux 14,000 gauss. Total flux 56,000 maxwells. HC 6W. vci: 4-8 or 15 ohms. Ceramic magnet. FR: 45 Hz-10 KHz. Price: £5 5s (plus £1 3s 9d PT).

CG10

10in paper cone, doped cambric surround. Ceramic magnet. Voice coil 1½in. Gap flux 14,000 gauss. Total flux 105,000 maxwells. HC 10W. vci: 4-8 or 15 ohms. FR: 40 Hz 10 KHz. Price: £7 15s (plus 11 15s 1d PT).

CG10T

10in paper cone, doped cambric surround plus tweeter inner. Voice coil 1½in. Ceramic magnet. Gap flux 14,000 gauss. Total flux 105,000 maxwells. HC 10W. vci: 4-8 or 15 ohms. FR: 40 Hz-15 KHz. Price: £8 (plus £1 16s 3d PT).

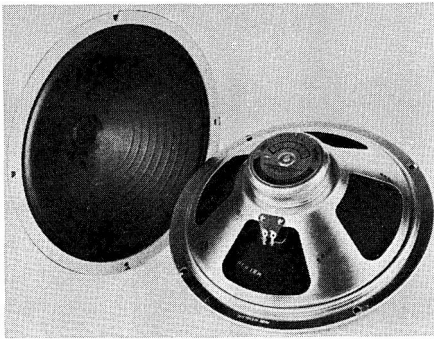
CG12 ★

12in. single paper cone. Doped cambric surround. Ceramic magnet. Voice coil 1½in (copper). vci: 4-8 or 15 ohms. Gap flux 14,000 gauss. Total flux 105,000 maxwells. Ceramic magnet. HC 10W. FR: 25 Hz-9 KHz. rcf 1 KHz. Price: £9.

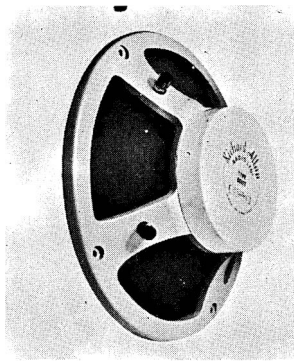
CG12T

12in paper cone plus tweeter inner. Ceramic magnet. Doped fabric surround. Voice coil 1½in. vci: 4-8 or 15 ohms. Gap flux: 14,000 gauss. Total flux: 105,000 maxwells HC: 10W. FR: 25 Hz-15 KHz. Price: £9 5s.

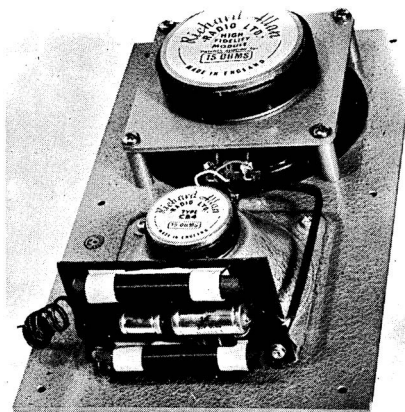
★ Indicates entry is illustrated



Adastra Hi-Ten



Richard Allan CG 12T



Richard Allan mid-range and HF module

CG12 Super

12in paper cone, doped cambric surround. Ceramic magnet. Voice coil 2in. Gap flux 14,000 gauss. Total flux 186,000 maxwells. HC 15W. vci: 8 or 15 ohms. FR: 25 Hz-5 KHz. Price: £11 15s.

CG15

15in paper cone, doped cambric surround. Ceramic magnet. Voice coil 2in. Gap flux 17,000 gauss. Total flux 220,000 maxwells. HC 20W. vci: 8 or 15 ohms. FR: 20 Hz-5 KHz. Price: £19 10s.

CM8

8in mid-range unit. Paper cone. Doped cambric surround. Ceramic magnet. Voice coil 1in. Gap flux: 12,000 gauss. Total flux: 48,000 maxwells. HC: 5W. vci: 4-8 or 15 ohms. FR: 75 Hz-10 KHz. Price: £3 12s (plus 16s 4d PT).

CP8

8in mid-range unit. Paper cone. Doped cambric surround. Ceramic magnet. vci: 4-8 or 15 ohms. Voice coil: 1in. Gap flux: 10,000 gauss. Total flux: 40,000 maxwells, HC: 5W. FR: 75 Hz-10 KHz. Price: £3 (plus 13s 7d PT).

CR5

5in paper cone. Neoprene surround. Ceramic magnet. Voice coil 1in. Gap flux 14,000 gauss. Total flux 56,000 maxwells. HC 10W. vci: 4-8 or 15 ohms. FR: 30 Hz-8KHz. Specially designed for use in small volume infinite baffle enclosure. Price: £4 12s 6d (plus £1 0s 10d PT).

* Richard Allan full-range speaker modules are included in Speaker Enclosure section. Twin Assembly, Triple Assembly and Super Assembly speaker kits are in the Constructional Kits section.

ALTEC LANSING

Distributors: Carston Electronics Ltd.,

71 Oakley Road, Chinnor, Oxon.

Tel: Kingston Blount 8561.

604E

Dual coaxial full-range speaker unit. 15in main cone with 3in voice coil, HF radiator with 1½in voice coil. High compliance assembly with cloth surround. LF voice coil copper. HF voice coil aluminium. Impedance: 8 or 16 ohms. Gap flux: LF 13,000 gauss, HF 15,500 gauss. HC 35W (50W peak). FR: 20 Hz-22 KHz. Crossover: built-in dual full section 1.5 KHz. Price: £110.

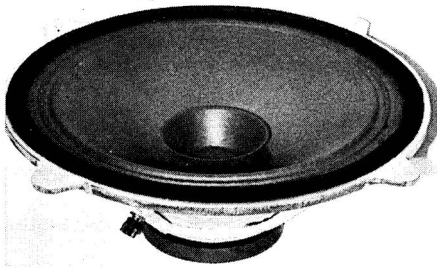
605B

Duplex speaker (15in). 3in LF voice coil, 1½in. HF voice coil. FR: 20 Hz-22 KHz. HC: 35W, 50W peak. Crossover at 1.6 KHz. vci: 16 ohms. Price: £99.

405A

4in P.A. unit. 1in voice coil. FR: 60 Hz-15 KHz.

SPEAKER DRIVE UNITS



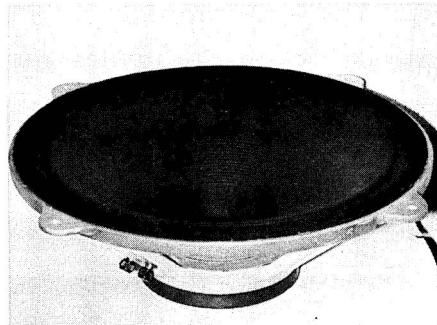
Baker 12 in. Major



Baker 12 in. De Luxe



Baker 12 in. Superb



Baker 15 in. Auditorium

HC: 10W. vci: 8 ohms. Cone resonance 70 Hz. Flux 10,250 gauss. Price on application.

409B

8in wide angle coaxial speaker. 1in LF voice coil, $\frac{3}{8}$ in. HF voice coil. FR: 50 Hz to 14 KHz. HC: 16W. vci: 8 ohms. 120° distribution. LF cone resonance 80 Hz. Price on application.

BAKER REPRODUCERS LTD

Bensham Manor Road Passage, Thornton Heath, Surrey.

Tel: 01-684 1665.

Regent

Full range 12in cone speaker. Paper cone with roll surround. Voice coil $1\frac{1}{2}$ in. Copper voice coil. vci: 3 or 15 ohms. Gap flux 12,000 gauss. HC 15W RMS. FR: 45 Hz-13 KHz. Price: £7.

Major ★

Full range 12in speaker with built-in tweeter cone. 14,000 gauss magnetic gap. FR: 40 Hz-14.5 KHz. HC 20W RMS. vci: 15 ohms. Cast aluminium chassis. Weight: 6 lb. Price: £9.

Deluxe Mk II ★

Full range 12in cone speaker. 15W RMS. Bass resonance 32-38 Hz. Gap flux 14,000 gauss. Copper voice coil $1\frac{1}{2}$ in diameter. vci: 15 ohms. Paper cone with foam plastic surround. Built-in tweeter cone. FR: 25 Hz-16 KHz. Cast aluminium chassis. Depth 6in. Weight: 6 lb. Price: £10.

Superb Twelve ★

Full range 12in speaker with built-in tweeter cone. Rubber roll surround. Coil diameter: $1\frac{1}{2}$ in. vci: 15 ohms. Gap flux 16,500 gauss. HC 20W RMS. FR: 20 Hz-17 KHz. Bass resonance 22-26 Hz. Aluminium speech coil. Diecast aluminium chassis. Weight: 10 lb. Price: £15.

Auditorium 12

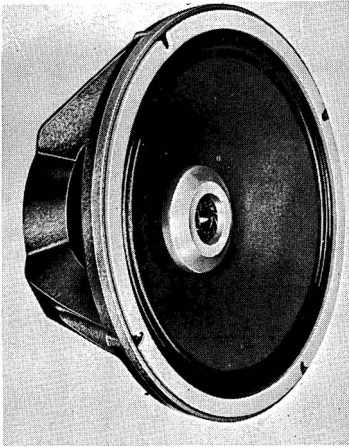
Full range 12in cone speaker suitable for bass unit in multi-speaker system. HC 25W RMS. Bass resonance 36-45 Hz. Gap flux 15,000 gauss. Copper voice coil $1\frac{1}{2}$ in diameter. vci: 15 ohms. FR: 25 Hz-12 KHz. Paper cone with roll surround. Cast aluminium chassis. Depth 7in. Weight: 10 lb. Price: £14.

Auditorium 15 ★

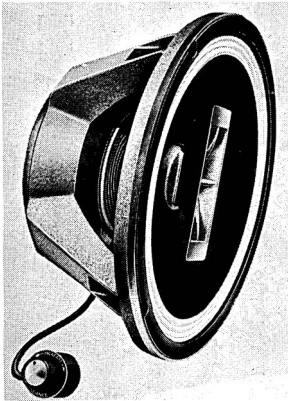
High power 15in speaker suitable for bass unit in multi-speaker system. HC 35W RMS. Similar specification to Auditorium 12 except 2in diameter voice coil and handling capacity 35W RMS. Depth: 8in. Weight: 15lb. Price: £19.

Laboratory Standard 12

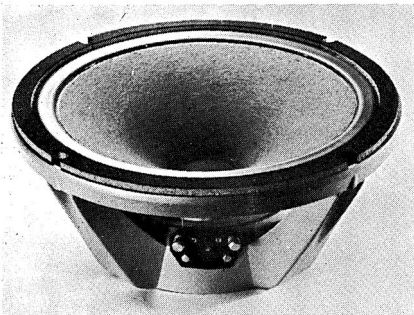
Full range 12in speaker employing patented differential wave impedance cone. Resin-impregnated paper cone with central metallic ellipse. $1\frac{1}{2}$ in diameter copper voice coil. Rubber roll surround. Impedance: 15 ohms. Gap



Celestion CX1512 co-axial speaker



Celestion CX2012 co-axial speaker



Celestion Studio 12

flux 15,000 gauss. HC 15W RMS. FR: 20 Hz-20KHz. Bass resonance 22-27 Hz. Price: £22.

Laboratory Standard 15

Medium range 15in speaker employing patented differential wave impedance cone. Resin-impregnated paper cone with central metallic ellipse. Foam plastic surround. 2in diameter copper voice coil. vci: 15 ohms. Cast aluminium chassis. Gap flux 15,000 gauss. HC 20W RMS. FR 20 Hz-12 KHz. Bass resonance 18-25 Hz. Price: £28.

Group 25

12in cone speaker with heavy duty suspension forelectronic music, guitars, etc. HC 25W RMS. vci: 15 ohms. Bass resonance 80 Hz. FR: 30 Hz-10 KHz. Gap flux 12,000 gauss. Voice coil 1½in. Depth: 6in. Weight: 5 lb. Price: £7.

Group 35

12in cone speaker with heavy duty suspension forelectronic music, guitars, etc. HC 35W RMS. vci: 15 ohms. Bass resonance 80 Hz. FR: 30 Hz-10 KHz. Gap flux 14,000 gauss. Voice coil 1½in. Depth: 6½in. Weight: 6 lb. Price: £9.

Group 50

15in cone speaker with heavy duty suspension forelectronic music, guitars, etc. HC 50W RMS. vci: 15 ohms. Bass resonance 80 Hz. FR: 30 Hz-10 KHz. Gap flux 17,000 gauss. Voice coil 2in. Depth: 8in. Weight: 15 lb. Price: £19.

BURNE-JONES & CO LTD

18 Brunswick Road, Sutton, Surrey.

B.J. Treble 20

Omni-directional multi-horn. One 4in. unit. Crossover built-in. FR: 1-18 KHz. Size 6 × 5in. Weight: 1½ lb. Price: £3.

B.J. Treble Twin

Omni-directional horn. Two 4in drive units. Crossover included. FR: 900 Hz-18 KHz. Size: 9 × 4½ × 6in. Weight: 2 lb. Price: £5 10s.

CELESTION

Rola-Celestion Ltd., Foxhall Road, Ipswich, Suffolk, IP3 8JP. Tel: Ipswich 73131.

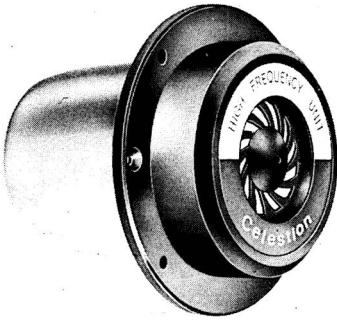
Studio Series CX1512 ★

12in coaxial unit comprising paper cone bass speaker and pressure driven tweeter. Plastaflex surround. Bass voice coil 1¼in. diameter, treble voice coil ¾in. diameter, both copper wound. vci: 15 ohms. Gap flux 13,000 gauss. Total flux 88,000 maxwells. HC 15W. FR: 30 Hz-15 KHz. Price: £12 19s 6d.

Studio Series CX2012 ★

12 in coaxial unit comprising paper cone bass speaker and pressure driven tweeter. Hi-flex free surround. Bass voice coil 1¼in diameter copper wound, treble voice coil 1in diameter

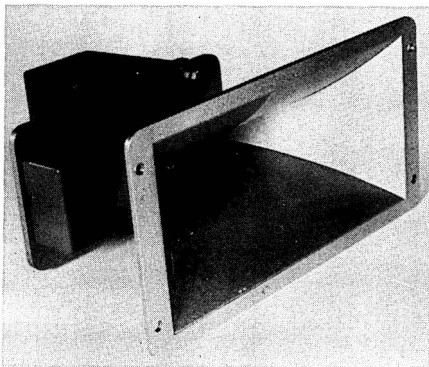
SPEAKER DRIVE UNITS



Celestion HF 1300 Mk 2



Celestion PS8



Decca DK30 Ribbon

aluminium wound. vci: 15 ohms. Gap flux 17,000 gauss. Total flux 180,000 maxwells. HC 20W. FR: 30 Hz-18 KHz. Price: £18 18s.

Studio 12 ★

12in bass unit designed specially for use with HF 1300 Mk 2 and CO3K crossover. Paper cone with ultra compliant rubber surround. Voice coil diameter 1 $\frac{3}{4}$ in. vci: 15 ohms. Total flux 88,000 maxwells. HC 15W RMS. FR: 30 Hz-5 KHz. Rec crossover 3 KHz. Rigid die-cast chassis. Enclosure details on request. Price: £10 17s 6d.

HF1300 Mk 2 ★

High frequency 3in tweeter. vci: 15 ohms at 10 KHz. HC 5W RMS. Suitable for use with systems up to 20W. FR: 2 KHz-15 KHz. Rec crossover 3 KHz. Styled with flange to give easy and accurate mounting. Phase correction plate for improved polar response. Self-aligning diaphragm. Contoured pole piece. Damped acoustic cavity to reduce fundamental diaphragm resonance. High flux magnet. Price: £5 18s 6d.

PS8TCS ★

8in twin-cone unit. Designed for the home constructor and recommended by Mullard for use with Unilex audio modules. Impedance: 15 ohms. Resonance: 75 Hz. 1in voice coil. Paper cone. Copper voice coil. Gap flux: 10,000 gauss. Total flux: 38,500 maxwells. HC: 6W. FR: 50 Hz-12.5 KHz. Price: £2 7s 4d (plus 11s 2d PT).

DECCA

Decca Special Products, Ingate Place, Queens-town Road, London, SW8. Tel: 01-622 6677.

DK30 Ribbon ★

Horn-loaded high frequency ribbon speaker. Size: 6 $\frac{1}{2}$ × 3 $\frac{1}{2}$ × 2in. Aluminium ribbon element. Impedance 8 ohms constant. HC 30W maximum. FR: 2.5 KHz-25 KHz. rcf 2.5 KHz. Price: £16.

D1/8 Bass Unit

Cone speaker designed for bass use. Size: 12 $\frac{3}{4}$ × 6in. Impregnated paper cone. Impregnated fibre surround. 2in voice coil. Copper voice coil. Impedance 8 ohms at 400 Hz. Gap flux 14,000 gauss. Total flux 250,000 maxwells. HC 30W. FR: 30 Hz-5 KHz. rcf 2.5 KHz. Price: £14.

EAGLE PRODUCTS

Distributors: B. Adler & Sons (Radio) Ltd., Coptic Street, London, WC1.
Tel: 01-636 9066/7. Cables: Reldab, London.

CT5 Cone Tweeter

Diameter 3in approximately. HC 5W. Rec crossover 3 KHz. Price: £1 0s 6d.

★ Indicates entry is illustrated

CT10 Horn Tweeter ★

3½in. Aluminium cone and surround. Voice coil lin (aluminium). vci: 8 ohms. HC 10W. FR: 1.5-18 KHz. rcf 3 KHz. Price: £1 13s 1d.

FR4

High-compliance full-range 4in. unit. FR: 40 Hz-16 KHz. Bass resonance 60-70 Hz. HC 5W RMS. Flux density: over 10,000 gauss. vci: 8 ohms. Baffle opening: 3½in. Depth: 2in. Price: £3 2s 1d (plus 14s 10d PT).

FR65

High-compliance full-range 6½in unit. FR: 30 Hz-18 KHz. HC 10W. Flux density: over 11,000 gauss. vci: 8 ohms, Baffle opening: 5½in. Depth 2½in. Price: £4 17s 10d. (plus £1 4s 1d PT).

FR8★

High-compliance full-range 8in. unit. FR: 30 Hz-20 KHz. Bass resonance 30-50 Hz. HC 15W RMS. Flux density: over 12,000 gauss. vci: 8 ohms. Baffle opening: 6½in. Depth: 3½in. Price: £5 14s 7d (plus £1 8s 8d PT).

HT15

High frequency horn unit. FR: 2 KHz-18 KHz. vci: 16 ohms. HC 15W music. rcf 3 KHz. Flux density 13,000 gauss. Baffle hole required 2½in. Price: £3 2s 6d.

ELAC. Electro Acoustic Industries Ltd

Stamford Works, Broad Lane, Tottenham, London, N15.

Tel: 01-808 0505. Cables: Elac, London, N15.

Elac 8N/148 Mk II (8N/185)

8in. Exponential paper cone. Paper surround, integral with cone. Voice coil lin. copper. vci: 15 ohms. Gap flux 12,000 gauss. Total flux 48,300 maxwells. HC 5 watts. FR: 40 Hz-12 KHz (loaded conditions). rcf (high frequency) 8 KHz. Price: £3 18s 8d (plus £1 0s 9d PT).

EMI

EMI Sound Products Ltd., Component Division, Blyth Road, Hayes, Middlesex.

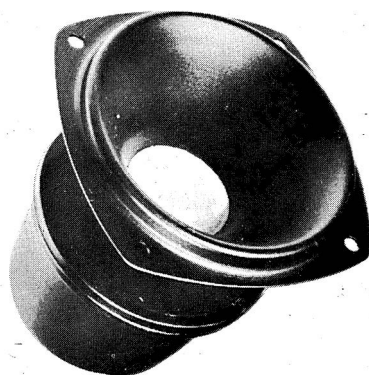
Tel: 01-573 3888.

150

13½ × 8½in wide range elliptical speaker. HC: 8W RMS. Impedance: 3 or 15 ohms. FR: 50 Hz-11 KHz. Speech coil 1in dia. Flared HF centre cone. Ceramic Magnadure II magnet. Price and recommended enclosure details on request.

215

Matched speaker set, 14 × 9in bass unit, two 5in mid-range and 3½in tweeter. Impedance: 8 ohms. FR: 20 Hz-20 KHz. HC: 30W. Crossover circuit has adjustable HF and mid-range facilities. Price and recommended enclosure details on application.



Eagle CT10 horn tweeter



Eagle FR8

250

Matched speaker set comprising 5in bass driver and 3½in tweeter. HC: 8W. Impedance: 8 ohms. FR: 80 Hz-20 KHz. Crossover: 6.5 KHz. Wide suspension roll surround. HF unit response up to 20 KHz. Price and recommended enclosure details on request.

315

Matched speaker set. 15in bass unit, two 5in mid-range and two 3½in tweeters. Impedance: 8 ohms. FR: 20 Hz-20 KHz. HC: 35W. Crossover circuit has adjustable HF and mid-range facilities. Price and recommended enclosure details on application.

350

Matched speaker set. 13½ × 8in bass unit, with coaxially mounted 3½in tweeter. Crossover frequency: 5KHz. Impedance: 8 ohms. FR: 20 Hz-20 KHz. HC: 20W. Price and recommended enclosure details on application.

450

Matched speaker set comprising $13\frac{1}{2} \times 8\frac{1}{2}$ in bass driver and two HF units mounted at an angle in front. HC: 10W RMS. FR: 55 Hz-13 KHz. Impedance: 3 or 15 ohms. Price and recommended enclosure details on request.

550

Matched speaker set comprising $13\frac{1}{2} \times 8\frac{1}{2}$ in bass driver, two HF units with ring magnets and curved cones, and crossover unit. Impedance: 5 ohms. HC: 10W RMS. FR: 20 Hz-20 KHz. Price and recommended enclosure details on request.

650

Matched speaker set. 10×6 in bass unit, with coaxially mounted $3\frac{1}{2}$ in tweeter. Impedance: 8 ohms. FR: 30 Hz-20 KHz. Crossover frequency: 5 KHz. HC: 5W. Price and recommended enclosure details on application.

750

Matched speaker set. $13\frac{1}{2} \times 8$ in bass unit. 10×6 in mid-range and two $3\frac{3}{8}$ in tweeters. Comprehensive crossover circuit has adjustable mid-range and tweeter facilities. Impedance: 8 ohms. FR: 20 Hz-20 KHz. HC: 20W. Price and recommended enclosure details on application.

850

Matched speaker set comprising $6\frac{1}{2}$ in bass driver, $3\frac{3}{8}$ in HF unit and crossover inductor. Impedance: 8 ohms. HC: 10W RMS. FR: 65 Hz-20 KHz. Price and recommended enclosure details on request.

950

Matched speaker set. Hand-made 19×14 in bass unit, with four HF units mounted across major axis of bass unit. Comprehensive crossover circuit has adjustable mid-range and tweeter facilities. Impedance: 8 ohms. FR: 15 Hz-20 KHz. HC: 50W. Price and recommended enclosure details on application.

FANE ACOUSTICS LTD

Hick Lane, Batley, Yorks.
Tel: Batley 2114. Cables: Fane, Batley.

101/10

10in ceramic magnet unit with 2in voice coil. HC 15W RMS. vci: 15 ohms. Main resonance 60 Hz. Gap flux 10,000 gauss. Total flux 100,000 maxwells. Single cone, copper voice coil. FR: 40 Hz-10 KHz. Price: £5 10s (plus £1 6s 7d PT).

101/10a

Similar to 101/10 but with twin cone, aluminium voice coil and FR: 40 Hz-15 KHz. Price: £6 5s (plus £1 10s 4d PT).

101/12

Similar to 101/10 but with 12,000 gauss magnet. Price: £6 10s (plus £1 11s 4d PT).

101/12a

Similar to 101/12 but with twin cone, aluminium voice coil and FR: 40 Hz-15 KHz. Price: £7 5s (plus £1 15s 3d PT).

101/14

Similar to 101/10 but with 14,000 gauss magnet. Price: £8 15s (plus £2 2s 3d PT).

101/14a

Similar to 101/14 but with twin cone, aluminium voice coil and FR: 40 Hz-15 KHz. Price: £9 10s (plus £2 4s 3d PT).

122/10

12in ceramic magnet unit with 2in diameter voice coil. HC 20W RMS. vci: 15 ohms. Main resonance 40 Hz or 70 Hz as required. FR: 30 Hz-5 KHz. Gap flux 10,000 gauss. Total flux 100,000 maxwells. Copper voice coil. Single cone. Price: £6 16s.

122/10a

Similar to 122/10 but with twin cone, aluminium voice coil and FR: 30 Hz-15 KHz. Price: £7 13s.

122/12

Similar to 122/10 but with 12,000 gauss magnet. Price: £8 18s.

122/12a

Similar to 122/12 but with twin cone, aluminium voice coil and FR: 30 Hz-15 KHz. Price £9 15s.

122/14

Similar to 122/10 but with 14,000 gauss magnet and HC 22W. Price: £11 3s.

122/14a

Similar to 122/14 but with twin cone, aluminium voice coil and FR: 30 Hz-15 KHz. Price: £12.

122/17

Similar to 122/10 but with 17,000 gauss magnet, 25W handling capacity and FR: 25 Hz-6 KHz. Price: £13 11s.

122/17a

Similar to 122/17 but with twin cone, aluminium voice coil and FR: 30 Hz-17 KHz. Price: £14 8s.

152/12

15in ceramic magnet unit with 2in diameter voice coil. HC 25W RMS. vci: 15 ohms. Main resonance 32 Hz. Gap flux 12,000 gauss. Total flux 160,000 maxwells. Copper voice coil. Single cone. FR: 25 Hz-2.5 KHz. Price £14 6s.

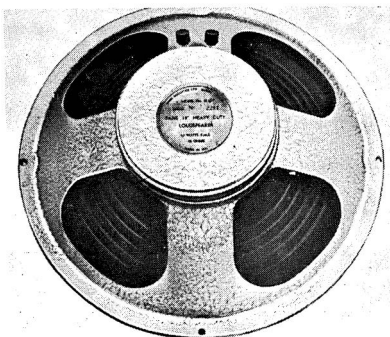
152/12a

Similar to 152/12 but with twin cone, aluminium voice coil and FR: 30 Hz-15 KHz. Price: £15 11s.

152/14

Similar to 152/12 but with 14,000 gauss magnet, HC 27W and FR: 25 Hz-3.5 KHz. Price: £16 9s 6d.

★ Indicates entry is illustrated



Fane model 152/17

152/17 ★

Similar to 152/12 but with 17,000 gauss magnet. HC 30W RMS and FR: 25 Hz-4 KHz. Price: £19 14s.

152/17a ★

Similar to 152/17 but with aluminium voice coil, twin cone and FR: 30 Hz-17 KHz. Price: £20 19s.

153

15in extra heavy duty unit with ceramic magnet and 3in diameter voice coil. Gap flux 14,500 gauss. Total flux 375,000 maxwells. HC 40W RMS. Copper voice coil. Single cone. FR: 30 Hz-3.5 KHz. vci: 15 ohms. Main resonance 40 Hz. Weight: 20 lb. Price: £21 15s.

183

18in extra heavy duty unit with ceramic magnet and 3in diameter voice coil. Gap flux 14,500 gauss. Total flux 375,000 maxwells. HC 60W. Copper voice coil. Single cone. FR: 20 Hz-3 KHz. vci: 15 ohms. Main resonance 30 Hz. Weight: 22 lb. Price: £26.

301

3in HF unit. Gap flux 17,000 gauss. Range: 1.5 KHz-18 KHz. vci: 8-15 ohms. HC 15W instantaneous peak. Price: £4 11s 6d.

501

5in mid-range unit. Gap flux 15,000 gauss. Total flux 60,000 maxwells. HC 20W. 1in diameter aluminium voice coil. vci: 15 ohms. Rigid cone with neoprene surround. FR: 400 Hz-5 KHz. rcf 800 Hz and 3.5 KHz. Price: £5 8s (plus £1 6s PT).

505

Similar to 501 but with 11,000 gauss magnet and HC 15W. Price: £3 18s (plus 18s 10d PT).

502

5in full-range unit for small enclosures. Gap flux 15,000 gauss. Total flux 60,000 maxwells. HC 8W. 1in copper voice coil. Price: £5 8s (plus £1 6s PT).

506

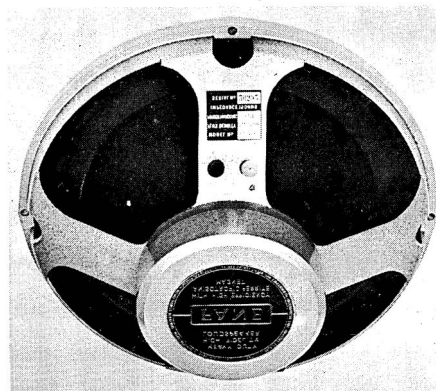
Similar to 502 but with 11,000 gauss magnet and HC 7W. Price: £3 18s (plus 18s 10d PT).

Ionofane 601 ★

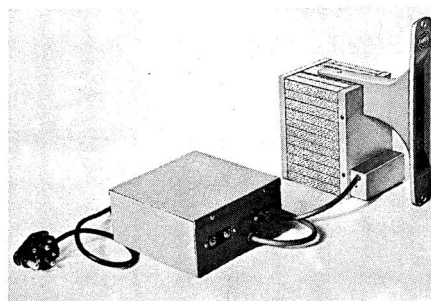
Ionic high-frequency speaker unit. FR: level 2.5 KHz-30 KHz. Will handle high note portion of 20W music signal. Impedance 15 ohms. Mains power required: 200/220/240V AC at 55W. Price: £29 8s.

801

8in full-range unit. 1in pole piece with 15,000 gauss magnet. Twin cone. Aluminium voice coil. Resonance 25 Hz. Response up to 15 KHz. Price: £5 15s 6d (plus £1 7s 10d PT).



Fane 152/17a speaker



Fane Ionofane 601 HF driver

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THORENS

Renowned throughout the world for precision transcription turntables offering top performance and utmost reliability.

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A range of stereo cartridges famed for their faithful reproduction of the original performance.

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A new range of stereo cartridges from U.S.A. competitively priced and covering every application.

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High quality Hi-Fi Stereo Amplifiers and Great Britain's largest range of tape and audio accessories

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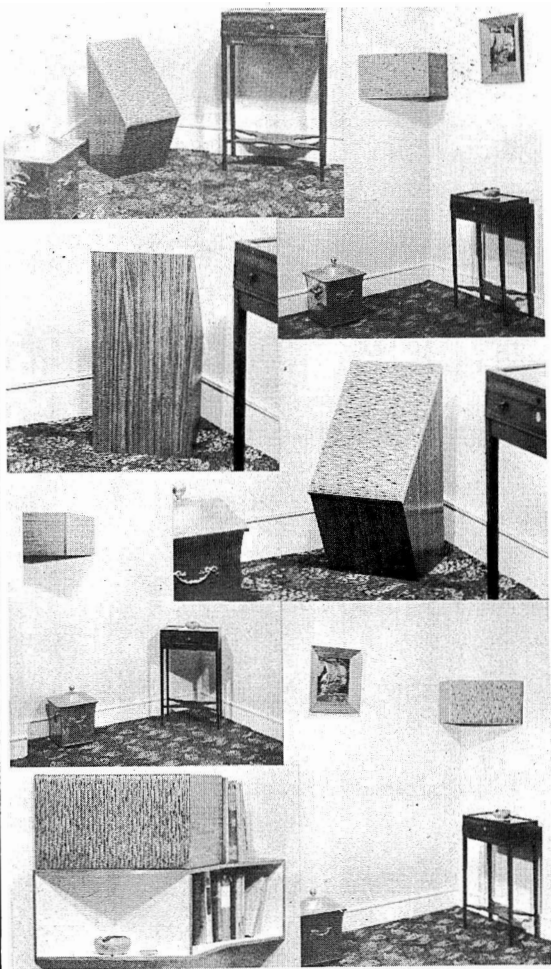
An amazing stereo playback system using 8 track stereo tape cartridges.

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Telephone: Waltham Cross 31933

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ON AN ORIGINAL THEME

**BY THE MOST VERSATILE HI-FI
LOUDSPEAKER IN THE WORLD**

THE OMNI...

...BY RECTAVOX

THE RECTAVOX COMPANY

**CENTRAL BUILDINGS, WALLSEND
NORTHUMBERLAND. Tel: 624845**

802

8in unit similar to 801 but with single cone and copper voice coil. Resonance 70 Hz. Response up to 10 KHz. Price £5 5s 6d (plus £1 5s 6d PT).

805

8in unit similar to 801 but with 11,000 gauss magnet. Price: £4 13s (plus £1 2s 6d PT).

806

8in unit similar to 802 but with 11,000 gauss magnet. Price: £4 4s (plus £1 0s 3d PT).

1001

10in full-range unit. 1in dia pole piece with 15,000 gauss magnet. Twin cone. Aluminium voice coil. Resonance 22 Hz. Response up to 15 KHz. HC 10W. Price: £6 10s 6d (plus £1 11s 6d PT).

1002

10in unit similar to 1001 but with single cone and copper voice coil. Resonance 60 Hz. Response up to 10 KHz. Price: £6 (plus £1 9s PT).

1005

10in unit similar to 1001 but with 11,000 gauss magnet. Price: £5 10s (plus £1 6s 7d PT).

1006

10in unit similar to 1002 but with 11,000 gauss magnet. Price: £5 (plus £1 4s 1d PT).

138/11

13 × 8in elliptical. 11,000 gauss ceramic magnet. 1in voice coil. Impedance: 15 ohms. HC 15W. FR: 30 Hz-15 KHz. Price: £5 1s 6d.

138/15

13 × 8in elliptical. Similar specification to 138/11 but with 15,000 gauss magnet. FR: 30 Hz-16 KHz. Price: £6 9s.

Special low resonance versions of 10in, 12in, 15in and 18in speakers are available at slightly higher prices. These are intended for use as bass units in hi-fi multiple systems. They have rigid moulded fibre cones with rubber surround allowing free axial movement. Must be used in suitable reflex or infinite baffle cabinets. Not recommended for use with electric guitars or with small open baffles.

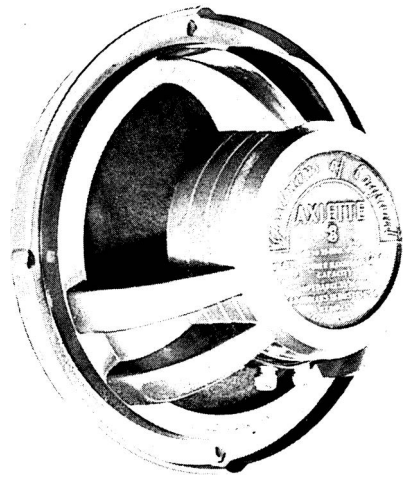
Also available are special 'Pop' versions of 10in, 12in, 15in, 18in speakers. Designed for vocal and instrumental reproduction, and public address systems. Details on application.

GOODMANS LOUDSPEAKERS LTD

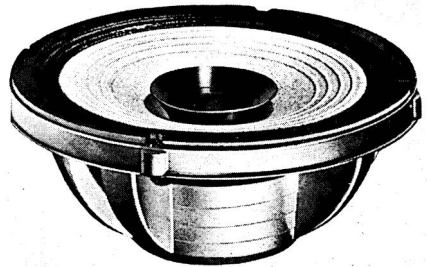
Axiom Works, Wembley, Middx.
Tel: 01-902 1200. Cables: Goodaxiom, Wembley.

Axiette 8 ★

8in. Paper cone. Plastic treated surround. Voice coil 1in. Gap flux 13,500 gauss. Total flux 53,000 maxwells. HC 6W. vci: 15 or 8 ohms. FR: 40 Hz-15 KHz. Price: £5 15s (plus £1 7s 1d PT).



Goodmans Axiette 8



Goodmans Twin Axiette 8

Twin Axiette 8 ★

8in twin cone version. FR: 40 Hz-18 KHz. Mechanical crossover at 2 KHz. Other details as for Axiette 8. Price: £6 10s (plus £1 10s 7d PT).

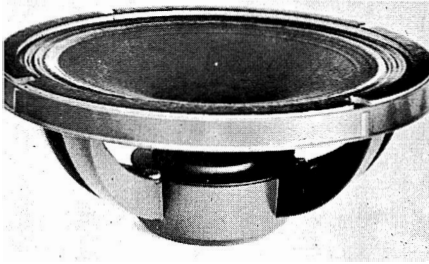
Axiom 10 ★

10in. Paper cone. Plastic treated surround. Voice coil 1in. Gap flux 13,500 gauss. Total flux 53,000 maxwells. HC 10W. vci: 15 or 8 ohms. FR: 40 Hz-15KHz. Price: £6 16s (plus £1 12s PT).

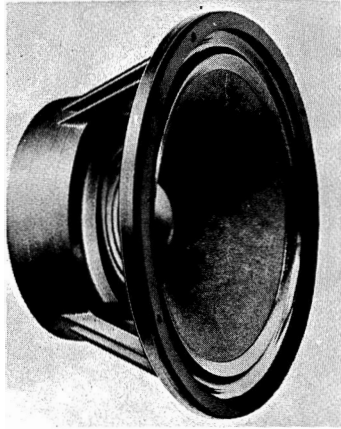
Twin Axiom 10

Full-range 10in unit. Paper cone. Latex coated papers surround. Voice coil 1in diameter (copper). Impedance: 8 or 15 ohms. Gap flux 13,500 gauss. Total flux 53,000 maxwells. HC 10W RMS. FR: 40 Hz-18 KHz. Price: £7 12s 8d (plus £1 15s 11d PT).

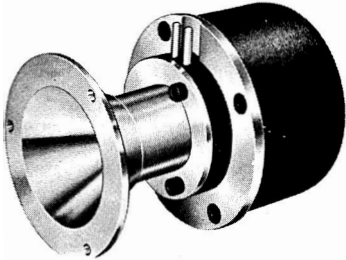
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Goodmans Axiom 10



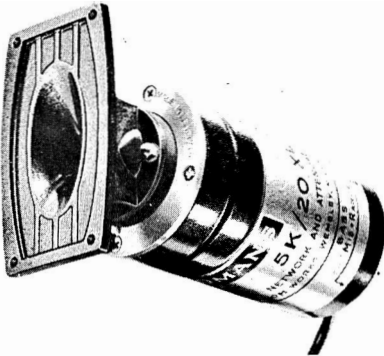
Goodmans Audiom 51



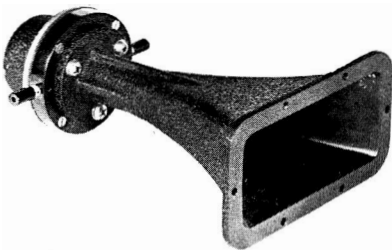
Goodmans Trebax HF unit



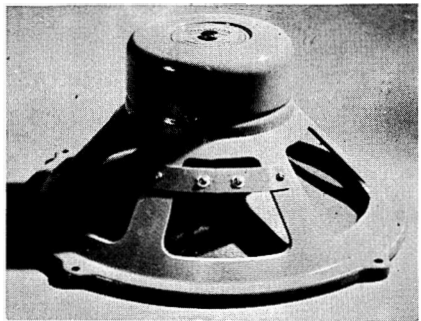
Goodmans Axiom 301



Goodmans Trebax 5K/20 XL



Goodmans Midax 650



Grampian 1255/15

Trebox ★

Horn-loaded pressure tweeter. Aluminium diaphragm. Voice coil 1 in. HC suitable for inclusion in systems of up to 25W. vci: 15 ohms at 10 KHz. FR: 2.5 KHz-20 KHz rcf 5 KHz. Price: £7 9s.

Trebox 5K/20XL ★

Horn loaded pressure tweeter. Built in L/C crossover (5 KHz) and attenuator. Suitable for inclusion in systems of up to 20W. Dispersion angle 90°. Price: £8 8s.

Midax 650 ★

Horn loaded pressure unit. Resin impregnated linen diaphragm. Diecast horn. Voice coil 1½ in. HC suitable for systems up to 25W. vci: 15 ohms. FR: 650 Hz-8 KHz. rcf Hz, 5 KHz. Price: £11 4s.

Audiom 51 bass ★

12in. Paper cone. Voice coil 1¾ in (4.4 cm). vci: 15-16 or 8 ohms. Gap flux 13,000 gauss. Total flux 87,500 maxwells. HC 15W. Fundamental resonance 35 Hz. Price: £11 6s.

The Audiom 51 is available in two versions: Audiom 51 Bass—details as above, for use as bass unit in high fidelity systems. Audiom 51 Standard (50 Hz) for PA, guitars and all arduous conditions. Same price as above.

Audiom 61 bass

12in. Paper cone. Voice coil 1¾ in (4.4 cm). vci: 15-16 ohms. Gap flux 16,500 gauss. Total flux 185,000 maxwells. HC 20W. Fundamental resonance 35 Hz. Price: £16 7s.

The Audiom 61 is available in two versions: Audiom 61 Bass—details as above, for use as bass unit in high fidelity systems. Audiom 61 Standard (50 Hz) for PA, guitars and all arduous conditions. Same price as above.

Axiom 201

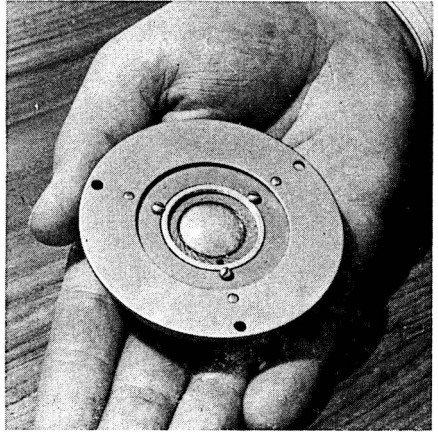
12in. Twin diaphragm paper cone with pure plastic roll suspension. Voice coil 1¾ in (4.4 cm) (aluminium). vci: 15-16 or 8 ohms. Gap flux 13,000 gauss. Total flux 87,500 maxwells, HC 15W. FR: 30 Hz-16 KHz. Built-in mechanical crossover at 5 KHz. Price: £12 10s.

Axiom 301 ★

12in twin diaphragm paper cone with pure plastic roll suspension. Voice coil 1¾ in (4.4 cm) (aluminium). vci: 15-16 or 8 ohms. Gap flux 16,500 gauss. Total flux 185,000 maxwells. HC 20W. FR: 30 Hz-16 KHz. Built-in mechanical crossover at 5 KHz. Price: £17 18s.

Audiom 81 bass

15in. Paper cone. Pure plastic roll suspension. Voice coil 3 in (7.6 cm). vci: 15-16 ohms. Gap flux 14,000 gauss. Total flux 269,000 maxwells. HC 25W. Fundamental resonance 30 Hz. Price: £27 12s.

*ITT 4001 HF unit*

The Audiom 81 is also available in 60 Hz version for special purposes.

The Audiom 81 bass (details above) with 30 Hz fundamental resonance is specially designed for use as the bass unit in a multiple system (with Midax and Trebox). In this case it must be mounted in the correct size of enclosure.

Audiom 18P

18in. Voice coil diameter: 3in. vci: 8 or 15 ohms. HC: 100W. Fundamental resonance: 45 Hz. Flux density: 13,500 gauss. Baffle hole diameter: 16½ in. Depth: 8¾ in. Weight: 26 lb. Recommended sealed enclosure (per speaker): 7,000 cu. in. Price: £34 (no PT).

GRAMPIAN REPRODUCERS LTD

Hanworth Trading Estate, Middx.
Tel: 01-894 9141. Cables: Reamp, Feltham.

Grampian 1255/15 ★

12in. Paper impregnated cone and surround. Voice coil 1¾ in. Gap flux 14,500 gauss. Total flux 130,500 maxwells. HC 10W. vci: 15 ohms. FR: 35 Hz-15 KHz. Price: £12 12s.

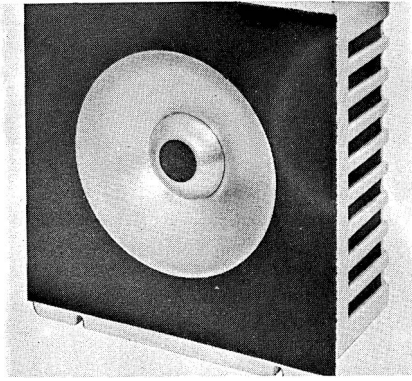
ITT-STC

ITT Component Group Europe, Standard Telephones & Cables Ltd., Electro-Mechanical Product Division, West Road, Harlow, Essex.
Tel: 0279-6 26811.

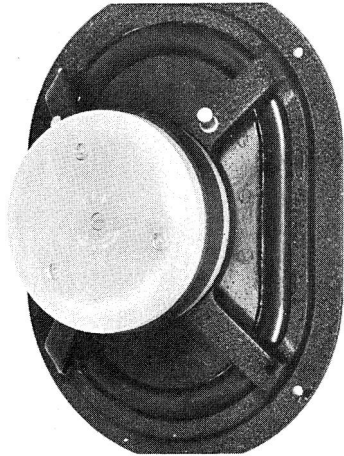
Type 4001G, High Frequency Unit ★

High frequency pressure unit. FR: 6 KHz-20 KHz. Substantially omni-directional. vci: 15 ohms. Flux density: 14,000 gauss. Size: approximately 2½ × 1in. Price: £5 12s 6d.

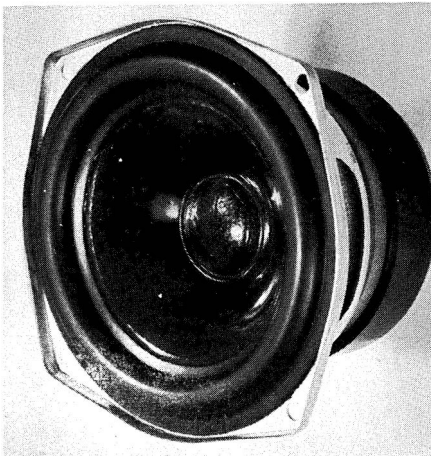
★ Indicates entry is illustrated



Jordan-Watts speaker drive module



KEF B139



KEF B110

JORDAN-WATTS

Distributors: Boosey & Hawkes (Sales) Ltd.,
Sonorous Works, Deansbrook Road, Edgware,
Middlesex.

Tel: 01-952 7711.

Jordan-Watts Module Mk II ★

6in square frame. Aluminium diaphragm with
plastic surround. Voice coil 1½in. Ceramic
magnet. vci: 3-5 ohms and 7½-16 ohms. HC:
12W. FR: 25 Hz-20 KHz. Price: £11.

KEF ELECTRONICS LTD

Tovil, Maidstone, Kent.

Tel: Maidstone 57258. Cables: KEF, Maidstone.

B139 ★ 13 × 9½ × 3in. 10lb. HC 30W. Resonance
20 Hz. Impedance 8 ohms. FR 20-1000 Hz.
Price: £11 10s.

B200

8¾ dia × 4in. 3¾ lb. HC 25W. Resonance 25 Hz.
Impedance 8 ohms. FR 25-3500 Hz. Price: £9
(plus £2 4s PT).

B110 ★

5½in dia. × 3⅞in. 3.6 lb. HC 15W. Resonance 30
Hz. Impedance 8 ohms. FR 30-5000 Hz. Price:
£7 (plus £1 12s 6d PT).

T15

3¾in dia. × 1⅞in. 2 lb. HC 6W. Resonance 550
Hz. Impedance 8 ohms. FR 800 Hz-20 KHz.
Price: £6.

T27 ★

4½in dia. × 1⅞in. 1.4 lb. HC 6W. Resonance 900
Hz. Impedance 8 ohms. FR 3-30 KHz. Price: £5.

See also entry in Constructional Kits section.

KELETRON

K. & K. Electronics Ltd., 24 Roman Road,
London, E2.

Tel: 01-980 1936.

K126/TC

Twin cone speaker with lin dia magnet pole.
Flux density: 6,000 gauss. Total flux: 24,000
maxwells. HC 5W RMS. FR: 45 Hz-15 KHz.
Price: £2 17s 6d.

K1210/TC

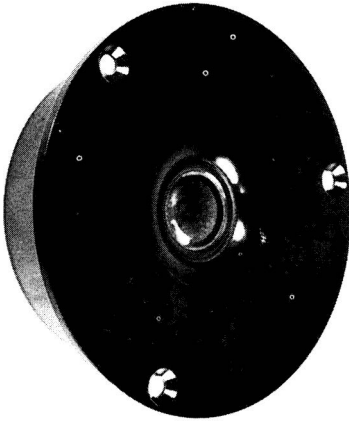
12in. Twin cone. Flux density: 10,000 gauss.
Total flux: 40,000 maxwells. HC 10W RMS.
FR: 40 Hz-15.5 KHz. Price: £4 17s 6d.

K1215/TC

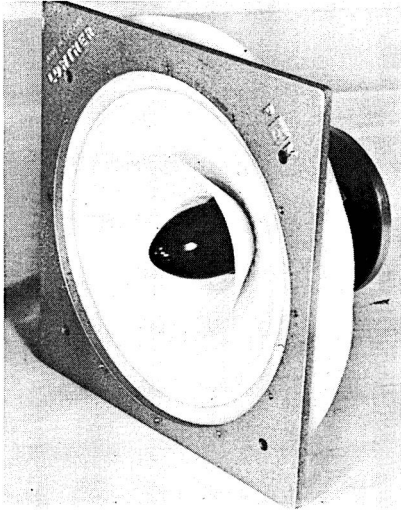
12in. Twin cone. Flux density: 11,000 gauss.
Total flux: 44,000 maxwells. HC 15W RMS. FR:
35 Hz-17.5 KHz. Price: £5 17s 6d.

K1220/TC

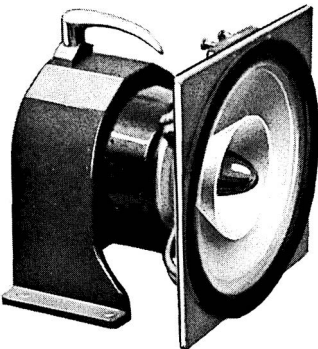
12in. Twin cone. Flux density: 10,000 gauss.
Total flux: 100,000 maxwells. HC 20W RMS.
FR: 30 Hz-18 KHz. Price: £7 7s.



KEF T27



Lowther PM2 Mk I



Lowther PM6

K1220/PA

12in. Single cone. Flux density: 10,000 gauss. Total flux: 100,000 maxwells. HC 20W RMS. FR: 30 Hz-18 KHz. Price: £7 5s.

K1525/SC

15in. Single cone. Flux density: 10,000 gauss. Total flux: 100,000 maxwells. HC 25W RMS. FR: 25 Hz-5 KHz. vci: 15 ohms. Price: £10 17s 6d.

K1570/SC

15in. Single cone. Flux density: 17,000 gauss. Total flux: 226,000 maxwells. HC 70W RMS. FR: 25 Hz-5 KHz. vci: 15 ohms. Price: £19 5s.

K18/100

18in. Single cone. Flux density: 14,500 gauss. Total flux: 375,000 maxwells. HC 100W RMS. FR: 20 Hz-5 KHz. vci: 15 ohms. Price: £24 17s 6d.

LOWTHER MANUFACTURING CO

Lowther House, St Mark's Road, Bromley, Kent, BR2 9HQ.

Tel: 01-460 5225. Cables: Lowther, Bromley.

P.M.2 Mk I ★

6in. Selected paper cone. Neoprene rubber surround. Voice coil 39 mm. Gap flux 21,000 lines per sq cm. Total flux 281,000 maxwells. HC 6W; 20W programme material. vci: 15 ohms. FR: 30 Hz-20 KHz. Price: £35.

P.M.2 Mk II

6in. Selected paper cone. Neoprene rubber surround. Voice coil 39 mm. Gap flux 23,000 gauss. Total flux 350,000 maxwells. HC 6W; 20W programme material. vci: 15 ohms. FR: 25 Hz-22 KHz. Price: £50.

P.M.4

6in. Selected paper cone. Neoprene rubber surround. Voice coil 37 mm. Gap flux 24,000 gauss. Total flux 385,000 maxwells. HC 6W; 20W programme material. vci: 16 ohms. FR: 25 Hz-24 KHz. Price: £65.

P.M.6 ★

6in. Selected paper cone. Neoprene rubber surround. Voice coil 39 mm. Gap Flux 17,500 gauss. Total flux 196,000 maxwells. HC 6W; 20W programme material. vci: 16 ohms. FR: 30 Hz-20 KHz. Price: £20 10s.

P.M.6S

As P.M.6 but with stand mounting. Price: £20 10s.

P.M.6 Mk. 1

P.M.6 magnet assembly with a new diaphragm assembly: Lowther Special Silver speech coil, roll surround and back centring providing an improved performance. P.M.6 will still be available as a replacement unit. Price: £24 10s.

★ Indicates entry is illustrated

P.M.7

6in. Selected paper cone. Neoprene rubber surround. Voice coil 39 mm. Gap flux 19,650 gauss. Total flux 250,000 maxwells. HC 6W; 20W programme material. vci: 16 ohms. FR: 30 Hz-20 KHz. Price: £33.

P.M.7S

As P.M.7 but with stand mounting. Price: £33. Full stabiliser for any of Lowther drive units. Price: £1 17s 6d.

KEITH MONKS (AUDIO) LTD

5 Fleet Road, Fleet, near Aldershot, Hants.
Tel: Fleet 7316.

Hypertone ★

Titanium cone speaker module. 6in. titanium piston with cantilever suspension. 1½in dia voice coil. Total flux 160,000 maxwells. Mean hemispherical power response substantially level to 15 KHz. vci: 8 or 15 ohms at 400 Hz. HC 15W RMS at and above the lower system limit (dependent upon loading conditions), 30W music rating, i.e. under normal use. Price: £19 10s.

PEERLESS

Distributor: P. F. & A. R. Helme, Summerbridge, Harrogate, Yorks.
Tel: Darley 279.

All units are 8 ohms impedance, but some tweeters have 16 ohm alternatives.

MT 20 HFC

Tweeter, 2×2in. HC 5W. FR: 2.5-18 KHz. Price: £1 9s 6d (plus 7s PT).

MT 225 HFC

Tweeter, 2¼×2¼in. vci: 16 ohms. HC 5W. FR: 1.5-20 KHz. Price: £1 10s 0d (plus 7s 5d PT).

MT 25 HFC

Tweeter, 2½×2½in. vci: 16 ohms. HC 5W. FR: 1.5-18 KHz. Price: £1 9s 0d (plus 7s 3d PT).

0525 WL

Woofer. 5in. HC 10W. Maxwells: 54,000. Resonant frequency: 40 Hz. Price: £4 7s 6d (plus £1 1s 7d PT).

B 65 WG

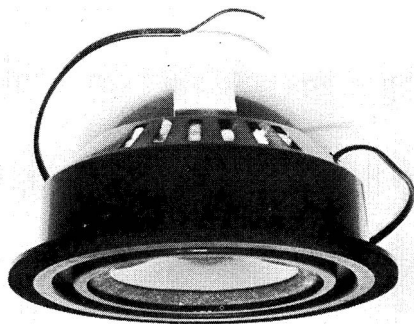
Woofer, 6½in. HC 10W. Maxwells: 54,000. Resonant frequency: 50 Hz. Price: £4 (plus 19s 9d PT).

610 W

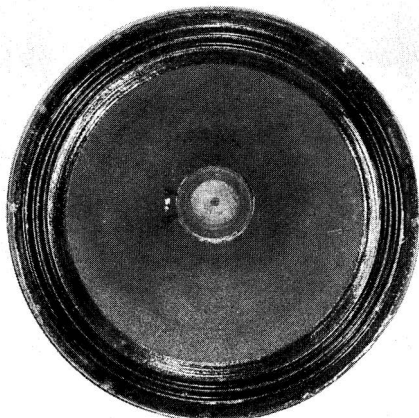
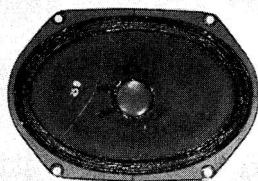
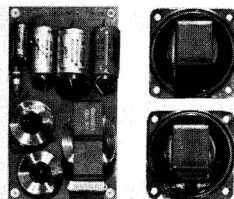
Woofer. 10×6in. HC 10W. Maxwells: 54,000. Resonant frequency: 40 Hz. Price: £3 2s 6d (plus 16s PT).

P 825 W

Woofer, 8in. HC 12W. Maxwells: 90,000. Resonant frequency: 45 Hz. Price: £5 2s 6d (plus £1 5s 4d PT).



Keith Monks Hypertone



Peerless 4-30/12 (see Kit Section)

L 825 WG

Woofer, 8in. HC 50W. Maxwells: 64,000. Resonant frequency: 25 Hz. Price: £5 15s (plus £1 9s 2d PT).

L 100 WG

Woofer, 10in. HC 50W. Maxwells: 64,000. Resonant frequency: 20 Hz. Price: £6 5s (plus £1 11s PT).

CM 120 W

Woofer, 12in. HC 12W. Maxwells: 90,000. Resonant frequency: 35 Hz. Price: £6 2s 6d (No PT).

D 120 WL(Sp)

Woofer, 12in. HC 40W. Maxwells: 115,000. Resonant frequency: 25 Hz. Price: £10 10s (No PT).

D 150 WL(Sp)

Woofer, 15in. HC 50W. Maxwells: 115,000. Resonant frequency: 20 Hz. Price: £17 19s 6d (No PT).

GT 50 MRC

Mid-range unit. 5in dia. HC 6W. FR: 800 Hz-7 KHz. Maxwells: 21,500. Price: £2 (plus 9s 10d PT).

G 50 MRC

Mid-range unit. 5in dia. HC 10W. FR: 750 Hz-6 KHz. Maxwells: 42,000. Price: £3 2s 6d (plus 16s 10d PT).

0570 MRC

Mid-range unit. 5×7in. HC 20W. FR: 250 Hz-4.5 KHz. Maxwells: 54,000. Price: £5 7s 6d (plus £1 6s 6d PT).

E.396 M

Full-range 6×4in unit. Price: £2 (plus 9s 10d PT).

E.396 M (special)

Full-range 6×4in unit. Price: £2 12s 6d (plus 12s 11d PT).

E.460 (special)

Full range 6×4in unit. Price: £1 17s 6d (plus 9s 3d PT).

B 65 FM

Full range. 6½in. HC 6W. FR: 35 Hz-15 KHz. Maxwells: 57,000. Price: £3 7s 6d (plus 16s 9d PT).

610 FM

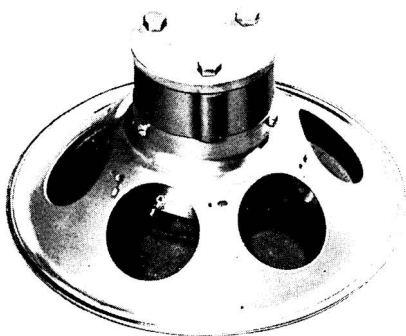
Full range. 6½×10½in. HC 6W. FR: 35 Hz-15 KHz. Maxwells: 57,000. Price: £3 12s 6d (plus 18s PT).

P 825 FM

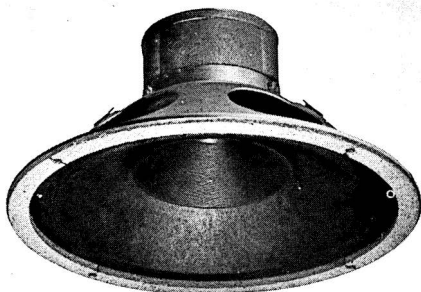
Full range. 8¼in. HC 10W. FR: 30 Hz-16 KHz. Maxwells: 90,000. Price: £5 17s 6d (plus £1 9s PT).

CM 120 FM

Full range. 12in. HC 12W. FR: 30 Hz-14 KHz. Maxwells: 57,000. Price: £4 15s.



Philips 9710M



Philips 9710M

D 120 FM

Full range. 12in. HC 12W. FR: 30 Hz-14 KHz. Maxwells: 115,000. Price: £9 5s.

Coax 825-20

Full range. 8¼in. HC: 12W. FR: 30 Hz-18 KHz. Maxwells: woofer 90,000; tweeter 12,000. Price: £10 10s (plus £2 12s PT).

PHILIPS ELECTRICAL LTD

Century House, Shaftesbury Avenue, London, WC2.

Tel: 01-437 7777. Cables: Phillamps, London.

9710M ★

8in. Dual cone. Paper corrugated surround. Voice coil 1in. Gap flux 8,000 gauss. Total flux 97,600 maxwells. HC 10W RMS. vci: 7 ohms. FR: 40 Hz-19 KHz. Price: £4 19s 6d (plus £1 1s 4d PT).

AD5200M

12in. Dual cone. Paper corrugated surround. Voice coil 1½in. Gap flux 11,000 gauss. Total flux 134,000 maxwells. HC 20W. vci: 7 ohms. FR: 35 Hz-15 KHz. Price: £10 10s.

★ Indicates entry is illustrated

ROLA-CELESTION

See Celestion.

STENTORIAN

Whiteley Electrical Radio Co. Ltd., Victoria Street, Mansfield, Notts.
Tel: Mansfield 24763.

Stentorian HF.812

8in. Composite (paper and cambric) cone. Cambric surround. Voice coil lin. Gap flux 12,000 gauss. Total flux 47,400 maxwells. HC 5W. vci: universal (3, 7.5 and 15 ohms). FR: 50 Hz-12 KHz. Price: £4 18s 7d (plus £1 4s 4d PT).

H.F.816

8in. Composite (paper and cambric) cone. Cambric surround. Voice coil lin. Gap flux 16,000 gauss. Total flux 63,000 maxwells. HC 6W. vci: universal 3, 7.5 and 15 ohms. FR: 50 Hz-14 KHz. Price: £8 2s 2d (plus £2 0s 1d PT).

H.F.912

9in. Composite (paper and cambric) cone. Cambric surround. Voice coil lin. Gap flux 12,000 gauss. Total flux 47,400 maxwells. HC 7W. vci: universal (3, 7.5 and 15 ohms). FR: 40 Hz-13 KHz. Price: £5 3s 11d (plus £1 5s 8d PT).

H.F.912/67

9in die cast. Speech coil: aluminium. Pole dia 1in. Magnet system: 1.2 Webers/m². vci: 15 ohms. HC 10W. Price: £6 3s (plus £1 10s 4d PT).

H.F.916

9in. Composite (paper and cambric) cone. Voice coil lin. Gap flux 16,000 gauss. Total flux 63,000 maxwells. HC 7W. vci: universal (3, 7.5 and 15 ohms). FR: 40 Hz-14 KHz. Bass resonance 45 Hz. Price: £8 7s 9d (plus £2 1s 5d PT).

H.F. 1012

10in. Composite (paper and cambric) cone. Cambric surround. Voice coil lin. Gap flux 12,000 gauss. Total flux 47,400 maxwells. HC 10W. vci: universal 3, 7.5 and 15 ohms. FR: 30 Hz-14 KHz. Price: £5 18s 6d (plus £1 9s 3d PT).

H.F.1016 ★

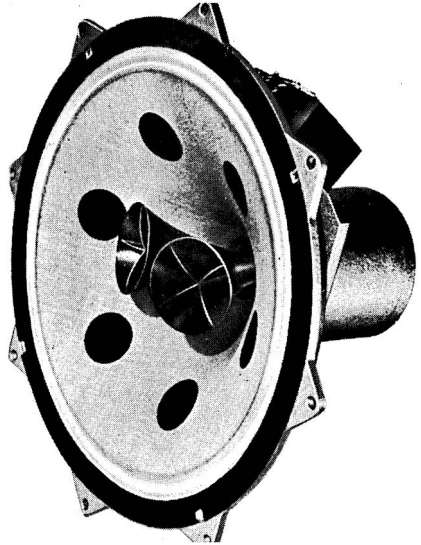
10in. Composite (paper and cambric) cone. Cambric surround. Voice coil lin. Gap flux 16,000 gauss. Total flux 63,000 maxwells, HC 10W. vci: 3, 7.5 and 15 ohms FR: 30 Hz-15 KHz. Price: £9 9s 3d (plus £2 6s 9d PT).

H.F. 1016 Major

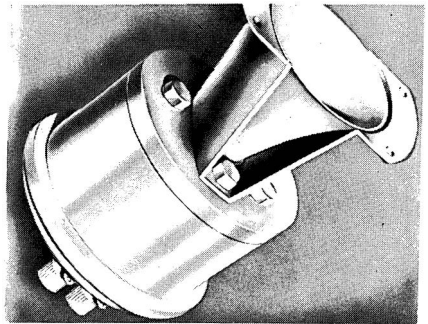
10in. Paper cone. Cambric surround. Voice coil lin (aluminium). vci: 15 ohms. Gap flux 16,000 gauss. Total flux 64,000 maxwells. HC 10W. FR: 60 Hz-16 KHz or 30 Hz-16 KHz (depending upon cabinet). Price: £12 3s 8d (plus £3 0s 2d PT).



Whiteley HF 1016



Whiteley 15 in. concentric duplex



Whiteley T10 HF unit

10in Concentric Duplex

Composite (paper and cambric) cone. Cambric surround. Voice coil 1in. Gap flux (LF) 12,000 (HF) 13,000 gauss. Total flux 47,400 maxwells. HC 10W. vci: 15 ohms. FR: 30 Hz-14 KHz, rcf 3 KHz built-in. Price: £15 19s (plus £3 18s 10d PT).

H.F.1214

12in. Composite (paper and cambric) cone. Cambric surround. Voice coil 1.5in. Gap flux 14,000 gauss. Total flux 106,000 maxwells. HC 15W. vci: 15 ohms. FR: 25 Hz-14 KHz. Price: £16 4s 4d.

H.F.1214/67

12in bass loudspeaker. Speech coil: copper. Pole dia: 1½in. Magnet system: 1.4 Webers/m². vci: 15 ohms. Price: £17 18s 10d.

H.F.1216

Composite (paper and cambric) cone. Cambric surround. Voice coil 1½in. Gap flux 16,000 gauss. HC 15W. FR: 20 Hz-16 KHz. Price: £24 17s 2d.

12in Concentric Duplex

Composite (paper and cambric) cone. Cambric surround. Series-gap Alcomax III magnet. LF gap flux 14,000 gauss. HF gap flux 17,000 gauss. Total flux 220,000 maxwells. vci: 15 ohms. Built-in crossover. FR: 25 Hz-17 KHz. Bass resonance 35 Hz. HC 15W. Pressure die-cast Mazak chassis. HF metal diaphragm protected and loaded by central pressure horn. Price: £43 8s 1d.

15in Concentric Duplex ★

Composite (paper and cambric) cone. Cambric surround. Voice coil 2in. Gap flux (LF) 14,000 (HF) 17,000 gauss. Total flux 350,000 maxwells. HC 25W. vci: 15 ohms. FR: 20 Hz-18 KHz. rcf 3 KHz built-in. Price: £71 0s 6d.

H.F.1514

15in. Composite (paper and cambric) cone. Cambric surround. Voice coil 2in. Gap flux 14,000 gauss. Total flux 178,000 Maxwells. HC 25W. vci: 15 ohms. FR: 25 Hz-5 KHz. rcf 1.5-3 KHz. Price: £41 0s 6d.

T.10 Tweeter ★

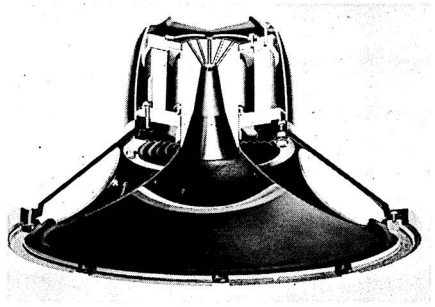
Aluminium cone and surround. Voice coil 1in. Gap flux 14,000 gauss. Total flux 44,000 maxwells. HC 5W. vci: 15 ohms. FR: 2-14 KHz. rcf 3 KHz. Price: £6 19s 6d.

T.12 Tweeter

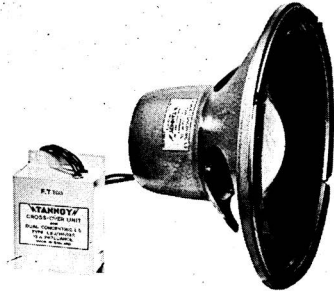
Aluminium cone and surround. Voice coil 1.5in. Gap flux 17,000 gauss. Total flux 110,000 maxwells. HC 12W. vci: 15 ohms. FR: 2-17 KHz. rcf 3 KHz. Price: £20 17s 6d.

T.816

8in. Paper cone and surround. Voice coil 1in. Gap flux 16,000 gauss. Total flux 63,000 maxwells. HC 15W. vci: 15 ohms. FR: 1.5-17



Tannoy Monitor Gold III LZ



Tannoy Monitor Gold "Twelve"

KHz. rcf 1.5 KHz. Price: £7 13s 8d (plus £1 18s PT).

T.359 ★

3½in. Paper cone and surround. Voice coil 0-625 in. Gap flux 9,000 gauss. Total flux 14,900 maxwells. HC 15W with crossover. vci: 5 or 15 ohms. FR: 3-17 KHz. rcf KHz. Price: £2 1s 5d (plus 10s 3d PT).

T812/67

8in middle and high frequency loudspeaker. Speech coil: aluminium. Pole dia: 1in. Magnet system: 1.2 Webers/m². vci: 15 ohms. ¼ section crossover unit 1 KHz. Price: £5 17s 7d (plus £1 9s 1d PT).

TANNOY PRODUCTS LTD

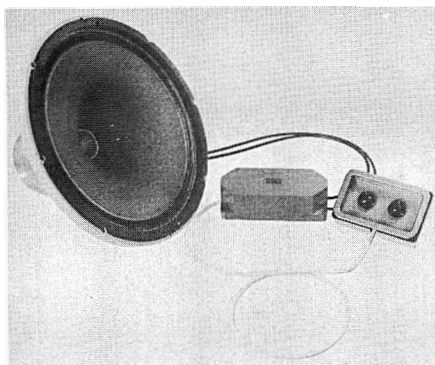
West Norwood, London, SE27.
Tel: 01-670 1131. Cables: Tannoy, London.

Direct radiator.

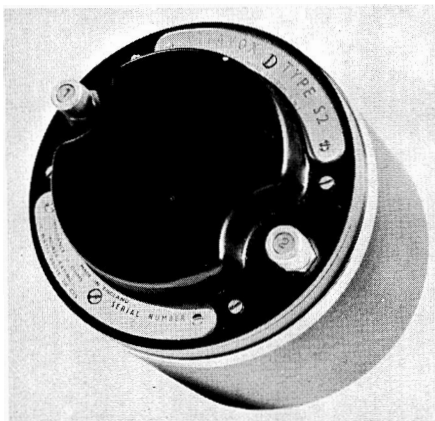
12in. Moulded fibre cone. Plastic treated surround. Voice coil 2in. Gap flux 14,000 gauss. HC 15W. vci: 20 ohms. FR: 40 Hz-16 KHz. Price: £16 10s.

Monitor Gold III LZ ★

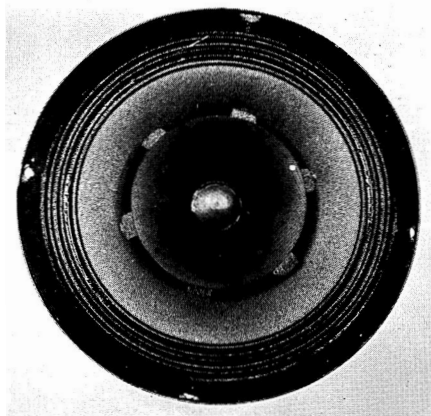
12in dual concentric. Moulded fibre cone. Plastic impregnated surround. Gap flux (LF) 10,000 (HF) 15,000 gauss. HC 10W. FR:



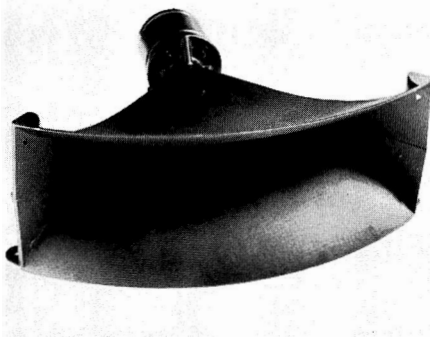
Tannoy Monitor Gold 15



Vitavox S2



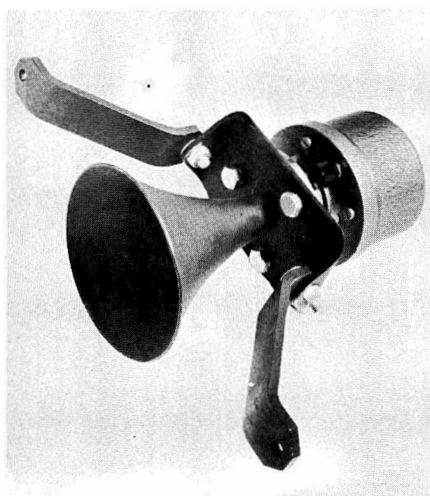
Tripletone Twin cone 8 or 10 in.



Vitavox HF dispersive horn



Vitavox AK 124



Vitavox treble horn

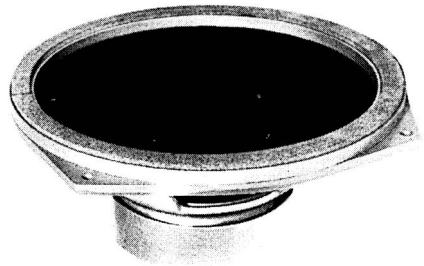
23 Hz-20 KHz, recommended crossover (supplied) 1 KHz. vci: 15 ohms. Price: £31.

Monitor Gold 'Twelve' ★

12in. Moulded fibre cone. Plastic treated surround. Voice coils (HF and LF) 2in. Gap flux (LF) 11,500 (HF) 15,000 gauss. HC 30W. FR: 25 Hz-20 KHz, recommended crossover (supplied) 1 KHz. Price: £36 10s.

Monitor Gold 'Fifteen' ★

15in. Moulded fibre cone. Plastic treated surround. Voice coils (HF and LF) 2in. Gap flux (LF) 13,500 (HF) 18,000 gauss. HC 50W. FR: 23 Hz-20 KHz, recommended crossover (supplied) 1 KHz. Price: £43 5s.



Vitavox AK151

resonance 30-35 Hz. Voice coil 2.25in. Gap flux 14,000 gauss. Total flux 260,000 maxwells. HC 25W nominal. FR: 30 Hz-5 KHz nominal. (HC and FR determined by enclosure.) vci: 15 ohms. Price: on application.

AK151 ★

Driver for bass horn of dual channel system. 15in paper cone, paper surround. Bass resonance 40-50 Hz. Voice coil 2½in. Gap flux 14,000 gauss. Total flux 260,000 maxwells. DC resistance of voice coil 5.5-6.5 ohms. HC and FR determined by associated horn characteristics. Price: on application.

S2 HF pressure unit ★

Diaphragm pressure-formed from lightweight aluminium alloy. Voice coil 3in diameter. Gap flux 16,000 gauss. Total flux 150,000 maxwells. HC above 200 Hz 10W. Nominal FR: 200 Hz-16 KHz. Rec crossover 500 Hz. Price: on application.

HF Dispersive Horn ★

Designed for use with S2 pressure unit. Cast in aluminium alloy. Non-resonant. Cut-off frequency 300 Hz. Price: on application.

Treble Horn ★

High frequency horn. Impedance: 15 ohms. Gap flux: 13,000 gauss. HC: 12W (above 1 KHz). FR: 1 KHz-15 KHz. Crossover: (recommended) 1 KHz. Price: on application.

WHARFEDALE

Rank Wharfedale Ltd., Bradford Road, Idle, Bradford, Yorkshire.
Tel: Bradford 612552. Cables: Wharfedel, Idle, Bradford. Telex: 51407.

8in Bronze/RS/DD

Full-range 8in unit. Paper cone with double diaphragm. Fabric roll surround. Voice coil 1in. (aluminium). vci: 8-15 ohms. Gap flux 10,500 gauss. Total flux 41,500 maxwells. HC 4WRMS. FR: 50 Hz-20 KHz. Price: £3 9s 11d (plus 17s 1d PT).

TRIPLETONE MANUFACTURING CO LTD

Factory No. 1, 138 Kingston Road, Wimbledon, London, SW19.
Tel: 01-542 1189.

Tripletone 8in ★

Full-range hi-fi unit. 8in. vci: 2-3 ohms, 8 ohms or 15 ohms. Flux density 12,000 lines/sq. cm. Bass resonance 60 Hz. Twin cone. HC 6W RMS. FR: 30 Hz-17 KHz. Price: £4 10s (plus £1 4s 9d PT).

Tripletone 10in ★

Full range hi-fi unit. 10in. vci: 2-3 ohms or 15 ohms. Flux density 12,000 lines/sq cm. Bass resonance 55 Hz. Twin cone. HC 8W RMS. FR: 30 Hz-17 KHz. Price: £4 17s 6d (plus £1 6s 10d PT).

VITAVOX LTD

Westmoreland Road, London, NW9.
Tel: 01-205 8671. Cables: Vitavox, London, NW9.

Duplex coaxial DU121

12in paper cone. Plastic treated paper surround. 3in polyester film cone and surround. Voice coil (LF) 1.78in (HF) 0.65in. Gap flux (LF) 16,000 gauss. (HF) 12,000 gauss. Total flux (LF) 180,000 maxwells, (HF) 15,000 maxwells. HC 15W. vci: 15 ohms. FR: 30 Hz-15 KHz. Price: on application.

AK123 Heavy Duty

12in paper cone. Paper surround. Voice coil 1.78in. Gap flux 16,000 gauss. Total flux 180,000 maxwells. HC 20W. vci: 15 ohms. FR: 50 Hz-8 KHz. Price: on application.

AK124 ★

12in paper cone. Paper surround. Voice coil 1.78in. Gap flux 16,000 gauss. Total flux 180,000 maxwells. HC 15W. vci: 15 ohms. FR: 30 Hz-13 KHz. Price: on application.

AK150

15in paper cone. Treated paper surround. Bass

★ Indicates entry is illustrated



Wharfedale Super 8/RS/DD

Super 8/RS/DD ★

Full-range 8in unit. Paper cone with double diaphragm. Fabric roll surround. Voice coil 1in. (aluminium). vci: 8-15 ohms. Gap flux 14,500 gauss. Total flux 60,000 maxwells. HC 6W RMS. 12W peak. FR: 40 Hz-20 KHz. Price: £6 0s 6d (plus £1 9s 6d PT).

Super 10/RS/DD

Full-range 10in unit. Paper cone with double diaphragm. Fabric roll surround. Voice coil 1in. Gap flux 16,000 gauss. Total flux 85,000 maxwells. HC 10W RMS. vci: 8-15 ohms. FR: 30 Hz-20 KHz. Price: £10 0s 11d (plus £2 9s 1d PT).

Unit 3, Unit 4 and Unit 5

See Constructional Kits section.

**WHITELEY ELECTRICAL RADIO
CO LTD**

See Stentorian.

L. G. WOOLLETT & CO LTD

21 Anerley Station Road, London, SE20.

Tel: 01-778 9003.

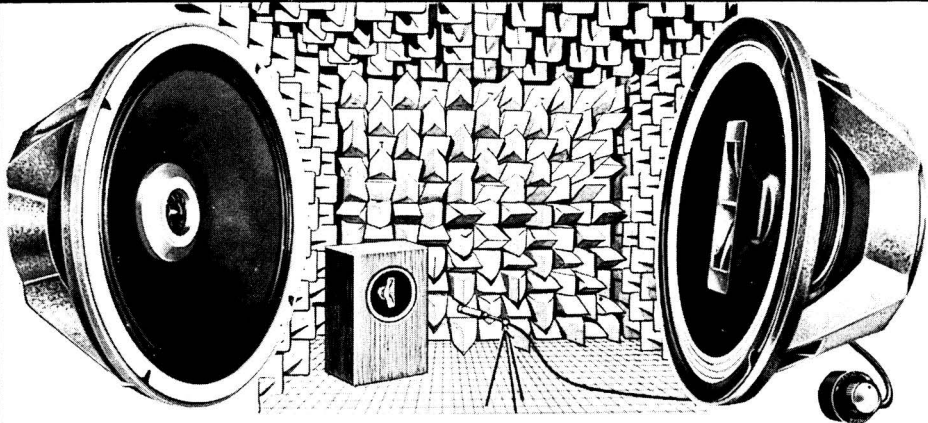
12in L.R.

Low resonance 12in dynamic unit. Paper cone with foam surround. HC 16W RMS. FR: 20 Hz-5 KHz. Special unit for use with Woollett electrostatic treble speakers. Price: £12 15s.

Type C

Constant charge push-pull electrostatic. Impedance 16 ohms. HC 20W RMS. FR: 1.6 KHz-20 KHz. Integral crossover. Attenuator, mains polariser. Rear sealed for mounting in bass cabinet behind horizontal 9×6½in aperture. Price: £19.

TWO 12 in. CO-AXIAL LOUDSPEAKERS WITH PROFESSIONAL PERFORMANCES



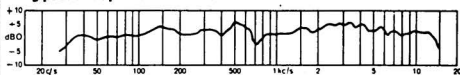
CX 1512

- PLASTAFLEX SURROUND ● COMPRESSION TREBLE UNIT ● TWO VOICE COILS ● HIGH FLUX CERAMIC MAGNETS ● RIGID DIE CAST CHASSIS ● PURE ELECTRICAL CROSSOVER

Specification

Overall Frequency Response	30-15,000 c/s
Power Handling Capacity	15 Watts R.M.S.
Fundamental Resonance Frequency	35 c/s
Crossover Frequency	4 kc/s
Impedance	15/16 ohms
Flux Density	13,000 gauss
Total Flux	88,000 Maxwells

Typical response curve of CX 1512



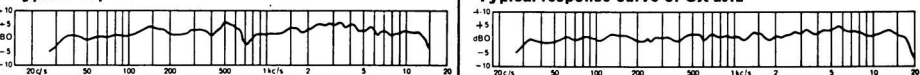
CX 2012

- HI-FLEX 'FREE' SURROUND ● TWO VOICE COILS ● COMPRESSION HORN LOADED TREBLE UNIT ● SEPARATE HIGH FLUX CERAMIC MAGNETS FOR BASS AND TREBLE UNITS ● PURE ELECTRICAL CROSSOVER ● RIGID DIE CAST CHASSIS ● HIGH FREQUENCY LEVEL CONTROL

Specification

Overall Frequency Response	30-18,000 c/s
Power Handling Capacity	20 Watts R.M.S.
Fundamental Resonance Frequency	35 c/s
Crossover Frequency	4 kc/s
Impedance	15/16 ohms
Flux Density	17,000 gauss
Total Flux	180,000 Maxwells

Typical response curve of CX 2012



Celestion

Studio Series

Loudspeakers for the Perfectionist

ROLA CELESTION LTD., Foxhall Road, Ipswich, Suffolk. IP3 8JP England
 TELEPHONE: 0473-73131 CABLES: VOICECOIL Ipswich TELEX 98365

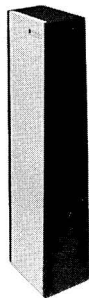
==BIG SOUND== thats KELETRON

the name which gives you quality
and low price in Audio Equipment

COLUMN SPEAKER ENCLOSURES & SYSTEMS

The KELETRON range of COLUMN SPEAKER ENCLOSURES have been designed for housing a large range of speakers which have been designed by leading speaker manufacturers for P.A. installations. Finished in Rexine-Leathercloth. 5" x 7" x 4" to 4 12" units. £11.15.0 to £19.15.0.

The KELETRON range of "PAC" General Purpose Column Speaker Systems are particularly suitable for use in Halls, Assembly Rooms, Churches, Restaurants, Cinemas, Theatres, Clubs, Discotheques, also for Bands or Groups and many other Commercial or Industrial establishments. 15 watts R.M.S. to 80 watts R.M.S. £19.15.0 to £53.0.0.



SPEAKERS & ENCLOSURES



The KELETRON range of SPEAKERS are as follows:—
12" 10 watts to 18" 100 watts. £5.0.0 to £32.0.0.

The KELETRON range of SPEAKER ENCLOSURES have been designed for the Audio Enthusiast who wants to build his own complete speaker systems to his own requirements. Finished in polished teak. 6" to 12" with tweeter 5 gns. to £12.10.0.

The KELETRON range of "KN" General Purpose 3-way Speaker Systems are housed in Handsome Slim Line Cabinets of Modern Design finished in polished teak with matching I.C.I. Vynair Grille. Models ranging from 5 watts to 20 watts. £9.10.0 to £24.0.0.

For further details write or 'phone:

K & K ELECTRONICS Ltd. 25, Roman Road, London E2

Telephone: 01-980 1936

Directory of Speaker Accessories

★ Indicates entry is illustrated

AUDIONE & CO

124 Cricklewood Broadway, London NW2.
Tel: 01-452 5470.

Null-a-tron

Speaker accessory designed to eliminate surface or background noise without effecting tone or frequency of programme material. Also expands dynamic range by introducing non-linear resistance into speaker circuits. Stereo. Impedance: 4, 8 or 16 ohms switchable. Finish: black. Size: $7\frac{1}{2} \times 3 \times 3$ in. Recommended that the Null-a-tron is not used with amplifiers of less than 7W RMS output per channel as some slight loss of power occurs. Switch permits unit to be cut out of circuit without altering wiring. Price: £7 10s.

RICHARD ALLAN RADIO LTD

Bradford Road, Gomersal, Cleckheaton, Yorkshire.
Tel: Cleckheaton 2442/3. Cables. Acoustics, Bradford.

CN.54 Crossover Unit

Two-way quarter section. Recommended for use with CR5 bass unit and 460TC tweeter. Crossover frequency 5 KHz. Impedance: 4-8 or 15 ohms. Price: £2.

CN.104 Crossover Unit

A two-way half-section parallel network. Crossover frequency 5 KHz. Impedance: 4-8 or 15 ohms. Price: £3.

CN. 1284 Crossover Unit

A three-way crossover with main crossover operating from half wave parallel network and subsidiary crossover capacity fed. Crossover frequencies 1,100 Hz and 5 KHz. Impedance: 8 or 15 ohms. Price: £4 10s.

CN1584

Three-way half-section crossover network. Crossover frequencies: 350 Hz and 8 KHz. Impedance: 8 or 15 ohms. Price: £5 15s.

TM156

Matching transformer for matching 4-8 ohms

to 15 ohms (or vice versa). HC 20W. Price: £3 12s.

BANG AND OLUFSEN U.K. LTD

Eastbrook Road, Gloucester, GL4 7DE.
Tel: Gloucester 21591.

Beolab 6006 Spread Unit ★

Provides connection for a centre speaker from stereo amplifier. Connects between amplifier and speakers. Single control to vary the width of stereo effect. Can also be used as headphone output. Price: £7 10s.

BLACK KNIGHT RUMBLECURE

Bank Top, Currier Lane, Ashton-under-Lyne, Lancs. Tel: 061-330 2836.

Rumblecure ★

Kits of units and individual items designed to isolate pickup arms, motor units, tape recorders, speaker enclosures and other pieces of equipment from mechanical vibration. Various patented accessories available. Full details and prices on request.

CELESTION

Rola-Celestion Ltd., Foxhall Road, Ipswich, Suffolk, IP3 8JP. Tel: Ipswich 73131.

CO3K crossover

Designed specially for use with Studio 12 and HF1300 Mk 2 units but equally suitable for use with any efficient bass and treble combination. Air-tight terminal assembly with flange mounting. Full half-section filter network. 12 dB per octave cut-off at 3 KHz. Size: $3\frac{3}{8}$ in long, $2\frac{3}{8}$ in diameter of body, $3\frac{1}{4}$ in diameter of flange. Price: £2 14s.

EAGLE PRODUCTS

Distributors: B. Adler & Sons (Radio) Ltd., Coptic Street, London, WC1.
Tel: 01-636 9606/7. Cables: Reldab, London.

CN.23 and CN.216

Two-way speaker cross-over networks. Crossover frequency 3 KHz. CN.23, 3 ohms; CN. 28, 8 ohms; CN.216, 16 ohms. Price: 17s 4d.

LS.2W ★

Stereo headphone control unit with provision for two sets of phones. A and B channel switching. Price: £3 6s 2d.

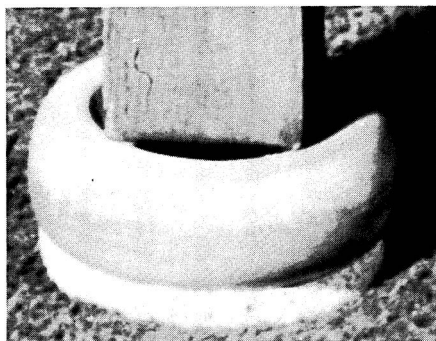
JB3 ★

Stereo headphone and speaker switching and attenuation unit. Jack socket for phones. Switch permits phones only, speakers only, or both together. Moulded case with provision for screwing down. Price: £1 11s.

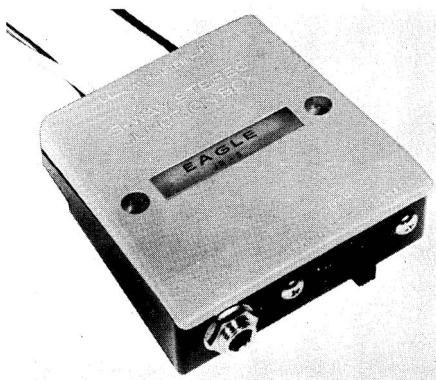
★ Indicates entry is illustrated



Bang & Olufsen 6006



Rumblecure acoustic castor cup



Eagle JB3

EMI SOUND PRODUCTS LTD

Hayes, Middlesex.

Tel: 01-573 3888. Cables: Emi-sound, London.

Crossover network 99970B

Combines any 3 ohm LF driver with two 15 ohm HF tweeters in parallel. Price on application.

Crossover network 99970F

Combines any 15 ohm LF driver with two 8 ohm HF tweeters in series. Price on application.

Networks available for all other speaker combinations. Separate chokes and capacitors for crossover networks. Prices and details on application.

FANE ACOUSTICS LTD

Hick Lane, Batley, Yorks.

Tel: Batley 2114. Cables: Fane, Batley.

Model 2X1

Crossover unit for two-speaker system. Crossover frequency 2 KHz. 15 ohms. Cut-off 6 dB/octave. Size: $5\frac{5}{8} \times 3\frac{1}{4} \times 1\frac{1}{2}$ in. Price: £4.

Model 3X1

Crossover unit for three-speaker system. Crossover frequencies 800 Hz and 5 KHz. Impedance 15 ohms. Cut-off 6 dB/octave. Size: $5\frac{5}{8} \times 3\frac{1}{4} \times 2\frac{1}{2}$ in. Price: £5.

Model 3X2

Crossover for three-speaker system. Similar to one used in Ionofane 602 and 603. Crossover frequencies 800 Hz and 3.5 KHz. Matching impedance 15 ohms. Cut-off 12 dB/octave. Size: $6 \times 5\frac{1}{4} \times 2\frac{3}{4}$ in. Price: £6 5s.

GEOFFREY GOODWIN HI-FI LTD

137 Hale Lane, Edgware, Middlesex.

Tel: 01-959 2988.

GG Audio Switch

For use in installations where two sets of speakers are employed or where a stereo headphone socket is not available. Both pairs of speakers may be operated simultaneously or either pair selected for independent use.

When unit switched to headphones both pairs of speakers are disconnected. Dimensions: $5\frac{3}{4} \times 3\frac{1}{4} \times 3\frac{1}{4}$ in. Weight: 1 lb. Finish: teak. Connections by screw terminations. Price: £4 17s 6d.

GG Headphone Control

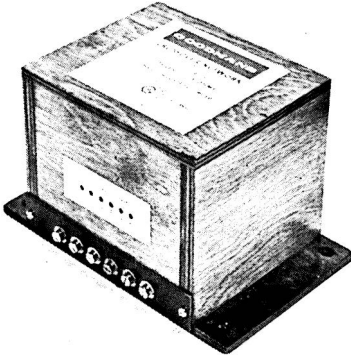
For use when two persons wish to use stereo headphones simultaneously from the same source. Four controls adjust volume independently for each earpiece. Wirewound volume controls are non-interacting. Dimensions: $5\frac{3}{4} \times 3 \times 3\frac{3}{4}$ in. Finish: teak. Price: £5 10s.

GG Multi-Control

Provides facilities for two pairs of stereo



Eagle control centre



Goodmans XO/950

speakers, or one pair of stereo speakers in room A and one speaker each in room B and C. Both pairs of speakers may be used together or independently. Separate volume controls for each speaker. Two stereo headphone sockets fitted, selector switch cutting out speakers when in phone position. All four ear-pieces have independent volume control. Dimensions: 12 x 3½ x 4in. Finish: teak. Price: £12 10s.

GOODMANS LOUDSPEAKERS LTD

Axiom Works, Wembley, Middx.
Tel: 01-902 1200. Cables: Goodaxiom,
Wembley.

XO/5000-Crossover Unit

A two-way half-section crossover network, operating at 5 KHz. All terminations 15 ohms. Price: £2 6s.

XO/950 Crossover Unit ★

A two-way half-section, crossover network, operating at 950 Hz. All terminations 15 ohms. Price: £6 7s 9d.

XO/950/5000. Crossover Network

A multiple crossover network comprising four

half-section LC filters. Crossover frequencies are 950 Hz and 5 KHz. All attenuation rates are 12 dB/octave. All terminations 15 ohms. Price: £8 8s 7d.

Attenuator

12 dB, eight steps. Price: £3 1s 4d.

ARU.172

For use with 12in range. Price: £3 17s 8d.

ARU.180

For use with one Axiom 80. Price: £3 17s 8d.

ARU.280

For use with two Axiom 80s or Audiom 81 bass. Price: £3 17s 8d.

KOSS

Tape Music Distributors Ltd., 11 Redvers Road, London, N.22.
Tel: 01-888 0152.

T-5

Remote control station. Provides remote control of stereo phones and speakers. Jacks for two sets of phones. Volume controls for left and right channel also speaker on-off switch. Metal cabinet. Price: £4 10s.

T-10

Chairside listening station. Connecting box for plugging in Koss stereophones. Includes speaker on-off switch. Wires directly to amplifier output. Provision for two sets of phones. Separate independent volume control for each pair of phones. Impedance: 4-16 ohms. Finish: walnut. Price: £13 10s.

M.A.C. LTD

Ripley, Surrey.

AAU-2 ★

Audio adaptor unit for connecting stereo headphones, plus two pairs of speakers. 3-way switching provides various combinations. Provision for fitting attenuator resistors internally. 4-ft connecting cable to amplifier. Size: 3 x 3 x 3in. Finish: jaguar silver. Price £4 7s.

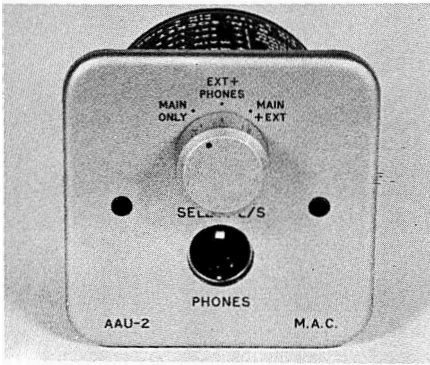
AAU2S ★

Audio adaptor unit. Connects two pairs of speakers to either of two amplifiers selected by toggle switch. 3-way switching gives combination of speakers. Two 4 ft connecting cables. Size: 3 x 3 x 3 in. Jaguar silver finish. Price: £5 10s.

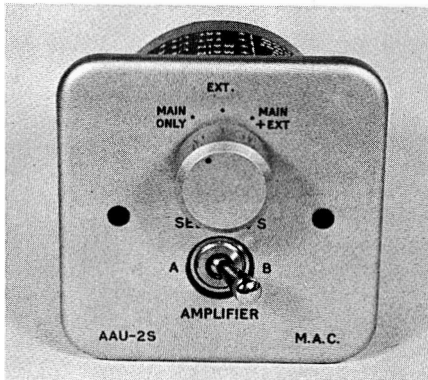
AAU-2X ★

De-luxe version of AAU-2 housed in solid teak case with pre-set gain controls for earpiece, plus resistive matching networks. Price: £6 17s.

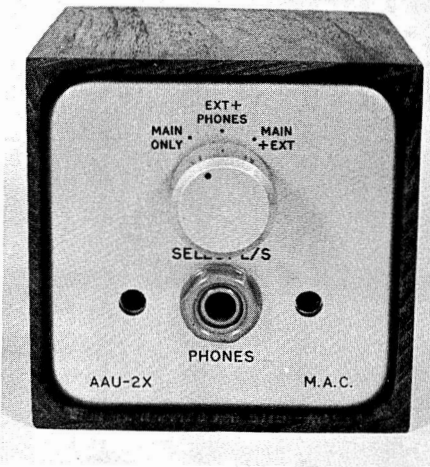
★ Indicates entry is illustrated



M.A.C. AAU-2 Adaptor



M.A.C. AAU-2S adaptor



M.A.C. AAU-2X

AAU-VC ★

Audio adaptor unit for attenuating extension speakers. Attenuation: Total -20 dB in 2 dB steps. Off position. Headphone jack. 20W per channel. FR: 20 Hz-20 KHz ± 2 dB. Channel balance within 0.1 dB. Separation -85 dB. Negligible damping loss. Teak case. Size: $3\frac{1}{2} \times 3\frac{1}{2} \times 3\frac{1}{2}$ in. Mono version available. Prices: (mono) £8; (stereo) £10 10s.

Various other combinations of audio adaptor units are offered covering connecting and switching TV sound, headphones, etc. full details on request.

MICRO-SEIKI

Distributors: B. H. Morris & Co. (Radio) Ltd., 84-88 Nelson Street, London, E1, 2DY. Tel: 01-790 4824.

Micro Shock Absorber, MSB-1

Miniature shock-absorbing mounting 'foot' for eliminating microphone feedback in hi-fi systems. Provides air-damping of vibrations, uses high efficiency materials and also gives height adjustment. Price to be announced.

ROLA-CELESTION

See Celestion.

STENTORIAN

Whiteley Electrical Radio Co. Ltd., Victoria Street, Mansfield, Notts. Tel: Mansfield 24762.

CX500 Crossover unit

A two-way half-section crossover network operating at 500 Hz. All terminations 15 ohms. Price: £2 3s 6d.

CX1000 Crossover unit

As CX500, but operating at 1 KHz. Price: £3 3s 4d.

CX1500 Crossover unit

As CX500, but operating at 1.5 KHz. Price: £3 3s 4d.

CX3000 Crossover unit

As CX1500, but operating at 3 KHz. Price: £2 10s.

Constant impedance volume control

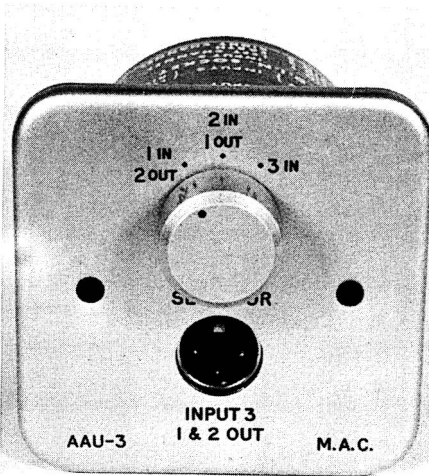
T-pad type attenuator having 10 steps of attenuation. Impedance presented by the load remains constant while the volume level is varied. In three versions for 3, 8 or 15 ohms. Price: £1 14s 9d.

TTC

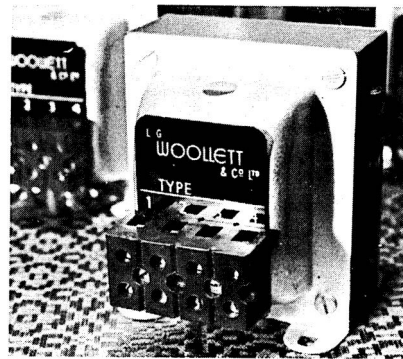
Distributors: E.R. (Factors) Ltd., 378 Harrow Road, Paddington, London, W9. Tel: 01-286 0361 and 9530.



M.A.C. AAU-VC adaptor



M.A.C. AAU-3



Woollett XS1 and XS2

K4004

Variable crossover network. Crossover frequency: 2.5 KHz. Designed to match any bass driver to any tweeter. Screw terminals. Gold/black finish. Price: £1 4s.

VITAVOX LTD

Westmoreland Road, London, NW9.
Tel: 01-205 8671. Cables: Vitavox, London, NW9.

CN232 Crossover

Half section. Crossover 500 Hz. Attenuation 12 dB/octave. All terminations 15 ohms. Balance control giving 0.8 dB HF attenuation incorporated. Price: on application.

CN233 Crossover

Half-section. Crossover 1 KHz. Attenuation 12 dB/octave. All terminations 15 ohms. Balance control giving 0.8 dB HF attenuation incorporated. Price: on application.

WHITELEY ELECTRICAL RADIO CO LTD

See Stentorian.

L. G. WOOLLETT & CO LTD

21 Anerley Station Road, London SE20.
Tel: 01-778 9003.

XS1 ★

Speaker matching transformer. Converts 16 ohms to 8 ohms, and 8 ohms to 4 ohms. Bifilar wound. Ground orientated laminations Ratio 1:0.707 auto. FR: 16 Hz-30 KHz ± 0.6 dB Price: £3 10s.

XS2 ★

Speaker isolating and matching transformer. Converts 16 ohms to 4 ohms. Bifilar wound. Grain orientated laminations. Ratio 1:1 double wound. FR: 16 Hz-100 KHz ± 0.6 dB. May be used to attenuate -6 dB and -12 dB while maintaining heavy damping on speaker and offering correct load to amplifier. Suitable for operating stereo system comprising dual electrostatic high-frequency units with common bass driver. *Note:* Not suitable for mains isolation in live chassis equipment. Price: £3 10s.

Headphone Equaliser blender

Stereo. Provides variable attenuation and adjustable treble lift. Switch positions for; headphones only, headphones and speakers, or speakers only. Variable negative blend cancels out crosstalk and permits compatible stereo records to be played as full stereo. Two input and two output blocks for easy connection into speaker feeds. Fitted with two yards cable for inputs and speaker feeds: Size: 6 × 5½ × 2½ in. Price- £12 16s.

Thinking of High Fidelity?

You should read the
**Goodmans
High Fidelity Manuals**

Goodmans High Fidelity Manuals are of vital interest to you, and contain constructive and informative articles on all aspects of High Fidelity sound.

One manual contains specifications, descriptions and full colour illustrations of the entire current range of loudspeaker cabinets, systems, amplifiers and F.M. tuners. The construction manual contains the information needed by those enthusiasts who prefer to make their own High Fidelity or musical instrument loudspeaker systems.

These manuals are available free from

Goodmans Loudspeakers Limited

Axiom Works Lancelot Road Wembley Middx. Tel: 01-902 1200

Please send me:

Full colour manual -
Construction manual (Tick as required)

Name.....

Address.....

HF 71

Directory of Speaker Enclosures

Abbreviations: **HC**=handling capacity; **FR**=frequency range; **c/o**=cut off; **vci**=voice coil impedance; **rcf**=recommended crossover frequency; **Rec**=recommended units; Height by Width by Depth are generally the order of printed dimensions.

★ indicates model is illustrated.

ACOUSTIC RESEARCH

Bell & Howell Ltd, Audio Products Division, Alperton House, Bridgewater Road, Wembley, Middlesex. Tel: 01-902 8812.

AR-4x ★

Speaker enclosure with units. Infinite baffle. 8in bass driver, two 2½in cone tweeters. Crossover: 1 KHz. FR: 30 Hz-20 KHz. HC: 60W music. Impedance: 8 ohms. Size: 10×19×9in. Weight: 19 lb. Specification guaranteed for five years from date of purchase. Finish: teak. Price: £47.

AR-2ax

Speaker enclosure with units. Infinite baffle. 10in bass driver, 3½in mid-range unit, 1¾in tweeter. Crossover: 2 KHz, 5 KHz. FR: 30 Hz-20 KHz. HC: 60W music. Impedance: 8 ohms. Size: 13½×24×11½in. Weight: 36½ lb. Finish: oiled walnut, oiled teak, white, rosewood, plain natural wood. Specification guaranteed for five years from date of purchase. Price: (walnut) £87, (white, teak, rosewood) £94, (unfinished) £74.

AR-5

Speaker enclosure with units. Infinite baffle. 10in bass driver, 1½in mid-range unit, ¾in dome tweeter. Crossover: 600 Hz, 5 KHz. FR: 30 Hz-20 KHz. HC: 60W music. Impedance: 8 ohms. Size: 13½×24×11½in. Weight: 39 lb. Finish: oiled walnut, oiled teak, white, rosewood, unfinished. Specification guaranteed for five years from date of purchase. Price: (walnut) £119, (teak, white, rosewood) £127, (unfinished) £106.

AR-3a ★

Speaker enclosure with units. Infinite baffle. 12in bass driver, 1½in mid-range unit, ¾in dome tweeter. Crossover: 600 Hz, 5 KHz. FR: 20 Hz-20 KHz. HC: 60W music. Impedance: 4 ohms. Size: 14×25×11½in. Weight: 53 lb. Finish:

oiled walnut, oiled teak, white, rosewood, unfinished. Specification guaranteed for five years from date of purchase. Price: (walnut) £170, (teak, rosewood, white) £178, (unfinished) £153.

ACOUSTIC MANUFACTURING CO LTD
See Quad.

ADASTRA ELECTRONICS LTD

167 Finchley Road, Swiss Cottage, London, NW2. Tel: 01-624 8164/5.

Sonata ★

Speaker enclosure without units. Removable sub-baffle suitable for all speakers up to 10×6in, plus tweeter. Finish: straight grained teak with contrasting front edges and matching grille material. Size: 16×8×6in. Price: (per pair) £7 10s.

AKAI

UK distributors: Pullin Photographic (Rank Organization), P.O. Box 70, Great West Road, Brentford, Middx. Tel: 01-568 9222.

SW160

Reflex speaker enclosure with 2in tweeter, 1¾in super tweeter, 2in horn tweeter, 5½in mid-range, 6½in mid-range and 12in bass. Crossover: 800 Hz, 5 KHz, 10 KHz, network 12 dB per octave. FR: 25 Hz-22 KHz. HC 40W RMS. vci: 8 ohms. Dimensions: 27½×17¾×11¾in. Weight: 52-8 lb. Finish: walnut. Price: £95.

SW130

Speaker enclosure with 12in bass unit and 3in tweeter. FR: 50 Hz-18 KHz. HC 15W RMS. vci: 8 ohms. Dimensions: 22½×16½×12½in. Weight: 28-9 lb. Finish: walnut. Price: £36.

SW180

Speaker enclosure with units. Full details and specification to be announced. Price: £125.

RICHARD ALLAN RADIO LTD

Bradford Road, Gomersal, Cleckheaton, Yorkshire. Tel: Cleckheaton 2442/3.
Cables: Acoustics, Bradford.

Minette

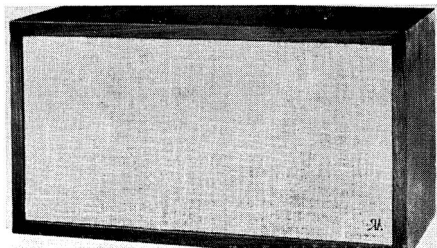
Infinite baffle bookshelf enclosure. 5in bass unit, 4in tweeter. FR: 50 Hz-17 KHz. HC 10W. Size: 11½×7×6½in. Weight: 11 lb. Price: £13 (plus £2 18s 10d PT).

Chaconne

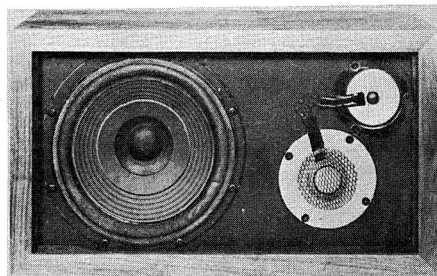
Full range two-way system comprising 8in bass unit and 4in tweeter. FR: 40 Hz-17 KHz. HC 10W. Size: 20×12×9in. Weight: 21 lb. Price: £15 15s (plus £3 11s 4d PT).

Pavane

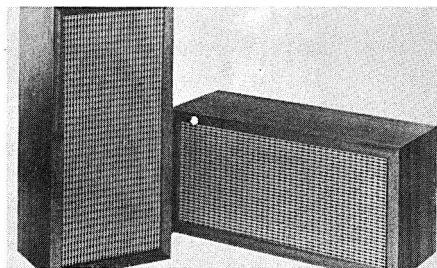
Full-range three-way system comprising 12in



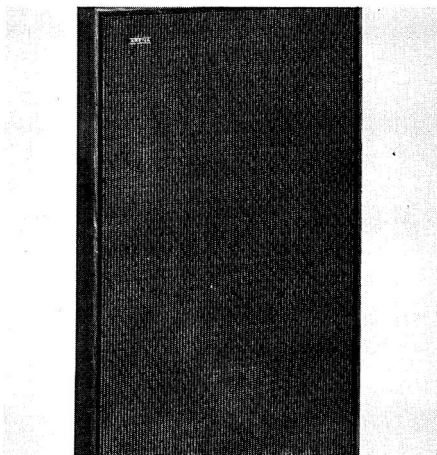
Acoustic Research AR-4X



Acoustic Research AR-3A



Adastra Sonata



Arena HT28

bass unit, 8in mid-range speaker and 4in tweeter. FR: 30 Hz-17 KHz. HC 15W. Size: $25\frac{1}{2} \times 15\frac{1}{2} \times 12$ in. Weight: 38 lb. Price: £32.

High Fidelity Module

Integrated speaker assembly comprising 5in bass unit, 4in tweeter and crossover network mounted on aluminium alloy baffle for direct mounting into small bookshelf enclosure. Size: $11 \times 6\frac{1}{2}$ in. Weight: 5 lb. Price: £8 10s (plus £1 18s 6d PT).

Richard Allan Kits

See Constructional Kits section for details of Twin Assembly, Triple Assembly and Super Assembly speaker kits.

ALTEC LANSING

Distributors: Carston Electronics Ltd,
71 Oakley Road, Chinnor, Oxon.
Tel: Kinston Blount 8561.

890A Bolero

Horn enclosure with speakers and crossover. 10in bass driver and Altec 3000H multicellular horn and driver. Crossover: 3 KHz dual element with variable shelving control. FR: 35 Hz-20 KHz. HC 20W RMS. 10-lb magnet on bass driver. Size: $14\frac{1}{2} \times 25\frac{3}{4} \times 12$ in. Hand-rubbed walnut. Price: £77.

9844A

Monitor system. Employs two Altec 414A 12in low frequency driver units and Altec 806A high frequency reproducer. Dual full section crossover. FR 30 Hz-22 KHz. HC 30W RMS. Size: 24in high, 31in wide, 16in deep. Weight: 90 lb. Price: £193.

ARENA

Distributors: Highgate Acoustics Ltd,
184-188 Great Portland Street, London, W1.
Tel: 01-636 2901.

HT7

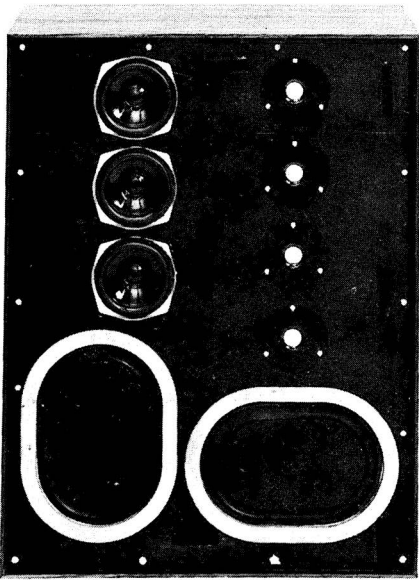
Pressure chamber speaker system. One $8\frac{1}{4}$ in bass unit, one 2in treble unit. Impedance: 4 ohms. HC 10W RMS. FR: 50 Hz-20 KHz. Built-in crossover. Cabinet in teak or Brazilian rosewood. Size: $20\frac{1}{2} \times 9\frac{7}{8} \times 10\frac{3}{8}$ in. Price: £19 19s (including PT).

HT10

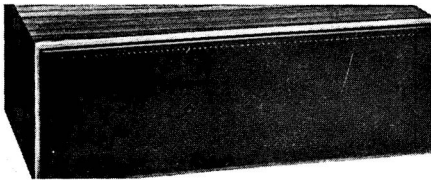
Pressure chamber speaker system. One 8in unit, one 2in unit. HC 10W RMS. FR: 40 Hz-20 KHz. Teak or Brazilian rosewood. Size: $22\frac{3}{4} \times 5\frac{1}{8} \times 16\frac{1}{8}$ in. Price: £22 1s (including PT).

HT17

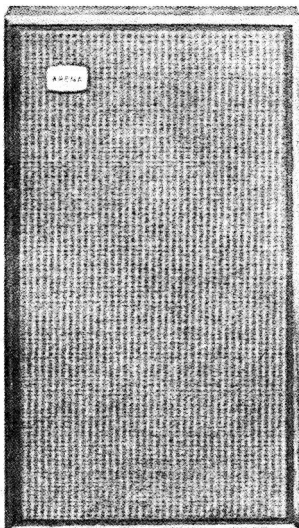
Pressure chamber speaker system. One $5\frac{3}{4}$ in, one $2\frac{1}{2}$ in units. HC 10W RMS. FR: 70 Hz-20 KHz. Teak, Brazilian rosewood or oak. Size: $12\frac{3}{8} \times 9\frac{7}{8} \times 4\frac{3}{8}$ in. Price: £15 4s 6d (including PT).



Arena HT25



Arena HT27



Arena HT20

HT18

Pressure chamber speaker system. One 10in, one 5in and one 2in units. HC 25W. FR: 20 Hz-20 KHz. Finish: teak or Brazilian rosewood. Size: 25 × 16 × 10 $\frac{1}{4}$ in. Price: £38 17s (including PT).

HT19

Extension speaker. One 6in unit. HC 3W RMS. FR: 70 Hz-18 KHz. Teak or rosewood finish. Dimensions: 14 $\frac{1}{2}$ × 9 $\frac{3}{4}$ × 2 $\frac{3}{8}$ in. Price: £7 17s 6d. (including PT).

HT20 ★

Pressure chamber speaker system. 8 $\frac{1}{2}$ in bass driver, 2 $\frac{1}{2}$ in tweeter. HC 15W RMS. FR: 30 Hz-30 KHz. Crossover 4 KHz. Finish: teak or rosewood. Size: 16 $\frac{3}{4}$ × 11 × 9 $\frac{1}{2}$ in. Weight: 17 $\frac{3}{4}$ lb. Price: £32 11s (including PT).

HT21

Pressure chamber speaker. One 6 × 4in. FR: 60 Hz-18 KHz. Finish: teak or rosewood. Size: 4 $\frac{7}{8}$ × 9 $\frac{3}{4}$ × 7 $\frac{3}{4}$ in. Specially designed to match the T1500F. Price: £10 10s (including PT).

HT25 ★

Pressure chamber speaker. vci: 8 ohms. Low frequency units, two active and one passive diffuser 11 × 7.5in; mid-range units, three 4.5in; high frequency units, four 1in tweeters. HC 90W sine wave. FR: 18 Hz-20 KHz ± 6dB. Rosewood finish. Size: 33 (on steel legs) × 25 $\frac{1}{4}$ × 12 $\frac{9}{16}$ in. Weight: 112.6 lb. Price: £157 10s.

HT26

Pressure chamber speaker. vci: 8 ohms. One 12in, one 7 × 5in, two 2.5in tweeters. HC 60W RMS. FR: 20 Hz-20 KHz ± 6 dB. Rosewood finish. Size: 25 $\frac{1}{2}$ × 19 $\frac{11}{16}$ × 11 $\frac{3}{4}$ in. Weight: 50.6 lb. Price: £78 15s.

HT27 ★

Pressure chamber speaker system. Two 6 × 4in units, one 2 $\frac{1}{2}$ in tweeter. Impedance: 4 ohms. HC 20W RMS. FR: 60 Hz-20 KHz. Size: 15 $\frac{3}{4}$ × 5 $\frac{1}{2}$ × 8 $\frac{1}{4}$ in. Finish: teak or rosewood. Price: £18 18s (free of tax).

HT28 ★

Pressure chamber speaker system. Two 6 × 4in units, one 2 $\frac{1}{2}$ in tweeter. Impedance: 4 ohms. HC 20W RMS. FR: 60 Hz-20 KHz. Special slim-line model. Size: 21 $\frac{1}{4}$ × 12 $\frac{1}{2}$ × 3in. Finish: teak or rosewood. Price: £17 17s (free of tax).

BANG & OLUFSEN UK LTD

Eastbrook Road, Gloucester, GL4 7DE.

Tel: Gloucester 21591.

Beovox 600

Infinite baffle enclosure with units and crossover. Two units. Crossover: 5 KHz. FR: 65 Hz-18 KHz. HC: 15W RMS. Impedance: 4 ohms. Size: 11 × 5 $\frac{1}{2}$ × 7 $\frac{3}{4}$ in. Finish: teak or rosewood. Price to be announced.

★ Indicates entry is illustrated

Bevox 1000 ★

Pressure chamber with speakers and crossover. 6in bass driver, 2½in tweeter. Crossover 5 KHz. FR: 55 Hz-18 KHz ±5 dB. HC 10W RMS. Impedance 4 ohms. Finish: teak or rosewood. Size: 18½ × 7½ × 9½in. Weight: 11 lb. Price (teak): £21 10s (including PT); (rosewood) £22 10s (including PT).

Bevox 1200

Infinite baffle enclosure with units and crossover. Bass driver and dome tweeter. FR: 50 Hz-20 KHz. HC: 15W RMS. Impedance: 4 ohms. Size: 7⅞ × 19¾ × 9½in. Finish: teak or rosewood. Price to be announced.

Bevox 1600

Pressure chamber with speakers. Crossover. 4 KHz. FR: 50 Hz-20 KHz. HC 15W. vci: 4 ohms. Finish: teak or rosewood. Size: 13 × 17¼ × 4⅝in. Price: (teak) £28 10s (including PT); (rosewood) £29 10s (including PT).

Bevox 2200

Pressure chamber with two speakers and crossover (5 KHz). FR: 50 Hz-18 KHz. HC 10W. vci: 4 ohms. Finish: teak or rosewood. Size: 11¼ × 6¾ × 10in. Price: (teak) £25 (including PT); (rosewood) £26 (including PT).

Bevox 2500

High frequency unit. Comprises six 2in tweeters, one in each face of a 3¾in cube. High pass filter included. FR: 2 KHz-18 KHz. HC 60W. vci: 4 ohms. Black with chrome base and stem. Size: 11in overall height. Price: £28 (including PT).

Bevox 2600

Infinite baffle enclosure with units and crossover. 8in bass driver, B & O dome tweeter. Crossover: 2 KHz. FR: 35 Hz-20 KHz. HC: 30W RMS. Impedance: 4 ohms. Size: 9⅞ × 23⅞ × 10⅞in. Finish: teak or rosewood. Socket provided for external treble unit. Price to be announced.

Bevox 3000 Mk II ★

Pressure chamber with two speakers and crossover (at 2 KHz). FR: 28 Hz-20 KHz. HC 40W. vci: 4 ohms. Roll surround bass unit, dome tweeter. Socket for external tweeter. Finish: teak or rosewood. Size: 11½ × 25 × 12¼in. Price: (teak) £49 10s (including PT); (rosewood) £51 10s (including PT).

Bevox 4000 ★

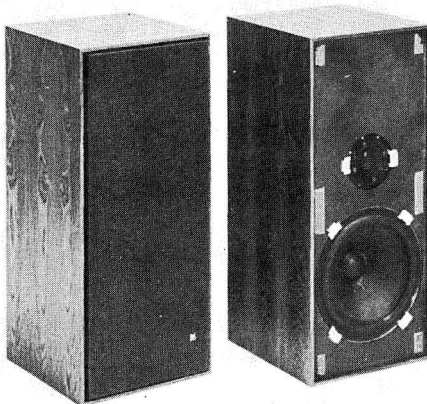
Pressure chamber with one bass unit, one elliptical mid-range unit, and two treble units in angled mounting. Crossovers at 500 Hz and 5 KHz. FR: 30 Hz-20 KHz. HC 40W. vci: 4 ohms. Mid-range attenuator adjustment. Socket for external tweeter. Teak or rosewood finish. Size: 13¾ × 25½ × 11in. Price: (teak) £59 (including PT); (rosewood) £61 (including PT).

Bevox 5000 Mk II ★

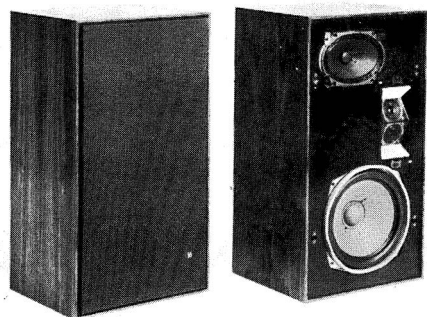
Roll surround bass unit, elliptical mid-range



Bang & Olufsen Bevox 1000



Bang & Olufsen Bevox 3000



Bang & Olufsen Bevox 4000

unit, and three B & O dome tweeters. Crossovers at 500 Hz and 2.5 KHz. FR: 25 Hz to 20 KHz. HC 50W. vci: 4 ohms. Mid-range attenuator adjustment. Socket for external tweeter. Teak or rosewood finish. Size: $29 \times 18\frac{3}{4} \times 12\frac{3}{4}$ in. Price: (teak) £68; (rosewood) £73.

BRIMHAM

P. F. and A. R. Helme, Summerbridge, Harrogate, Yorks. Tel: Darley 279.

New 70 Series loudspeaker systems finished in natural oiled teak with matching speaker grille in black vynair. Various combinations of drive units by Peerless of Denmark incorporated.

All units are infinite baffle and have 4 ohms or 8 ohms impedance.

Linnet 70

Houses one full-range special 6×4 in unit. HC 15W. FR: 60 Hz-20 KHz. Dimensions: $12 \times 8 \times 7$ in. Price: £12 18s 9d.

Firecrest 70

Houses a 5 in bass unit and 2 in tweeter. Crossover frequency: 5 KHz. HC 10W. FR: 45 Hz-18 KHz. Dimensions: $14 \times 9 \times 7\frac{1}{2}$ in. Price: £21 16s 6d.

Swift 70 ★

Houses a $6\frac{1}{2}$ in bass unit and a $2\frac{1}{2}$ in tweeter. Crossover frequency: 2.5 KHz. HC 10W. FR: 40 Hz-21 KHz. Dimensions: $18 \times 10 \times 9$ in. Price: £24 18s 9d.

Swallow 70 ★

Houses an 8 in bass unit and two $2\frac{1}{2}$ in tweeters. Crossover frequency: 2.5 KHz. HC 35W. FR: 35 Hz-22 KHz. Dimensions: $20 \times 11 \times 9$ in. Price: £36 15s 9d.

Kestrel 70

Houses a 10 in by 6 in bass unit and a $2\frac{1}{2}$ in tweeter. Crossover frequency: 3.5 KHz. HC 10W. FR: 40 Hz-18 KHz. Dimensions: $21 \times 11 \times 10$ in. Price: £28 13s 8d.

Oriole 70

Houses a 12 in bass unit, 5×7 in mid-range and two $2\frac{1}{2}$ in tweeters. Crossover frequencies: 500 Hz and 3.5 KHz. HC 40W. FR: 25 Hz-18 KHz. Dimensions: $29 \times 21 \times 9$ in. Price: £54 10s.

Prices quoted for Brimham speakers include PT where applicable.

BURNE-JONES & CO LTD

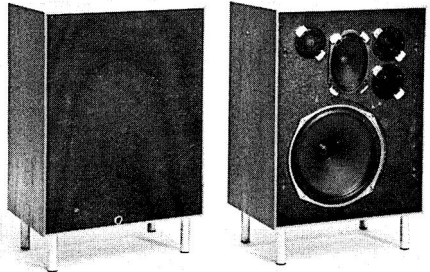
18 Brunswick Road, Sutton, Surrey.

B.J. Treble 20

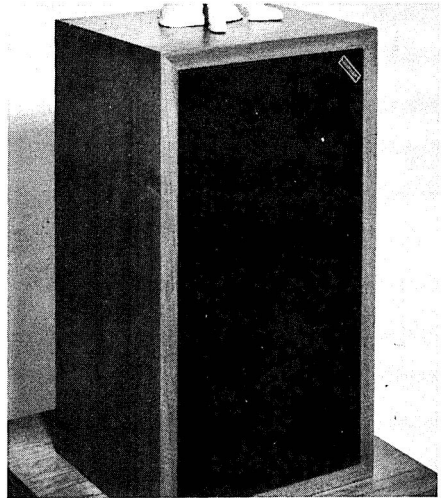
Omni-directional multi-horn. One 4 in unit. Crossover built-in. FR: 1-18 KHz. Size: 6×5 in. Weight: $1\frac{1}{2}$ lb. Price: £3.

B.J. Treble Twin

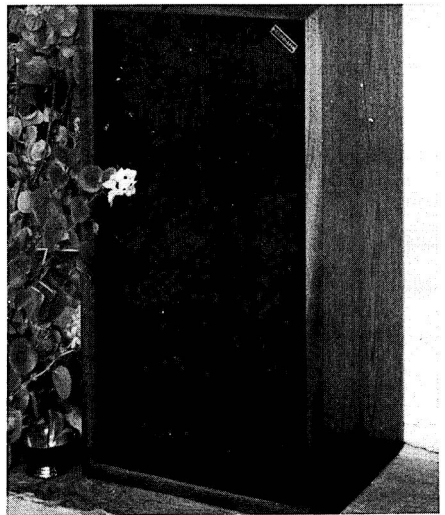
Omni-directional horn. Two 4 in drive units.



Bang & Olufsen Beovox 5000



Brimham Swift 70 System



Brimham Swallow 70 System

★ Indicates entry is illustrated

Crossover included. FR: 900 Hz-18 KHz. Size: $9 \times 4\frac{3}{4} \times 6$ in. Weight: 2 lb. Price: £5 10s.

BUSH

Rank Bush Murphy Ltd,
Power Road, Chiswick, London, W4.
Tel: 01-994 6491.

Bush Sound System A763 ★

Infinite baffle column speaker, with no crossover. Drive units: $6\frac{1}{2}$ in bass and $6\frac{1}{2}$ in concentric dual cone, in parallel, both 8 ohms. vci: 4 ohms. FR: 65 Hz-14 KHz. HC 8W RMS. Dimensions: 32 in ($34\frac{3}{8}$ in on legs) $\times 9 \times 5$ in. Weight: 8 lb. Finish: tropical olive veneer, grey silk speaker fabric. Recessed moulded back with cable bollards for extension speaker cable. Price: £24 17s 4d per pair (plus £6 2s 10d PT).

Bush Sound System A764 ★

Infinite baffle speaker enclosure with one 8 in and one 3 in treble unit with plastic dome. Crossover: half section, 3 in unit, 1.75 KHz-17 KHz, 8 in unit, 65 Hz-1.75 KHz. FR: 65 Hz-17 KHz. HC 12W. vci: 4 ohms. Dimensions: $13\frac{7}{8} \times 9\frac{3}{4} \times 8\frac{5}{8}$ in. Finish: tropical olive with grey speaker silk and cable bollard. Special bollards to store excess cable. Price: £27 8s 9d per pair (plus £6 15s 7d PT).

Bush Sound System A765 ★

Infinite baffle speaker enclosure. One 12 in rubber cone surround with $1\frac{1}{2}$ in pole, one 3 in treble unit with plastic dome. Crossover: half-section 3 in unit 1.75 KHz-17 KHz, 12 in unit 40 Hz-1.75 KHz. FR: 40 Hz-17 KHz. HC 12W per channel RMS. vci: 4 ohms. Dimensions: $21 \times 13 \times 9\frac{3}{4}$ in. Finish: tropical olive, grey speaker silk and cable bollards. Special bollards to store extension speaker cable. Price: £60 18s per pair.

BUSH NELSON LTD

Bush House, 6 Yattendon Road, Horley,
Surrey. Tel: Horley 5983.

12/8

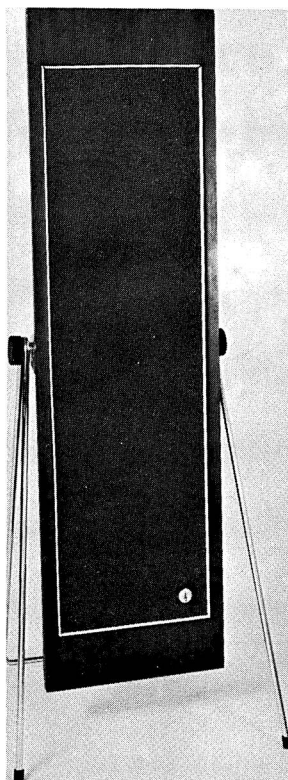
Pressure chamber system. One 13×8 in bass unit, one 3 in tweeter. Impedance 8 ohms. FR: 20 Hz-20 KHz. Power capacity 20W. Flux density: bass unit 11,000 gauss, HF unit 10,000 gauss. Bass resonance 20-30 Hz. Crossover frequency 5 KHz. Teak. Size: $23 \times 12 \times 11$ in. Price: £65.

B. & W. ELECTRONICS

Bowers & Wilkins Electronics Ltd,
Littlehampton Road, Worthing, Sussex.
Tel: Worthing 66830.

DM3

Floor standing enclosure measuring $15\frac{3}{4} \times 11\frac{1}{2} \times 28\frac{1}{4}$ in with three units. EMI special pen-tested bass radiator. Wide dispersion HF and UHF transient and wave shaping units. Crossover and



Bush A763



Bush A764

filter network individually adjusted for each speaker. Each monitor pen-tested and curve supplied with enclosure. Price: £63 walnut and teak; £69 10s rosewood.

DM1

Bookshelf enclosure measuring $9 \times 8 \times 16\frac{1}{2}$ in, 0.065 cu ft capacity. Units employed: 10×6 in laminated glass cone bass/mid-frequency radiator. Pressure mid-frequency/high frequency unit and single tweeter continuing response into supersonic region. Individually pen-tested and supplied with calibration certificate. Finishes: teak, walnut and rosewood. Price: £32.

DM70 ★

Nominal 13in diameter bass radiator. Laminated and reinforced cone. Eleven-module wide dispersion electrostatic HF unit type 701. Power supply unit, high and low pass filter assembly mounted on separate board. Infinite baffle loading on bass unit with multiple bracing and synthetic fibre absorbents. Electrostatic unit free-standing plug-in assembly with removable rear absorbent pad which allows modification to polar distribution. Impedance: nominal 8 ohms, rising to 25 ohms at 1 KHz, but not falling below 4 ohms at 20 KHz. HC: 25W RMS throughout entire musical range. FR: 50 Hz-15 KHz better than ± 4 dB, 40 Hz-20 KHz better than ± 5 dB. System resonance: 40 Hz $\pm 1\%$. Finish: oiled teak or oiled American walnut. Main cabinet veneered on all surfaces including the back. Size: $31\frac{7}{8}$ high overall, 32in wide, 15in deep. Weight: 107lb. Price: £139 10s.

CAMBRIDGE AUDIO LABORATORIES LTD

The River Mill, St Ives, Huntingdon.
Tel: St Ives (Hunts) 2901. Telex: 32223.

CA R50W

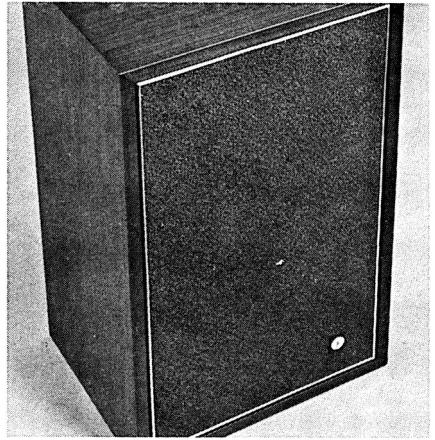
High quality monitor speaker based on acoustic transmission line principle. LF driver in damped tapered labyrinth and HF driver in damped tapered pipe. Two HF pressure drivers. FR: 25 Hz-25 KHz. Crossover frequencies: 400 Hz, 3 KHz and 10 KHz. HC 25W continuous sine wave, 50W music. Impedance 8 ohms. Price: £80.

CELESTION

Rola-Celestion Ltd, Foxhall Road, Ipswich, Suffolk, IP3 8JP. Tel: Ipswich 73131.

Ditton 10 Mk II ★

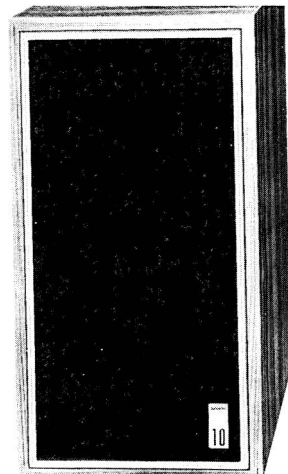
Infinite baffle compact system. Long-throw 5in bass unit, HF 1300 Mk 2 HF unit. Built-in half-section crossover 3.5 KHz. FR: 35 Hz-15 KHz. HC 10W. Size: $12\frac{3}{4} \times 6\frac{3}{4} \times 8\frac{1}{4}$ in. Weight: 13 lb. Available in teak and walnut. vci: 4-8 ohms. Price: £16 19s 3d (plus £4 3s 11d PT).



Bush A765

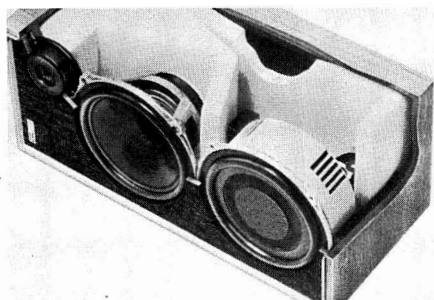


Bowers and Wilkins model 70

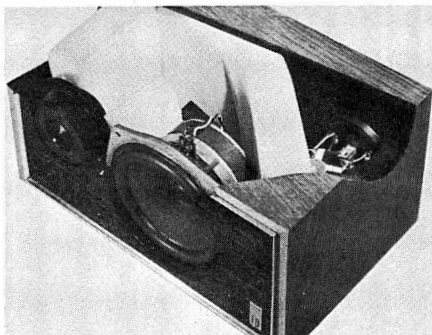


Celestion Ditton 10

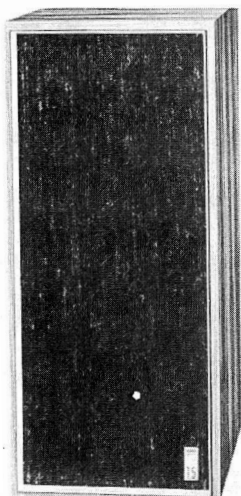
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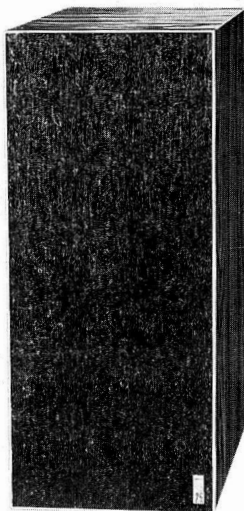
Celestion Ditton 10



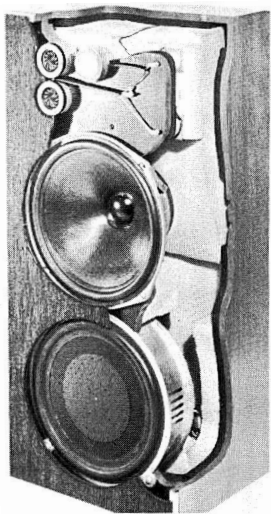
Celestion Ditton 15 (interior)



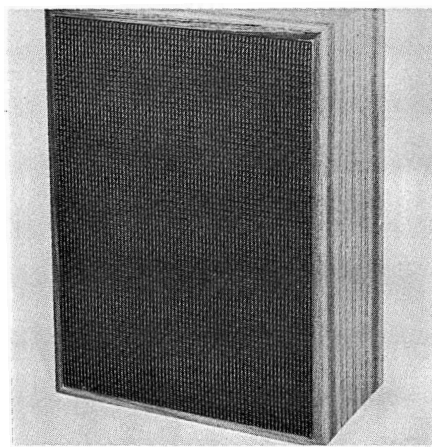
Celestion Ditton 15



Celestion Ditton 25



Celestion Ditton 25



City Audio CA/12

Ditton 15 ★

Compact infinite baffle enclosure incorporating auxiliary bass radiator. Units: 8in middle/bass speaker. HF 1300 Mk 2 treble radiator. FR: 30 Hz-15 KHz. HC 15W RMS. vci: 4-8 ohms. Size: $21 \times 9\frac{1}{2} \times 9\frac{1}{4}$ in. Weight: 20 lb. Finish: walnut or teak. Price: £29.

Ditton 25 ★

Studio monitoring quality speaker enclosure with five drive units. 12in long-throw bass driver, two pressure type mid-range and HF units, pressure type ultra high frequency unit, 12in auxiliary bass radiator. HC 25W RMS. vci: 4-8 ohms. Size: $32 \times 14 \times 11$ in. Weight: 48 lb. Finish: teak or walnut. Price: £59 17s.

CENTRE OF SOUND

V. J. Monk Ltd, 153 Plumstead Road, London, SE18. Tel: 01-854 2369.

Paraline

Unique design by Rex Baldock. Size: $41 \times 16 \times 7$ in. Made in left-hand or right-hand versions. Recommended drive units: Elac 8N/185 or Lowther PM6. Price: in white wood £7 17s 6d; finished in teak or mahogany £17 17s 6d.

Paramid

Designed by Edward Michelsen as a vertical version of the Paraline. Performance, units and prices as for the Paraline.

Paraline Tweeter Kit

Comprising special Elac tweeter with $2\mu\text{F}$ capacitor. Price: £1 15s complete with instructions.

A.C.E.

Acoustic coupled enclosure, a new concept in column loading. Size: 36in high, 16in wide, $9\frac{1}{2}$ in deep. FR: (with Elac 8N/185) 40 Hz-12 KHz; (with Lowther PM6) 40 Hz-17 KHz. HC 6W with high electro-acoustic efficiency. Layered damping. Full specification on request. Price: in white wood £10 10s; finished in teak or mahogany £14 14s; diffuser unit for PM6 £3 15s.

Bookshelf Horn

Small enclosure designed to give performance near to that of the Paraline. Complete with Elac 8N/185. Price: in white wood £12 12s; ready finished £16 16s.

Bassette

A bass recorder reproducer designed by Trevor Atwell. Performance goes down below 30 Hz. Window seat type styling. Dimensions: 5ft 6in \times 17in \times 15in. Drive units: $4 \times$ Elac 8N/185. Price complete in teak veneer: £43 1s.

Bass reflex

Popular small reflex enclosure driven by 10in Wharfedale Super 10RSDD. Each unit individu-

ally tuned. Dimensions: $28 \times 14 \times 12$ in. Teak or mahogany veneer finish. Price: £23 10s.

A.C.E. Corner

Omni-directional corner enclosure with folded column, believed by makers to be the first of its kind. Drive unit: Lowther PM6 with specially designed stabilised diffuser. FR: 45 Hz-17 KHz. Dimensions: $30 \times 16 \times 18$ in. Teak or mahogany veneer finish. Price: £39.

CITY AUDIO SERVICES LTD

10 Friar Street, Carter Lane, London, EC4. Tel: 01-248 2421.

CA11

Sealed speaker enclosure with three units. One 13×8 in bass and mid-range driver, two $2\frac{1}{2}$ in tweeters. Half-section crossover at 8.5 KHz. FR 50 Hz-14 KHz. HC 10W. Impedance 8 ohms. Size: $18\frac{1}{2} \times 13 \times 7\frac{1}{4}$ in. Finish: teak. Price: £15 15s.

CA12 ★

Sealed speaker enclosure with one 8in and two 4in drive units and $\frac{1}{4}$ -section crossover. FR: 45 Hz-20 KHz. HC 10W. 15 ohms. Dimensions: $8\frac{1}{2} \times 13 \times 7\frac{1}{4}$ in. Finish: teak with harmonising black and gold front. Price: £18 10s.

CROWN

Crown Radio Co Ltd, 137-149 Goswell Road, London, EC1. Tel: 01-253 1971/2.

CSP-7

Infinite baffle enclosure. $6\frac{1}{2}$ in bass unit, $2\frac{1}{2}$ in tweeter. FR: 30 Hz-20 KHz. Impedance: 8 ohms. HC: 20W. Dimensions: $13\frac{3}{8} \times 9\frac{7}{8} \times 10\frac{1}{2}$ in. Weight: 10 lb. Price: £15 8s 9d (plus £3 16s 2d PT).

A. DAVIES & CO

56 Wellesley Road, London, NW5. Tel: 01-485 5775.

Sherwood type

Based on Goodmans design for Axiom speakers. Approved for Goodmans Axiom 201, Axiom 301 and Goodmans three-way system. Finish: sapele, oak, walnut, teak. Full polish or satin finish. Size: $23\frac{1}{2} \times 29\frac{1}{2} \times 19\frac{1}{2}$ in. Price (without units or ARU172): £18 14s. Extra for teak: £1.

Bass reflex

Suitable for 12in speakers. Cabinets lined with 1in acoustic felt. Finish: sapele, walnut, oak, teak. Full polish or satin finish. Dimensions: $34 \times 17\frac{1}{2} \times 15\frac{1}{2}$ in. Price: standard finish £13 15s (teak 10s extra).

A.D. Sealed Folded Horn

Designed to house Goodmans three-speaker system; 12in bass, Midax and Trebax. Alterna-

★ Indicates entry is illustrated

tive speaker arrangements are Kelly ribbon tweeter and Goodmans Audiom 51 or Woollett electrostatic treble and Wharfedale W12/RS/PST. Suitable full-range single 12in speakers are Goodmans Triaxiom 1220C, 212C, Axiom 301, Axiom 201, Tannoy Monitor. Rear of cabinet ready cut for attenuators. Size: 31½in high, 18 × 18in. Finish: teak or veneer of colour to choice. Front baffle sealed with black Formica (other colours to order) with neutral colour open-weave Tygan speaker grille. Price: £23; 15in loudspeaker version £28.

DECCA

Decca Special Products, Ingate Place, Queenstown Road, London, SW8.
Tel: 01-622 6677.

Decca Deram Enclosure ★

Two units; 13 × 8in bass driver, 3in tweeter. HC 8-10W. Size: 25 × 13½ × 8in. Impedance: 15 ohms. Finish: teak or rosewood. Price: (teak) £19; (walnut) £20.

Apollo

Enclosure incorporating 12in bass driver and DK30 ribbon tweeter. HC 30W RMS. FR: 30 Hz-25 KHz. Impedance: 8-15 ohms. Size: 12 × 28 × 17in. Weight: 64 lb. Finish: teak. Incorporates Kelly Acoustic lens. Resonance can be tailored to suit room with Room Acoustic Control (RAC). Price: expected to be about £50.

DERWENT

Nichols Acoustic Fitments, Church Street, Bubwith, near Selby, Yorkshire.
Tel: Bubwith 206.

Gem

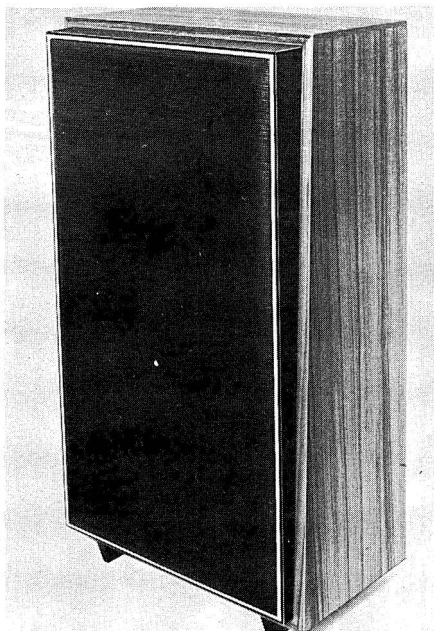
Small bookshelf enclosure only. Designed and approved for use with Richard Allan Hi-Fi module. Size: 13½ × 9 × 6in. Internal volume: 380 cu in. Sealed back panel. Detachable grille fret. Constructed from ¾in hardwoods. Finish: afrormosia, mahogany or teak. Price: £5 16s.

Opal Mk III ★

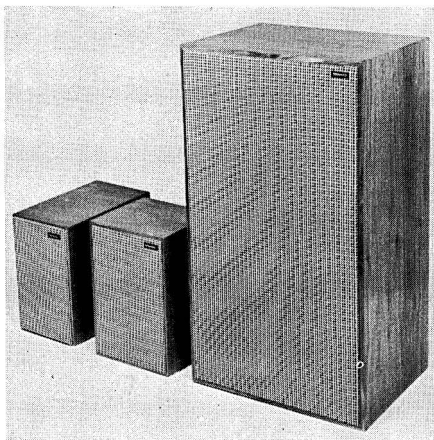
Large bookshelf enclosure. Designed for EMI and Fane 13 × 8in unit or KEF 13 × 9in and T.15. Size: 21 × 14½ × 9in. Internal volume: 1,850 cu in. Special baffle support and stiffening battens. Sealed, veneered, back panel. Baffle and grille fret secured from front. Constructed from ¾in solid afrormosia. Price: £9 18s 6d, plus units, carriage extra.

Minor Mk II ★

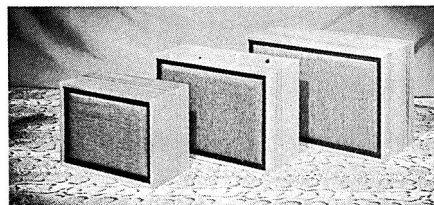
Compact enclosure. Designed for 12in bass and treble combination or ellipticals as in Opal Mk III. Size: 24 × 15 × 11½in. Internal volume: 1.71 cu ft. Construction identical with Opal Mk III. Price: £12 10s, plus units, carriage extra.



Decca Deram



Duette (from left) ARS710, ARS815, ARS740



Dulci enclosures

Major

Free-standing enclosure. Designed for Celestion Studio series coaxials, Wharfedale Super 12RS/DD, etc. Suitable for most 12in bass and two/three way systems. Size: $31\frac{1}{2} \times 18\frac{1}{4} \times 12$ in (including 1in plinth). Internal volume: 2.68 cu ft. Sealed back panel. Finish: selected afrormosia veneers. Price: £16 15s, plus units, carriage extra.

DUAL

Dual Electronics Ltd, Paramount Industrial Estate, Mill Road, Stokenchurch, Bucks.
Tel: Radnage 3467/8.

CL31

Infinite baffle enclosure with units. $5\frac{1}{2}$ in bass driver, $2\frac{1}{2}$ in tweeter. HC: 25W. FR: 40 Hz-20 KHz. Crossover: 2.5 KHz. vci: 4 ohms. Size: $10\frac{7}{8} \times 15\frac{3}{4} \times 3$ in. Weight: $7\frac{3}{4}$ lb. Finish: walnut veneer. Price: £23 8s 7d (plus £5 10s 3d PT).

CL40

Infinite baffle enclosure with units. $5\frac{1}{2}$ in bass driver, $2\frac{1}{2}$ in tweeter. HC: 35W. FR: 35 Hz-20 KHz. Crossover: 2 KHz. vci: 4 ohms. Size: $9\frac{7}{8} \times 18\frac{7}{8} \times 7\frac{7}{8}$ in. Weight: $13\frac{1}{4}$ lb. Finish: walnut veneer. Price: £26 14s 4d (plus £6 5s 8d PT).

CL60

Infinite baffle enclosure with units. $5\frac{1}{2}$ in bass driver, $2\frac{1}{2}$ in tweeter. HC: 35W. FR: 30 Hz-20 KHz. Crossover: 1.7 KHz. vci: 4 ohms. Size: $13 \times 23\frac{1}{4} \times 8\frac{3}{8}$ in. Weight: 19 lb. Finish: walnut veneer. Price: £32 6s 2d (plus £7 12s PT).

CL70

Infinite baffle enclosure with units. $9\frac{3}{8}$ in bass driver, 1in dome tweeter. HC: 50W. FR: 25 Hz-25 KHz. Crossover: 2 KHz. vci: 4 ohms. Size: $9\frac{3}{8} \times 21\frac{3}{4} \times 9\frac{1}{4}$ in. Weight: 18.9 lb. Finish: walnut veneer. Price: £45 0s 4d (plus £10 11s 10d PT).

CL80

Infinite baffle enclosure with units. $9\frac{3}{8}$ in bass driver, two $2\frac{1}{2}$ in tweeters. HC: 50W. FR: 25 Hz-20 KHz. Crossover: 1.5 KHz. vci: 4 ohms. Size: $13 \times 23\frac{1}{4} \times 8\frac{3}{8}$ in. Weight: 23 lb. Finish: walnut veneer. Price: £47 6s 11d (plus £11 2s 9d PT).

CL100

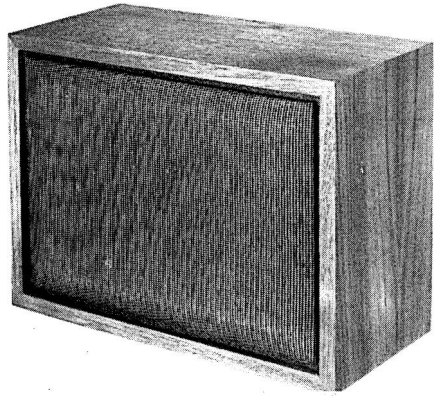
Infinite baffle enclosure with units. $9\frac{3}{8}$ in bass driver, two 4in mid-range units, one 1in dome tweeter. Crossover: 1 KHz, 5 KHz. vci: 4 ohms. Size: $14\frac{1}{8} \times 26 \times 9\frac{1}{2}$ in. Weight: $34\frac{3}{8}$ lb. Finish: walnut veneer. Price: £69 1s 6d (no PT).

DUETTE

Distributors: J. J. Silber Ltd,
11 Northburgh Street, London, EC1.
Tel: 01-253 8031.

ARS710 ★

Infinite baffle enclosure with units. $3\frac{1}{2}$ in long-throw bass driver, $2\frac{1}{2}$ in tweeter. FR: 50 Hz-18

**Dulci AS3**

KHz. HC: 5W RMS. Impedance: 4 ohms. Finish: Canadian nut. Size: $9\frac{1}{2} \times 9\frac{3}{4} \times 6$ in. Weight: $6\frac{1}{4}$ lb. Price: £8 15s 4d (plus £2 4s 2d PT).

ARS815 ★

Infinite baffle enclosure with units. Two $3\frac{1}{2}$ in bass drivers, one $2\frac{1}{2}$ in tweeter. FR: 60 Hz-18 KHz. HC: 10W. Impedance: 4 ohms. Finish: Canadian nut. Size: $6 \times 7 \times 10\frac{1}{2}$ in. Weight: 7 lb. Price: £12 19s 6d (no PT).

ARS740 ★

Infinite baffle enclosure with units. Two $7\frac{1}{4}$ in bass drivers, one $5\frac{1}{2}$ in mid-range unit, one $2\frac{1}{2}$ in tweeter. FR: 50 Hz-18 KHz. HC: 25W. Impedance: 8 ohms. Finish: Canadian nut. Size: $14 \times 10 \times 24\frac{1}{2}$ in. Weight: 29 lb. Price: £22 19s 6d (no PT).

DULCI

Lee Products (Great Britain) Ltd,
10-18 Clifton Street, London, EC2.
Tel: 01-247 6711.

AS3 ★

Infinite baffle enclosure. 8×6 in full range unit. Impedance: 8 ohms. HC: 6W. Finish: teak. Dimensions: $12 \times 9 \times 6$ in. Price: £7 5s 9d (plus £1 14s 3d PT).

AS5 ★

Infinite baffle enclosure. 10×6 in bass unit, $2\frac{1}{2}$ in plastic cone tweeter with crossover. Impedance: 4 ohms. HC: 8W. Finish: teak. Dimensions: $14\frac{3}{4} \times 10\frac{3}{4} \times 6\frac{1}{2}$ in. Price: £11 6s 8d (plus £2 13s 4d PT).

AS7 ★

Infinite baffle enclosure. 6in bass unit, 3in tweeter. Full crossover network. Impedance: 15 ohms. HC: 12W. Finish: teak. Dimensions: $17\frac{1}{2} \times 11\frac{3}{4} \times 8\frac{1}{4}$ in. Price: £15 7s 8d (plus £3 12s 4d PT).

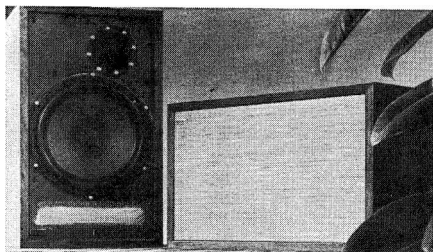
★ Indicates entry is illustrated

DYNACO

Distributors: Howland-West Ltd,
2 Park End, South Hill Park, London, NW3.
Tel: 01-794 6666 and 6033.

Dynaco A25 Mk II ★

Speaker enclosure with 10in high compliance unit and two 1½in dome tweeters. Crossover: 1,500 Hz. FR: 32 Hz-20 KHz. HC 35W RMS. vci: 8 ohms. Dimensions: 20 × 11½ × 10in. Weight: 22 lb. Finish: teak, walnut, rosewood. Price: £32 (no PT).



Dynaco A25 Mk. II

DYNASTATIC

See Electrostatic Loudspeaker Co.

DYNATRON RADIO LTD

St Peters Road, Furze Platt, Maidenhead,
Berks. Tel: Maidenhead 23331.

LS.1014

Wall or shelf mounting infinite baffle enclosure containing 6½in driver unit and 3in HF unit with high-pass filter. Impedance 4 ohms. Size: 13⅞ × 7½ × 8⅜in. Price: £14 10s.

LS.1514

Wall or shelf mounting infinite baffle enclosure containing 8in driver unit and 3in HF unit with high-pass filter. Impedance 4 ohms. Size: 19¾ × 11⅞ × 9¼in. Price: £17 10s.

LS.2004

Floor-standing reflex enclosure containing 8in driver unit and 3in HF unit with high-pass filter. Impedance 4 ohms. Size: 26⅞ × 10¼ × 15in. Price: £23 10s.

LS.2504 and LS.2804

Floor-standing infinite-baffle type enclosures containing 12in low-resonance driver unit and 3in HF unit with high-pass filter. Impedance 4 ohms. Size: 27 × 16¾ × 12in. LS.2504 in walnut with Queen Anne style legs. LS.2804 has mahogany finish and square legs. Price: £30.

LS.3014

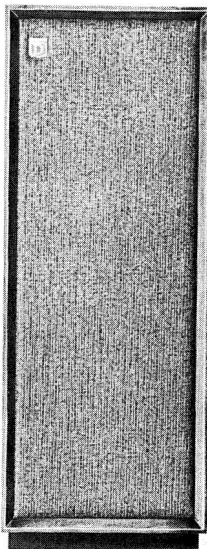
Floor-standing reflex enclosure containing 12in low-resonance driver unit and 3in HF unit. Impedance 4 ohms. Size: 31¼ × 17 × 12in. Price: £31 10s.

LS.2014 ★

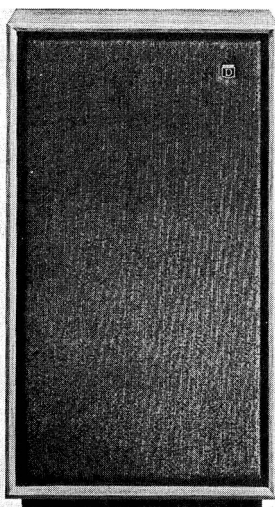
Reflex model in walnut veneer, 26⅞ × 10¼ × 15½in. Floor-standing design with padded front. 8in and 3in units. HC 10W. FR 40 Hz-18 KHz. Impedance 3 ohms. Weight: 27½ lb. Price: £20 0s 9d (plus £4 14s 3d PT).

LS.1608

Infinite baffle type in teak, 12¾ × 9¼ × 22in. 13 × 8 and 2½in units. HC 20W. FR 40 Hz-20 KHz. Impedance 8 ohms. Weight: 30 lb. Price: £25.



Dynatron LS2014



Dynatron LS4008

LS.4008 ★

Reflex design in teak, $18 \times 12 \times 33\frac{1}{2}$ in. Floor-standing padded-front style. 12in and 2in (pressure) units. HC 30W. FR 30 Hz-20 KHz. Impedance 8 ohms. Weight: 80 lb. Price: £45.

EAGLE PRODUCTS

Distributors: B. Adler and Sons (Radio) Ltd, Coptic Street, London, WC1.
Tel: 01-636 9606/7. Cables: Reldab, London.

DL.42

Infinite baffle enclosure. FR: 40 Hz-20 KHz. HC 5W RMS. One 4in high compliance unit and one horn tweeter. vci: 8 ohms. Size: $10 \times 6 \times 6\frac{1}{2}$ in. Finish: teak and black front. Price: £9 7s 2d (plus £2 7s 7d PT).

DL.67

Infinite baffle enclosure. FR: 35 Hz-20 KHz. HC 10W RMS. One $6\frac{1}{2}$ in high compliance unit and one horn tweeter. vci: 8 ohms. Size: $11\frac{3}{4} \times 8 \times 6\frac{3}{4}$ in. Finish: teak and black front. Price: £14 9s 1d (including PT).

EATON AUDIO FITMENTS

Leopold Street, Long Eaton, Nottingham, NG10 4QF.
Tel: Long Eaton 2662/2818.

Trent 8

Corner reflex enclosure based on Goodmans design, suitable for any full-range 8in drive unit. $\frac{3}{4}$ in acoustic chipboard. Veneered in walnut, mahogany, oak or teak. Supplied in kit form. Size: $25\frac{1}{2}$ in high, $21\frac{1}{2}$ in wide, 14in back to front. Price: (walnut, mahogany, oak) £9 2s 6d; (teak) £9 9s 6d. Legs 8s extra.

Trent 10

Similar to Trent 8 but designed for 10in units. Supplied in kit form. Size: $31\frac{1}{2}$ in high, 25in wide, $15\frac{1}{2}$ in back to front. Also suitable for Celestion CX1512 and CX2012. Price: £10 3s 6d; (teak) £10 10s 6d; Legs 8s extra.

Derwent

Bass reflex enclosure based on Wharfedale design. Two cubic feet. Supplied as kit. Suitable for any 8 or 10in full range units and certain 12in dual systems. Size: $28 \times 16 \times 10\frac{1}{2}$ in. Price: (walnut, mahogany, oak) £9; (teak) £9 8s.

Erewash 8

One cubic foot enclosure based on Wharfedale design. Veneered on all sides. Supplied in kit form. Constructed from $\frac{1}{2}$ in material. Suitable any 8in full-range unit and smaller dual systems. Produced in reflex, distributed port or infinite baffle version.

Cabinets built to customers' own designs and quotations given. Standard kits include eight enclosures (five free-standing and three book-

shelf). Supplied in kit form accurately machined ready for simple assembly. All kits are complete with fret material, loose fret, bolts, screws and lagging material as required. Wood is veneered but unpolished.

ELAC

Electro Acoustic Industries Ltd, Stamford Works, Broad Lane, London, N15.
Tel: 01-808 0505/9. Cables: Elac, London, N15.

Elac E6-S

Infinite baffle compact enclosure with unit. Wide-range 6in speaker with long-throw suspension and moulded rubber surround of new design. FR: 55 Hz-16 KHz. HC 10W. vci: 8 and 15 ohms. Size: $11 \times 8 \times 6$ in. Weight: 7lb. Finish: scratch resistant simulated teak or walnut. Price: £8 (plus £1 17s 8d PT).

ELECTROSTATIC LOUDSPEAKER**MFG CO**

82 East Barnet Road, New Barnet, Herts.
Tel: 01-449 6605.

Dynastatic Mk II

Infinite baffle enclosure. 12in bass unit, 2in voice coil, total flux 160,000 maxwells; Shackman electrostatic tweeter. Crossover: 800 Hz. HC 25W. vci: 8-16 ohms. FR: 35 Hz-20 KHz. Finish: teak. Built-in mains unit for electrostatic unit. Psn: 200-250V AC. Export model 110V if required. Size: $29 \times 11 \times 17$ in. Weight: 55 lb approx. Price: £56.

Dynasonic 2T

Infinite baffle enclosure. 13×8 in bass unit and two 2in tweeters. Crossover: 2 KHz. FR: 50 Hz-25 KHz. HC 15W. vci: 8 ohms. Finish: teak. Weight: 40 lb. Price: £29 10s.

FISHER RADIO CORPORATION

Long Island City 1, New York, USA.
Distributors: Getz Bros and Co Inc, 2 Harewood Place, London, W1R 0DD.
Tel: 01-499 6901.

XP-55B

Speaker enclosure. Free piston system. 8in bass driver, 3in tweeter. HC 30W. FR: 37 Hz-20 KHz. Size: $10 \times 20 \times 7\frac{1}{2}$ in. Can be used horizontally or vertically. Weight: 18 lb. Finish: walnut. Price: £46 4s.

XP-66

Speaker enclosure. Free piston system. 12in bass driver, 6in mid-range unit, $2\frac{1}{2}$ in tweeter. HC 60W. FR: 30 Hz-19 KHz. Can be used horizontally or vertically. Weight: 40 lb. Size: $14 \times 24\frac{1}{2} \times 12$ in. Finish: walnut. Price: £58 16s.

XP-7

Speaker enclosure. Free piston system. 12in bass

★ Indicates entry is illustrated

driver, two 5in units and 1½in tweeter. Mid-range drivers are housed in a separate, sealed compartment. HC 60W. FR: 30 Hz-20 KHz. Weight: 45 lb. Finish: oiled walnut. Size: 14 × 24½ × 12in. Price: £63.

XP-9B

Speaker enclosure. Free piston system. 12in bass driver, 6in lower mid-range, 5in upper mid-range and 1½in soft dome treble speaker. Each speaker in the system is isolated. HC 60W. FR: 28 Hz-22 KHz. There is a three-position treble balance control at the rear. Weight: 60 lb. Size: 14 × 24½ × 12in. Price: £95 11s.

XP-15B

Speaker enclosure has a 15in bass speaker with a unique half-roll surround and a 12 lb magnet structure with 2½in dia voice coil. 8in mid-range speaker and 1½in hemispherical treble speaker. HC 60W. FR: 28 Hz-20 KHz. Calibrated three-step level control. Weight: 80 lb. Size: 27 × 27 × 14¾in. Price: £159 12s.

XP-18

Speaker enclosure has an 18in bass woofer with a 2in voice coil operating in a 12¼ lb magnet structure. 8in lower mid-range and 5½in free-piston speakers with two matched 2in treble speakers with 150 deg sound distribution. HC 60W. FR: 30 Hz-22 KHz. Threelevel controls at rear of cabinet. Weight: 105 lb. Cabinet size: 30½ × 29½ × 16½in. Price: £197 9s.

J. J. FRANCIS (Wood Green) LTD

123 Alexandra Road, Hornsey, London, N8.

Tel: 01-888 1662.

Countdown ★

Infinite baffle speaker enclosure. Two units: 3¾in tweeter and 6½in long-throw low frequency. Crossover: 1 KHz half-section. FR: 50 Hz-20 KHz. HC 10W RMS. vci: 4-15 ohms. Dimensions: 14 × 10 × 6in. Weight: 7 lb 6 oz. Finish: solid teak wood. Internal damping with Dr Bailey's long fibre wool. Price: £12 (including tax).

GOODMANS LOUDSPEAKERS LTD

Axiom Works, Wembley, Middlesex, England.

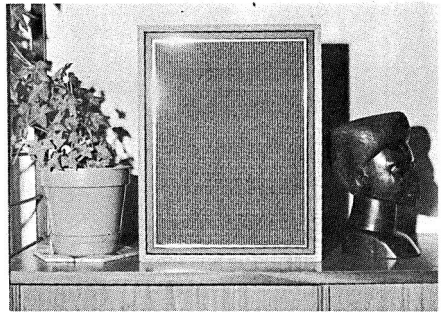
Tel: 01-902 1200. Cables: Goodaxiom, Wembley.

Maxim ★

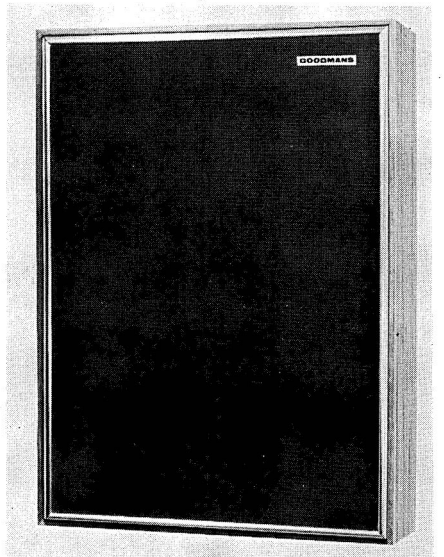
Infinite baffle. Forward facing. Incorporates two units specially designed for this box. Crossover included. FR: 45 Hz-20 KHz. HC 12W. vci: 8-16 ohms. Size: 10½ × 5½ × 7¾in. Weight: approx 7 lb. Price: £16 7s (plus £4 0s 9d PT).

Mezzo II ★

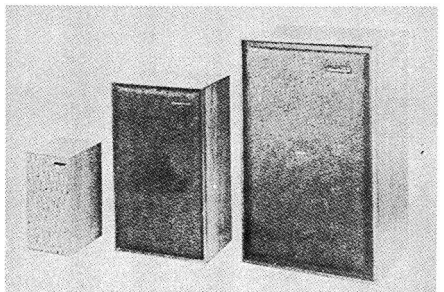
Infinite baffle containing two units. 12in bass unit with inductance/capacitance crossover at 2 KHz. Sealed back 4in treble unit. FR: 40 Hz-



Francis Countdown



Goodmans Marimba



Goodmans Maxim, Mezzo and Magnum

20 KHz. HC 15W. vci: 8 ohms. Bookshelf speaker enclosure. Finish: teak or walnut to order. Size: $12 \times 19\frac{1}{2} \times 9$ in. Price: £30 18s.

Magnum-K ★

Infinite baffle containing three units. 12in bass speaker, mid-range direct radiator, back-loaded direct HF radiator. Built-in multiple section crossover, 1.5 KHz and 6 KHz. FR: 30 Hz-20 KHz. HC 25W. Air-cushion suspension to bass unit. Two attenuators allow sound tailoring to room acoustics. Classic styling in teak or walnut. vci: 4-8 ohms. Price: £40 2s.

Mambo ★

Infinite baffle containing two special units, 5in and 2in, with crossover at 4,500 Hz. FR: 45 Hz-20 KHz. HC 15W RMS. vci: 8 ohms. Cabinet finish is teak or walnut. Size: $10\frac{3}{8} \times 8\frac{3}{4} \times 8$ in deep. Price: £17 18s (plus £4 8s 6d PT), sold in pairs.

Marimba ★

Infinite baffle containing two units, $6\frac{1}{2}$ in and $3\frac{1}{2}$ in, with crossover at 4,500 Hz. FR: 45 Hz-20 KHz. HC 15W RMS. vci: 8 ohms. Slim cabinet can be wall mounted, brackets are included. Finished in walnut. Size: $13 \times 19 \times 5\frac{1}{2}$ in. Price: £19 5s (plus £4 15s 1d PT), sold in pairs.

3005

Speaker enclosure. Speaker: 5in twin cone. HC 15W. vci: 4 ohms. FR: 30 Hz-20 KHz ± 3 dB. Cabinet finish: teak. Dimensions: $7 \times 11\frac{7}{8} \times 7$ in. Price per pair: £25 (including £2 9s 6d PT each).

Magister

Infinite baffle enclosure with three units. 15in bass driver, 4in mid-range unit, HF dome tweeter. Crossover: 800 Hz, 4 KHz. FR: 26 Hz-22 KHz. HC: 40W RMS. Impedance: 8 ohms. Finish: teak or walnut. Size: $27 \times 20 \times 14\frac{1}{4}$ in. Weight: 70 lb. Price: £57 (no PT).

GROSVENOR ELECTRONICS LTD

25 Roman Road, London, E2.
Tel: 01-980 1936.

STE-MA Type 275

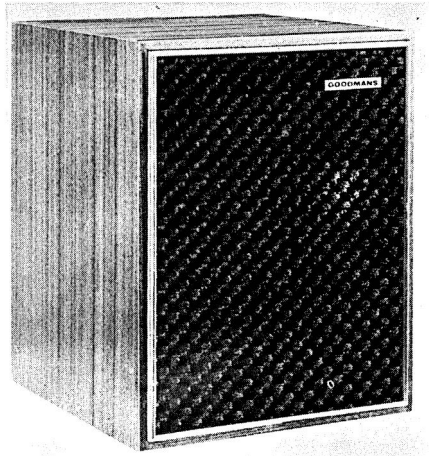
Infinite baffle speaker enclosure with 8in, 5in and $2\frac{1}{2}$ in units. FR: 40 Hz-18 KHz. HC 12W RMS. vci: 8 ohms. Dimensions: $25\frac{1}{2} \times 9\frac{1}{2} \times 6\frac{1}{2}$ in. Finish: oiled teak or oak. Made in Denmark. Price: £23 2s.

STE-MA Type 300

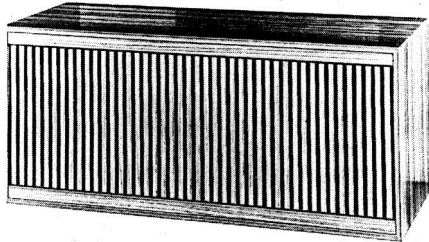
Infinite baffle speaker enclosure with 10in, 5in and $2\frac{1}{2}$ in units. FR: 30 Hz-20 KHz. HC 18W RMS. vci: 8 ohms. Dimensions: $25\frac{1}{2} \times 15\frac{1}{2} \times 10$ in. Weight: 26 lb. Finish: oiled teak. Made in Denmark. Price: £33 12s.

Hi-Fi 3

Enclosure with three units. FR: 35 Hz-20 KHz. Impedance: 8 ohms. HC: 30W RMS. Specifica-



Goodmans Mambo



Grundig System 300

tion to DIN 45 500. Finish: teak or rosewood. Price: £44 2s.

Hi-Fi 4

Enclosure with four units. FR: 30 Hz-20 KHz. Impedance: 8 ohms. HC: 35W RMS. Specification to DIN 45 500. Finish: teak or rosewood. Price: £50 8s.

GRUNDIG (Great Britain) LTD

15 Orchard Street. London. W1.
Tel: 01-935 4898.

System 300 ★

Two-unit enclosure. HC: 20W RMS. FR: 50 Hz-12.5 KHz. vci: 5 ohms. Finish: oiled teak (matt walnut to order). Size: $18 \times 8\frac{1}{4} \times 9$ in. Price: (per pair) £66 0s 2d (including PT).

System 312

Two-unit enclosure. Bass driver and mid-range/treble unit. HC: 20W RMS. FR: 45 Hz-20 KHz. vci: 5 ohms. Finish: oiled teak (matt walnut to order). Size: $16 \times 8\frac{3}{4} \times 9$ in. Price: (per pair) £77 5s 4d (including PT).

★ Indicates entry is illustrated

System 525 ★

Four-unit enclosure. Two bass/ mid-range drivers, two tweeters. HC: 35W RMS. FR: 40 Hz-20 KHz. vci: 5 ohms. Finish: oiled teak (matt walnut to order). Size: $23 \times 9\frac{1}{2} \times 9\frac{1}{4}$ in. Price: (per pair) £125 8s 10d (including PT).

System 731 ★

Six-unit enclosure. Two bass drivers, two mid-range units, two tweeters. HC: 50W RMS. FR: 40 Hz-20 KHz. vci: 5 ohms. Finish: oiled teak (matt walnut to order). Size: $24\frac{1}{2} \times 15\frac{3}{4} \times 5\frac{1}{2}$ in. Price: (per pair) £141 18s 8d (including PT).

System 740 ★

Six-unit enclosure. Two bass/mid-range drivers, four tweeters. HC: 50W RMS. FR: 40 Hz-20 KHz. vci: 5 ohms. Finish: oiled teak (matt walnut to order). Size: $26 \times 14\frac{1}{2} \times 10$ in. Price: (per pair) £145 9s 1d (including PT).

Troika 4012

Comprises two separate omni-directional tweeter systems and one bass enclosure. Two drivers in bass enclosure, six tweeters in each treble enclosure. HC: 30W RMS. FR: 40 Hz-20 KHz. vci: 5 ohms. Finish: oiled teak (matt walnut to order). Sizes: bass enclosure $24\frac{1}{2} \times 16 \times 5\frac{1}{2}$ in; treble enclosures $5\frac{1}{2} \times 5\frac{1}{2} \times 5\frac{1}{2}$ in. Price: (complete system) £121 9s 2d (including PT).

Troika 4022

Similar specification to Troika 4012 but with bass enclosure of different dimensions. Size of bass enclosure: $23 \times 9\frac{1}{2} \times 9$ in. Price: (complete system) £122 5s 1d (including PT).

HACKER

Hacker Radio Ltd, Norreys Drive, Cox Green, Maidenhead, Berks. Tel: Maidenhead 22261.

LS.1000/15

Triple speaker system in critically air-loaded enclosure, employing one Goodmans 8in piston-type unit and two Goodman's 3in high-note units. vci: 15 ohms. Teak veneered. Dimensions: $20\frac{1}{4} \times 13\frac{3}{4} \times 11\frac{1}{4}$ in. Price: £24 (including PT).

LS.1000/8

8 ohm version of LS.1000/15 for use in larger rooms. HC: 15W. Dimensions: $20\frac{1}{4} \times 13\frac{3}{4} \times 11\frac{1}{4}$ in. Price: £24 (including PT).

ST.1000

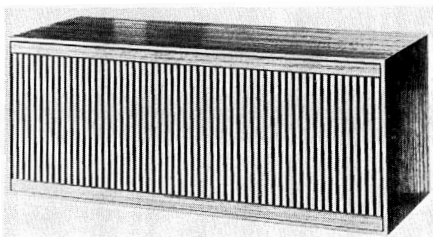
Stand for either speaker. Price: £2 18s (including PT).

THOMAS HEINITZ

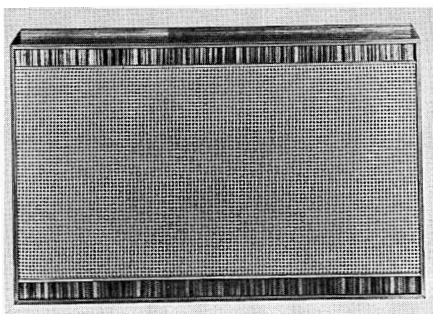
35 Moscow Road, Queensway, London, W2.
Tel: 01-229 2077.

C.Q. Junior

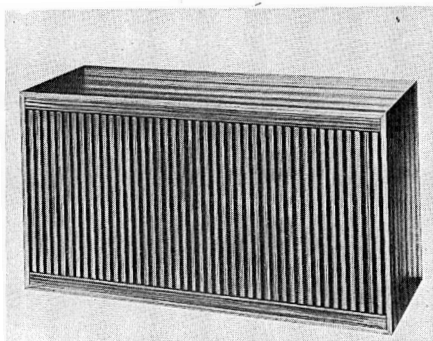
Controlled Q reflex enclosure. Special Goodmans or Peerless 10×6 in units. FR: 45 Hz-15 KHz, depending on unit. Finishes: teak, walnut,



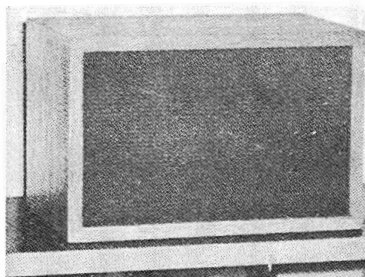
Grundig System 525



Grundig System 731



Grundig System 740



Howland-West Bergen

mahogany, all-white (others to order at no extra charge). Size: $16\frac{1}{2} \times 9\frac{1}{2} \times 9\frac{1}{4}$ in. Weight: 7 lb. Price: £9 16s 7d.

HELME

P. F. and A. R. Helme. Summerbridge, Harrogate, Yorks.
Tel: Darley 279.

Range of systems, kits and cabinets. Finish is natural oiled teak with coal black Vynair grille for speaker systems and island brown Vynair grille for cabinet kits.

Mistral Linnet 70

Elliptical 6×4 in. Aluminium coil former and linen surround. Totally enclosed cabinet. Size: $12 \times 8 \times 7$ in. HC: 15W RMS. FR 60 Hz-20 KHz. Impedance: 8 ohms. Price: £10 6s 6d (plus £2 11s 3d PT).

Mistral Wren 70

5in full-range with soft rubber roll surround. Totally enclosed. Size: $7\frac{1}{2} \times 7 \times 6$ in. HC: 8W. Impedance: 8 ohms. Price: £11 2s 6d (plus £2 15s. PT).

Brimham Firecrest 70

5in woofer with linen surround, 2in tweeter with closed back. Totally enclosed. Size: $14 \times 9 \times 7\frac{1}{2}$ in. HC: 10W. FR 45 Hz-18 KHz. Impedance: 8 ohms. Price: £17 10s (plus £4 6s 6d PT).

Brimham Swift 70

$6\frac{1}{2}$ in woofer with soft rubber surround, 2in tweeter with closed back. Totally enclosed. Size: $18 \times 10 \times 9$ in. HC: 10W. FR 40 Hz-21 KHz. Impedance: 8 ohms. Price: £20 (plus £4 18s PT).

Brimham Kestrel 70

10×6 in woofer, $2\frac{1}{2}$ in tweeter with closed back. Totally enclosed. Size: $12 \times 11 \times 10$ in. HC: 10W. FR 40 Hz-18 KHz. Impedance: 8 ohms. Price: £23 (£5 13s 8d PT).

Brimham Swallow 70

8in woofer with soft rubber surround, two 2in tweeters. Totally enclosed. Size: $20 \times 11 \times 9$ in. HC: 35W. FR 35 Hz-22 KHz. Impedance: 8 ohms. Price: £29 10s (plus £7 5s 9d PT).

Brimham Oriole 70

12in woofer with linen surround, 7×5 in mid-range unit with closed back, two $2\frac{1}{2}$ in tweeters with closed back. Totally enclosed. Size: $28 \times 16\frac{1}{2} \times 12$ in. 40W. FR 25 Hz-18 KHz. Impedance: 8 ohms. Price: £54 10s (no PT).

HOWLAND-WEST LTD

2 Park End, South Hill Park, London, NW3.
Tel: 01-794 6666.

Narvik

Infinite baffle enclosure with speakers. 12in bass



Imhof Junior Mk 11

driver, mid-range unit and tweeter. Crossover network included. FR: 35 Hz-22 KHz. HC 25W. Size: $23\frac{1}{2} \times 17\frac{3}{4} \times 12$ in. Weight: $32\frac{1}{2}$ lb. Finish: teak. Price: £29 15s.

Bergen ★

Infinite baffle enclosure with speakers. $6\frac{1}{2}$ in high compliance bass driver and tweeter. FR: 50 Hz-22 KHz. HC 12W. Size: $13\frac{3}{4} \times 9 \times 8\frac{3}{8}$ in. Weight: $10\frac{1}{4}$ lb. Finish: teak. Price: £13 10s (plus £3 5s 10d PT).

IMHOFS LTD

112-116 New Oxford Street, London, WC1.
Tel: 01-636 7878.

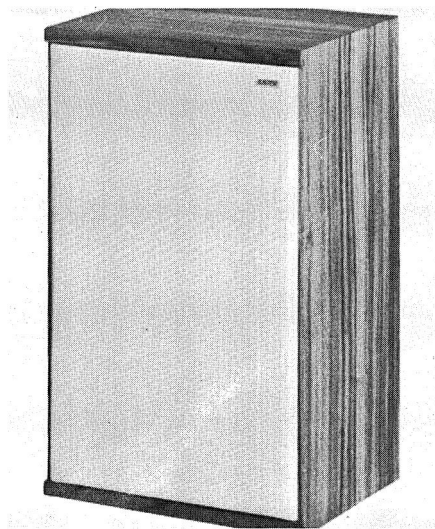
Junior Mk II ★

Infinite baffle enclosure with units. 13×8 in bass driver, 3in treble unit. Crossover 5 KHz. FR: 50 Hz-20 KHz. HC: 10W RMS. Impedance: 8 ohms. Finish: teak veneer with black fabric grille. Size: $12\frac{1}{2} \times 24 \times 9\frac{3}{8}$ in. Weight: 15 lb. Price: £16 16s.

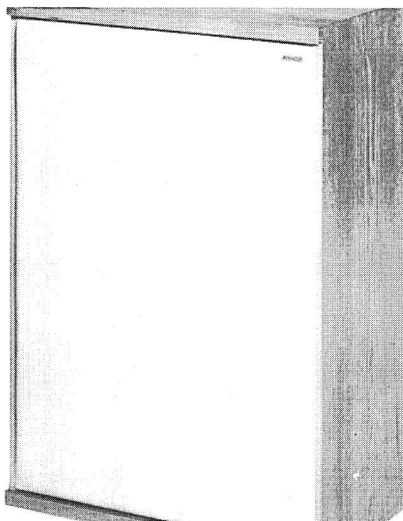
IM.100 ★

Infinite baffle enclosure with units. 13×8 in bass driver, $1\frac{1}{2}$ in treble unit. Crossover 1 KHz. FR: 50 Hz-20 KHz. HC: 15W. Impedance: 8 ohms. Finish: teak veneer, walnut veneer or white spray finish. Size: $11\frac{1}{4} \times 19 \times 7\frac{1}{2}$ in. Weight: 15lb. Interchangeable fabric grilles in a variety of patterns. Price: (teak or walnut) £24 19s; (white spray finish) £27.

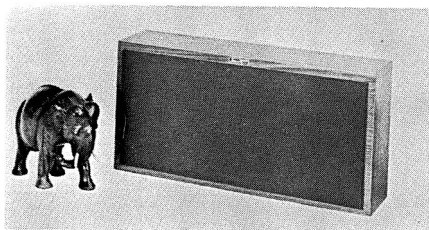
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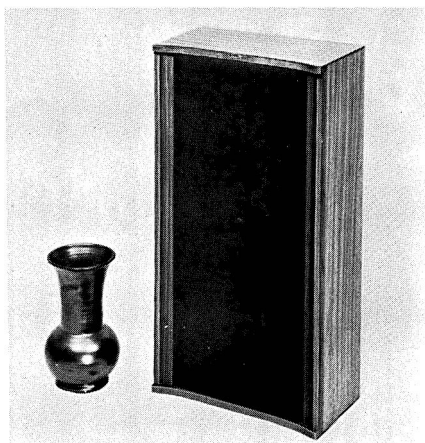
Imhof IM.100



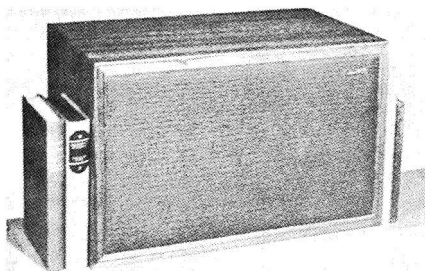
Imhof IM.200



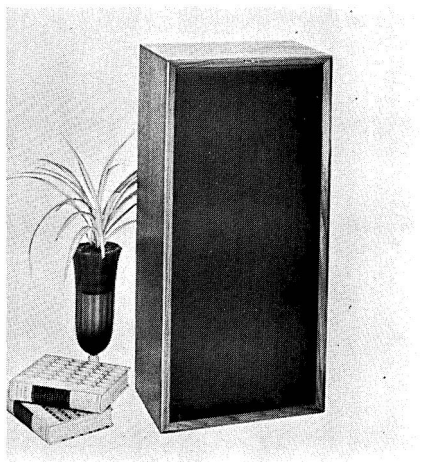
Jordan-Watts Jumbo



Jordan-Watts Juno



Jordan-Watts Juliet



Jordan-Watts Gemini

IM.200 ★

Infinite baffle enclosure with units. 13 × 9in bass driver. 1½in treble unit. Crossover 1 KHz. FR: 40 Hz-20 KHz. HC: 25W. Impedance: 8 ohms. Finish: teak veneer, walnut veneer or white spray finish. Size: 15¼ × 24¼ × 10¼in. Weight: 28 lb. Interchangeable fabric grilles in a variety of patterns. Price: (teak or walnut) £37 18s; (white spray finish) £43.

JORDAN-WATTS

Distributors: Boosey and Hawkes (Sales) Ltd, Sonorous Works, Deansbrook Road, Edgware, Middlesex. Tel: 01-952 7711.

Jumbo ★

Infinite baffle. Power handling 12W. Forward facing. Shelf or wall mounting. Incorporates one Jordan-Watts modular unit. FR: 80 Hz-20 KHz. Size: 16½ × 8 × 3½in. Weight: 13 lb. Finish: teak. Price: £18 10s.

Janet

Infinite baffle. One full-range Jordan-Watts module. FR: 70 Hz-20 KHz. HC 12W RMS. Compact shelf-mounting full range speaker system. Finish: teak with green Vynair. Size: 12 × 8 × 6½in. Weight: 13 lb. Price: £18 10s.

Juno ★

Reflex enclosure. Power handling 12W. Forward facing. Incorporates one Jordan-Watts modular unit. FR: 40 Hz-20 KHz. Size: 24½ × 12½ × 6½in. Weight: 27 lb. Price: £25 10s.

Juliet ★

Reflex cabinet. One full-range Jordan-Watts module. FR: 40 Hz-20 KHz. HC 12W RMS. Compact shelf-mounting full range speaker system. Finish: teak with green Vynair. Size: 16 × 10 × 9in. Weight: 28 lb. Price: £25 10s.

Gemini ★

Reflex enclosure. Power handling 25W. Forward facing. Incorporates two Jordan-Watts modular units. FR: 40 Hz-20 KHz. Size: 30 × 13½ × 7½in. Weight: 50 lb. Price: £39 15s.

Jupiter ★

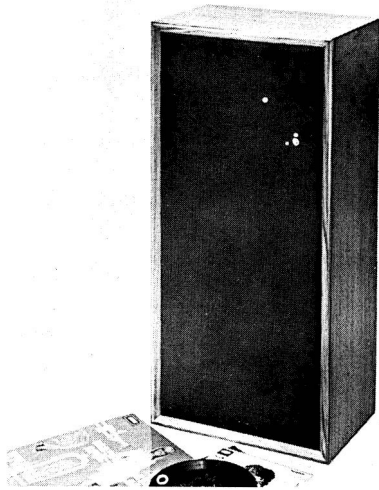
Reflex enclosure. Power handling 25W. Forward facing. Incorporates two Jordan-Watts modular units. FR: 20 Hz-20 KHz. Size: 34 × 5 × 10½in. Weight: 70 lb. Price: £54 10s.

KEF ELECTRONICS LTD

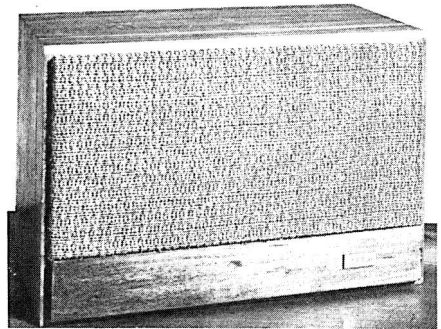
Tovil, Maidstone, Kent.
Tel: Maidstone 57258. Cables: KEF, Maidstone.

Cresta I ★

Bookshelf type in walnut or teak. Size: 13 × 9 × 7in. Brown or grey grille cloth. B110 and T27 units. HC 15W. FR 45 Hz-30 KHz.



Jordan-Watts Jupiter



KEF Cresta I

Impedance: 8 ohms. Price: £18 (plus £4 3s 6d PT).

Cresta II

As above but 12½ × 7½ × 8½in and in extra choice of white cabinet with beige grille. Price: £18 (plus £4 3s 6d PT).

Chorale ★

Compact model in choice of walnut, teak or white. Size: 18½ × 11 × 8½in. B200 and T27 units. HC 20W. FR 35 Hz-30 KHz. Impedance: 8 ohms. Price: £28.

Celeste

Compact model in choice of walnut or teak with brown or white grille cloth. Size: 18 × 10¼ × 6½in. HC 20W. FR 40 Hz-20 KHz. Impedance: 8 ohms. Price: £29.

Concord

Walnut or teak with black metal grille. Size: 24 × 15 × 10in. B139 and T15 units. HC 25W.

★ Indicates entry is illustrated

FR 35 Hz-20 KHz. Impedance: 8 ohms. Price: £43 10s.

Cadena

Reflex design in walnut, teak or white with brown, grey or beige grille cloth. Size: 24 × 14 × 12in. B200, D300 and T27 units. HC 25W. FR 35 Hz-30 KHz. Impedance: 8 ohms. Price: £38.

Concerto ★

Reflex design in walnut, teak or white. Size: 28 × 17 × 12in. B139, B110 and T27 units. HC 30W. FR 30 Hz-30 KHz. Impedance 8 ohms. Price: £53 10s.

See also Constructional Kits section for Kefkits.

KELETRON

K. & K. Electronics Ltd, 25 Roman Road, London, E2. Tel: 01-980 1936.

High Fidelity 78

Infinite baffle speaker enclosure designed for housing all types of 8 × 5in, 7 × 4in and 6 × 4in speakers. Sub-baffle board is supplied for 7 × 4in or 6 × 4in speaker. Finish: teak. Size: 10½ × 6½ × 4½in. Price: £4 7s 6d (including PT).

High Fidelity 65

Infinite baffle speaker enclosure for housing all types of circular or square frame 6½in speakers and a 3in tweeter. Finish: teak. Size: 12½ × 7¾ × 6½in. Price: £4 19s 6d (including PT).

8

Speaker enclosure for housing all types of 8in speakers and a 3in tweeter. Size: 17¼ × 10 × 7¼in. Price: £6 5s (including PT).

138

Speaker enclosure for housing all types of EMI 13 × 8in speakers. Size: 17¼ × 10 × 7¼in. Price: £6 5s.

1012

Speaker enclosure designed for housing a 12in or 10in speaker and a 4in tweeter. Sub-baffle board is supplied for the 10in speaker. Size: 21 × 15 × 7¼in. Price: £9 5s (including PT).

High Fidelity 28-E

Infinite baffle speaker enclosure designed for Eagle speaker kit 2-8. Size: 12½ × 7¾ × 6½in. Price: £4 19s 6d.

High Fidelity 315-E

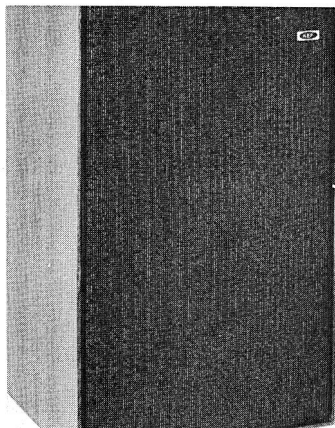
Infinite baffle speaker enclosure. Size: 17¼ × 10 × 7¼in. Price: £6 5s.

High Fidelity 325-E

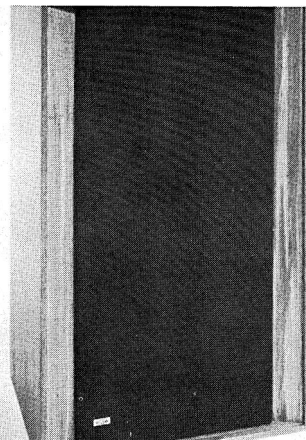
Infinite baffle speaker enclosure for housing Eagle speaker kit 3-25. Size: 21 × 15 × 7¼in. Price: £9 5s.

KN654/3

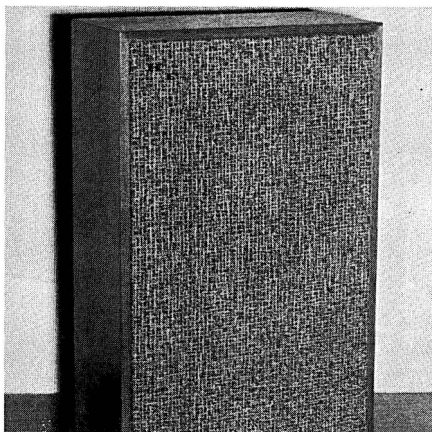
Three-way speaker system using 6½in bass unit with a 2¼in parasitic tweeter built into the centre



KEF Chorale



KEF Concerto



K.F. Products PF8/S

of the bass unit, and a separate 4in treble unit with LC crossover unit. vci: 4-8 ohms or 15-16 ohms. HC 5W RMS. FR: 75 Hz-18 KHz. Finish: polished teak. Size: $12\frac{1}{2} \times 7\frac{3}{4} \times 6\frac{1}{4}$ in. Weight: $6\frac{1}{2}$ lb. Price: £9 10s (including PT).

KN824/3

Three-way speaker system using specially designed 8in bass unit with a $3\frac{1}{2}$ in parasitic tweeter built into the centre of the bass unit and a separate 4in treble unit and LC crossover network. vci: 4-8 ohms or 15-16 ohms. HC 7W RMS. FR: 55 Hz-18 KHz. Finish: polished teak. Size: $17\frac{1}{4} \times 10 \times 7\frac{1}{4}$ in. Weight: 11 lb. Price: £11 10s (including PT).

KN124/3

Three-way speaker system using a specially designed 12in bass unit with a $3\frac{1}{2}$ in parasitic tweeter built into the centre of the bass unit and a separate 4in treble unit and LC crossover network. vci: 4-8 ohms or 15-16 ohms. HC 20W RMS. FR: 35 Hz-17 KHz. Finish: polished teak. Size: $21 \times 15 \times 7\frac{1}{4}$ in. Weight: 20 lb. Price: £19 19s (including PT).

All enclosures supplied with necessary screws, nuts, acoustic padding and terminal connections.

K. F. PRODUCTS

Hopes Carr, Stockport, Cheshire.
Tel: 061 480 7428.

PF8/S ★

Infinite baffle enclosure with unit. Fitted with Elac 8in dual-cones speaker with ceramic magnet. FR: 50 Hz-13 KHz. HC: 5W. Impedance: 3-5 ohms. Finish: teak veneer, melamine finish. Vynair front. Fitted with acoustic wadding. Size: $15 \times 10\frac{1}{2} \times 5\frac{3}{4}$ in. Price: £8 8s 9d (plus £1 19s 3d PT).

E138/S

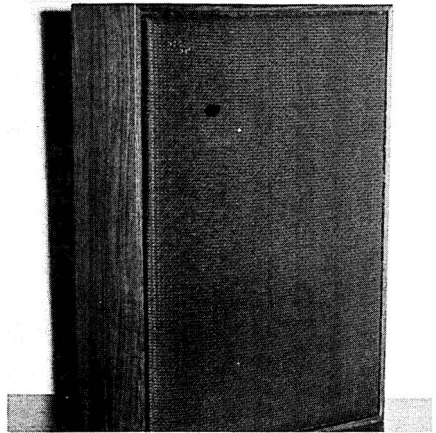
Infinite baffle enclosure with unit. Fitted with EMI 13×8 in dual-cone speaker. FR: 40 Hz-10-5 KHz. HC: 10W RMS. Impedance: 15 ohms. Fitted with acoustic wadding. Finish: teak veneer, melamine finish, Vynair front. Size: $18 \times 13\frac{1}{2} \times 9$ in. Price: £12 12s (no PT).

HP12/S ★

Infinite baffle enclosure with unit. Fitted with one Poly-Planar P20 wafer type dynamic speaker. FR: 60 Hz-20 KHz. HC: 10W RMS. Impedance: 8 ohms. Poly-Planar unit employs lightweight acoustic panel supported by a frame of compatible plastic material. Only $1\frac{1}{2}$ in thick. Finish: teak veneer, melamine finish, Vynair front. Fitted with acoustic wadding. Price: £14 3s 6d (no PT).

HPB12/S ★

Infinite baffle enclosure with unit. One Poly-



K.F. Products HP12/S



K.F. Products HPB12/S

Planar P20. FR: 40 Hz-20 KHz. HC: 10W RMS. Impedance: 8 ohms. Finish and features the same as HP12/S except improved bass response. Size: $18\frac{3}{4} \times 15 \times 8\frac{1}{2}$ in. Price: £18 18s (no PT).

KINGSTEREO

Distributors: Lionel Murray Ltd,
7 West Halkin Street, Belgrave Square,
London, SW1. Tel: 01-235 6424-5-6.

Teak cabinet speaker enclosures. Price: £10 (including PT).

KIRKMAN (Crawley) LTD

40 The Broadway, Crawley, Sussex.
Tel: Crawley 26670.

★ Indicates entry is illustrated

Home Concert Hall Mk 2 ★

Isothermal tapered reflex enclosure with speakers and crossover. Two Richard Allan CR5 bass units and STC 4001E tweeter. Two $\frac{1}{4}$ -section crossovers at 3 KHz and 4 KHz. FR: 28 Hz - 6 dB; 20 KHz - 3 dB. HC 20W music. Omni-directional throughout frequency range in horizontal plane. Inside and outside of enclosure employed to maintain non-resonant closely controlled acoustic load. Finish: teak with bronze grille. Size: 31 × 18 × 8½ in. Weight: 44 lb. Price: £52.

KLEIN & HUMMEL

Sole UK agents: F. W. O. Bauch Ltd,
49 Theobald Street, Boreham Wood, Herts.
Tel: 01-953 0091.

K. & H. OY ★

Studio monitor speaker enclosure comprising two separate built-in 30W solid state bass and treble amplifiers and 4-unit drive system. Input: 0.775V and 1.55V at 4.7K to 500 Hz dividing network filter. Speakers: 9in bass unit, two 5in mid-lift units and a 'top' horn. FR: 30 Hz-20 KHz. Complete equalisation controls for room and position matching. Dimensions: 19 × 12 × 9in. Weight: 45 lb. Finish: grey formica or walnut. Psn: mains. Price on application.

KLINGER CONTROLS LTD

10 Friar Street, Carter Lane, London, EC4.
Tel: 01-236 1811.

S24

Sealed enclosure with 5in bass drive unit and tweeter, with $\frac{1}{4}$ -section crossover. HC: 10W, 15 ohms. Dimensions: 13 × 7 × 8in. Price: teak finish £13 13s; rosewood finish £15 15s.

S32

Sealed enclosure with 8 × 5in drive unit. HC: 5W, 15 ohms. Dimensions: 13 × 7 × 8in. Teak finish. Price: £8 18s 6d.

S40

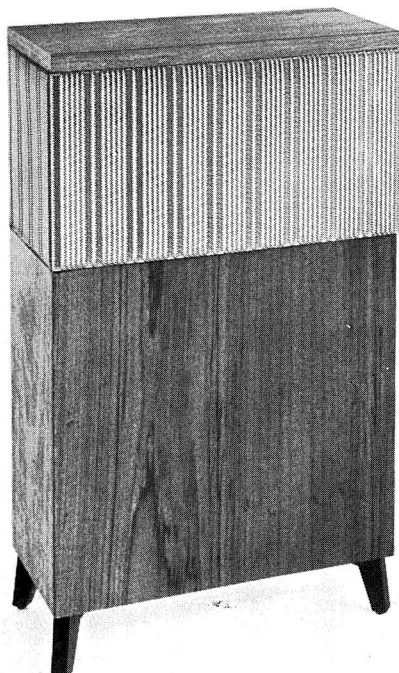
Sealed enclosure employing 8 × 5in drive unit and tweeter, with $\frac{1}{4}$ -section crossover. FR: 60 Hz-18 KHz. System resonance 120 Hz. HC: 10W, 15 ohms. Dimensions: 13 × 7 × 8in. Teak finish. Price: £10 10s.

S50

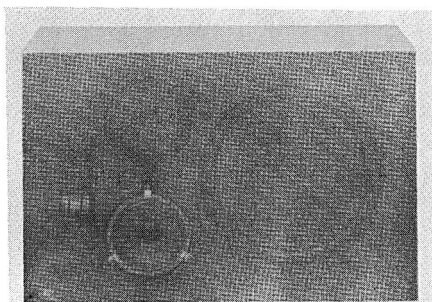
Sealed enclosure employing 8in drive unit and tweeter, with $\frac{1}{4}$ -section crossover. FR: 55 Hz-18 KHz. System resonance 80 Hz. HC 15W, 15 ohms. Dimensions: 18½ × 13 × 7in. Teak finish. Price: £22 1s.

KORTING

Europa Electronics Ltd, Howard Place,
Shelton, Stoke-on-Trent, ST1 4NW.
Tel: Stoke-on-Trent 29316.



Kirkman Home Concert Hall Mk 2



Klein and Hummel OY

LSB 15, Type 30 851

Special speaker box, 5in bass medium sound system. 12,000 gauss; and 4in tweeter system, 9,000 gauss. HC 15W approx, music power. FR: 45 Hz-18 KHz. vci: 4.5 ohms. Natural walnut colour, satin finish. Dimensions: 7 × 11½ × 9½ in. Supplied with 16ft patch cord with flat-pin plug. Price: £12 8s 6d (plus £3 1s 6d PT).

LSB25, Type 29 860

Infinite baffle with bass and treble units. Speakers: 8in bass unit, 5 × 3in tweeter. FR: 40 Hz-16 KHz. HC 15W music power. vci: 4.5 ohms. Size: 22 × 12 × 5in. Finish: satin finish

natural walnut. Supplied with 10ft lead and plug. Price: £21 5s (plus £5 5s PT).

LSB 45, Type 30 865

Infinite baffle with bass and treble units. Speakers: 9½in bass unit, 7×5in mid- and upper-frequency unit. FR: 30 Hz-20 KHz. HC 25W music power. vci: 4.5 ohms. Size: 25×13×7in. Finish: satin finish natural walnut. Supplied with 10ft lead and plug. Price: £30 1s 5d (plus £7 8s 7d PT).

LAFAYETTE

Barnet Factors Ltd, 147 Church Street, London, W2. Tel: 01-723 5328.

Lafayette CR.25

Reflex speaker enclosure with 8in bass unit and 2½in tweeter. Crossover: 8 KHz LC. FR: 55 Hz-19.5 KHz. HC 12.5W. vci: 8 ohms. Dimensions: 12×7×10in. Finish: oiled walnut. Price: £9 (plus £2 8s 2d PT).

Lafayette CR.50

Reflex speaker enclosure with 8in bass unit and 4in tweeter. Crossover: 3 KHz LC. FR: 35 Hz-18 KHz. HC 10W. vci: 8 ohms. Dimensions: 19×8⅝×10⅜in. Finish: oiled walnut. Specially tuned bass reflex enclosure with tube-type ducted port. Price: £11 18s 3d (plus £3 1s 9d PT).

Lafayette CR.150

Reflex speaker enclosure with 10in bass unit and 3½in tweeter. LC crossover 2 KHz. FR: 20 Hz-20 KHz. HC 20W RMS. vci: 8 ohms. Dimensions: 11×19×9in. Weight: 17 lb. Finish: oiled walnut with beige grille fabric. Acoustic suspension design with high frequency brilliance control. Price: £18 18s (plus £5 2s PT).

Minuette II

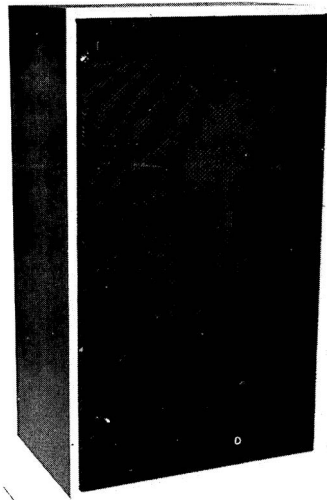
Reflex enclosure with 7×5in bass unit and 2½in tweeter. High frequency level control. Crossover: 8 KHz LC. FR: 80 Hz-19.5 KHz. HC 5W. vci: 8 ohms. Dimensions: 17⅞×6×9⅝in. Finish: oiled walnut. Price: £7 10s (plus £1 19s 1d PT).

H. J. LEAK & CO LTD

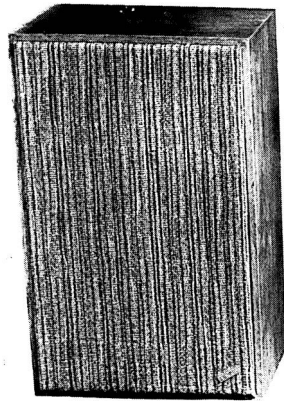
57-59 Brunel Road, East Acton, London, W3. Tel: 01-749 1641. Cables: Sinusoidal, Ealux, London.

Sandwich ★

Forward facing. Two units, bass 13in, treble 3in. Half-section crossover filter. Cabinet can be placed in vertical or horizontal position. The unique sandwich construction diaphragm behaves as a rigid piston, thus eliminating break-up distortion and resulting in a remarkably smooth frequency response. Impedance 15 ohms. Crossover 900 Hz. Six-element filter. Finish: walnut, sapele mahogany or teak. Other finishes to order at slightly higher cost. Size: 26×15×12in. Weight: 49.5 lb. Price: £43 10s.



Leak Sandwich



Leak Mini Sandwich

Mini-sandwich ★

Forward facing. Two units, bass 12in elliptical, treble 3in. Half-section crossover filter. Cabinet can be placed in vertical or horizontal position. Sandwich construction diaphragm behaves as a rigid piston, thus eliminating break-up distortion and providing a smooth frequency response. Performance indistinguishable from standard Sandwich except for the lowest octave. Size: 18½×11×7in. Weight: 22 lb. Price: £29 15s.

L.N.B. AUDIO LTD

25 Cambridge Street. Loughborough, Leics. Tel: Loughborough 61229.

★ Indicates entry is illustrated

Para-Tran 6 ★

Infinite baffle two-way system. 6½in long-throw bass driver with membrane compensator, 3½in tweeter. Damping material: long fibre wool. FR 50 Hz-17 KHz. Impedance: 8 ohms at 400 Hz. HC: 10W RMS, 20W peak. Size: 15½ × 11 × 8in. Weight: 15 lb. Finish: oiled teak with complementary baffle. Price: £15 10s (including PT).

Para-Lab 6 ★

Labyrinth three-way system. Goodmans long-throw 6½in unit in labyrinth, two 3½in tweeters. Three-way crossover. System resonance 45 Hz. FR 40 Hz-17 KHz. Impedance: 8 ohms at 400 Hz. HC: 12½W RMS, 25W peak. Size: 23½ × 10¼ × 9in. Weight: 23 lb. Finish: oiled teak with complementary baffle. Price: £22 (including PT).

Para-Lab-Super

Similar construction to Para-Lab 6 but employing higher flux bass unit and studio quality tweeters. Goodmans long-throw 6½ unit in labyrinth, plus KEF T27 tweeter and STC ultra HF unit. Three-way crossover. FR 40 Hz-25 KHz. Impedance: 8 ohms at 400 Hz. HC: 12½W RMS, 25W peak. Size: 23½ × 10¼ × 9in. Weight: 26 lb. Finish: oiled Burma teak with complementary baffle. Price: £29 (including PT).

LOCKWOOD & CO (Woodworkers) LTD

63 Lowlands Road, Harrow, Middx.

Tel: 01-422 3704/0768.

Mini-slim

Reflex, forward facing. 12in units. Rec Tannoy 12in dual concentric, Tannoy III LZ dual concentric. Size: 27½ × 19 × 9½in. Price (with specified units): £51 15s, £43 10s.

Minor Slim

Reflex, forward facing. 12 or 15in units. Rec Tannoy 12 or 15in dual concentric, and units listed for Mini-slim. Size: 33⅛ × 20 × 11¼in. Price (with specified units): £62 10s, £55 15s, £48 10s.

Major Slim

Reflex, forward facing. 12 or 15in units. Rec Tannoy 12in and 15in dual concentric. Size: 38 × 24 × 11¼in. Price: £61 15s, £68 10s.

LEI/AS Mk III and LEI/WAS

Studio quality monitoring speakers. Full details and prices on request.

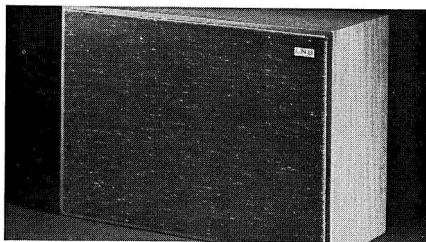
LOWTHER MANUFACTURING CO

Lowther House, St Mark's Road, Bromley, Kent, BR2 9HQ.

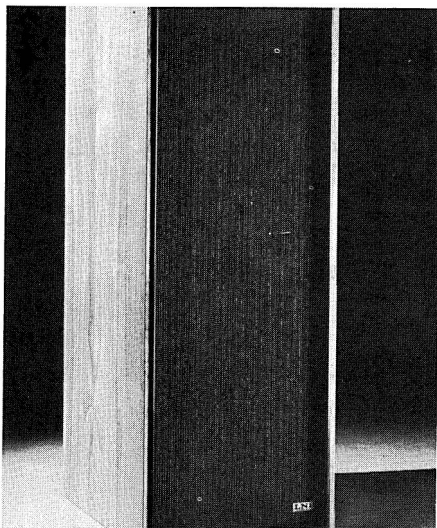
Tel: 01-460 5225. Cables: Lowther, Bromley.

Corner Reproducer TP1 ★

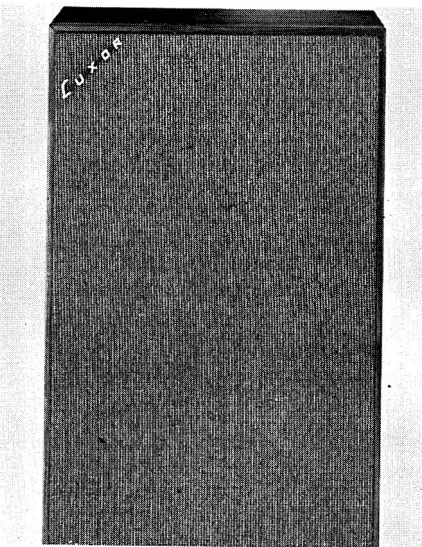
Folded bass horn/direct HF horn type. One specially designed 6in pressure unit PM3.



LNB Audio Para-Tran 6



LNB Audio Para-Lab 6



Luxor SH102

Acoustical crossover. FR: 40 Hz-22 KHz. Size: 47×32×31in from corner. Weight: 70 lb. Price: (Standard Model A and Model D) £145; (Model B) £165.

Acousta Cabinet

Models FH/V. FH/H. Folded horn type, forward facing, with rear folded horn. Vertical on runners, or horizontal on 12in legs. Designed for use with single 6in or 8in unit. Rec Lowther PM6. FR: 40 Hz-18 KHz. Size: 32×18½×14½in. Weight: 60 lb. Price without unit: £25.

Mini Acousta

Model FH/V (vertical) and FH/H (horizontal). Folded horn type. Forward facing with rear folded horn. Veneered all round. Designed for use with one 6-8in unit. Rec Lowther PM6 or PM7. FR: 40 Hz-20 KHz. Size: 27×15×13in. Price without unit: £27 5s.

Audiovector

Compound horn. Upward facing mid- and high-frequency horn with rear folded horn. Designed for use with single 6in unit. Acoustic crossover. FR: 40 Hz-22 KHz. Rec PM2, PM2 Mk II or PM4. Size: 26½×19×34in. Weight: 75 lb. Price: £68 (without unit).

Dual Position Acousta

Folded horn. Rearward facing into corner or along wall at 45 degrees. Bass outlets coupling into corner of room or along wall. Designed for use with single 6in high flux unit. Rec Lowther PM6 or PM7. FR: 40 Hz-18 KHz. Size: 32×9½×18in. Price without unit: £27 5s.

L.I.B. Acousta

Lowther Ideal Baffle is a special enclosure in the Lowther range of folded rear and compound horn designs. It has closed back with anti-phase slave membrane to overcome resonance. Membrane is coupled to drive unit by compliance and matched via a short labyrinth. Effect is that drive unit frequency response, say 30 Hz-20 KHz, such as PM6, becomes 25 Hz-20 KHz. Veneered teak, walnut or sapele finish. Grille cloth: ripple grey. Dimensions: 19×14×7½in. Price: £15.

LUXOR

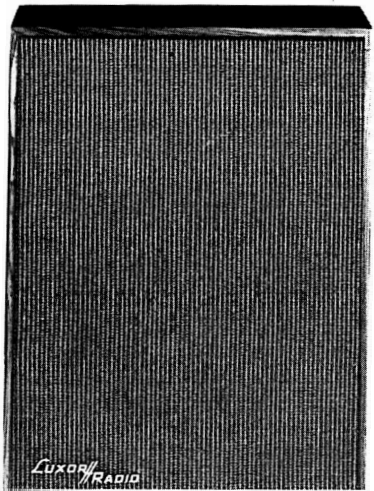
Distributors: Luxitone Ltd,
84 Bolsover Street, London, W1.
Tel: 01-636 2901.

SH102 ★

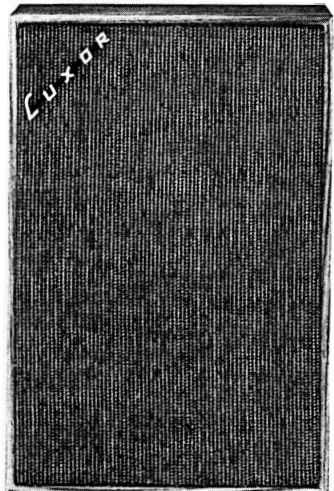
Incorporates one 10in bass unit, two 2in tweeters. FR: 35 Hz-18 KHz. HC: 20W. vci: 4 ohms. Dimensions: 12×21×10in. Weight: 19 lb. Finish: teak and rosewood. Price: £20 8s (plus £4 16s PT).

KH820 ★

Incorporates one 8in bass unit, two 2in tweeters. FR: 40 Hz-18 KHz. HC: 20W. vci: 4 ohms. Dimensions: 10×16×8½in. Weight: 14 lb.



Luxor KH820



Luxor KH520

Finish: teak and rosewood. Price: £16 3s (plus £3 16s PT).

KH520 ★

Incorporates one 5in bass unit and one 2½in tweeter. FR: 45 Hz-18 KHz. HC: 15W. vci: 4 ohms. Dimensions: 10×7½×8½in. Weight: 7 lb. Finish: teak and rosewood. Price: £12 15s (plus £3 PT).

SH46

Incorporates one 6×4in full-range unit. FR: 130 Hz-10 KHz. HC: 5W. vci: 4 ohms. Dimensions: 9×4×8in. Weight: 5 lb. Finish: teak and rosewood. Price: £7 4s 6d (plus £1 14s PT).

★ Indicates entry is illustrated

METRO SOUND

Metrosound Manufacturing Co Ltd,
Audio Works, Cartersfield Road,
Waltham Abbey, Essex.
Tel: Waltham Cross 31933.

Metrosound HFS10

Infinite baffle enclosure with units. $10\frac{3}{4} \times 6\frac{1}{2}$ in bass driver. $2\frac{1}{2}$ in tweeter. Crossover: 5 KHz. FR: 50 Hz-16 KHz. HC: 10WRMS. Impedance: 8 ohms. Finish: teak veneer with brushed silver grille surround. Size: $14 \times 9 \times 7$ in. Weight: 11 lb. Price: (per pair) £21 (plus £5 3s 8d PT).

Metrosound HFS20

Infinite baffle enclosure with units. $13\frac{1}{2} \times 8\frac{1}{4}$ in bass driver. $3\frac{1}{4}$ in tweeter. Crossover: L/C network, 5 KHz. FR: 40 Hz-18 KHz. HC: 20W RMS. Impedance: 8 ohms. Finish: teak veneer with brushed silver grille surround. Size: $25 \times 11\frac{1}{2} \times 10\frac{3}{4}$ in. Weight: 22 $\frac{3}{4}$ lb. Price: £18 10s (no PT).

MMG ASSOCIATES

8 Watford Heath Farm, Oxhey, Watford,
Herts, WD1 4ER. Tel: Watford 21754.

Emperor 101 ★

Infinite baffle type enclosure. 13×8 in elliptical driver with coaxially mounted high frequency unit. Crossover: 5 KHz choke-capacitor network. FR: 50 Hz-16 KHz. HC 20W. vci: 8 ohms. Adjustable high frequency balance. Finish: teak effect in Melamine plastic, with other finishes to order. Size: $31 \times 17 \times 9$ in. Weight: $39\frac{1}{2}$ lb. Price: £29.

Emperor 102 ★

As Emperor 101 but vci is 16 ohms. Price: £29.

KEITH MONKS (Audio) LTD

5 Fleet Road, Fleet, near Aldershot, Hants.
Tel: Fleet 7316.

Elf ★

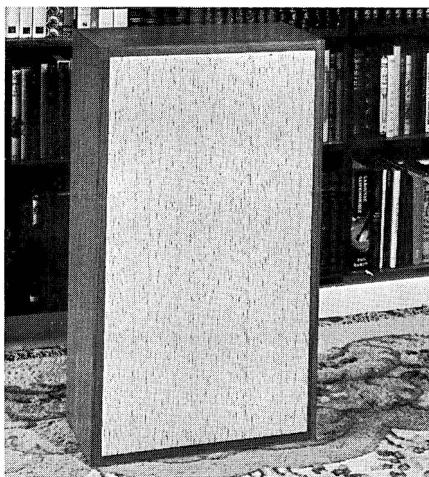
Bookshelf reflex enclosure with three units. Built-in filter system. $6\frac{1}{2}$ in bass driver, two 3in tweeters. HC: 10W RMS. FR: 40 Hz-16 KHz. Finish: teak (formica to order). Price: £18 18s (no PT).

D15/40 Titan-Minor

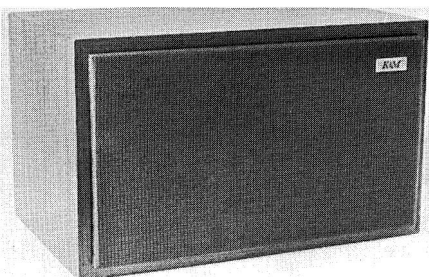
No-compromise bookshelf speaker system. Incorporates one TCL module. Cabinet designed as low friction phase inverter to provide optimum load to driver. HC 15W RMS over specified range (30W music rating). Finish: teak. Size: $17\frac{1}{2} \times 11 \times 8\frac{1}{4}$ in. FR: 40 Hz-22 KHz. Weight: 20 lb. Price: £30.

D30/30 Titan-Major

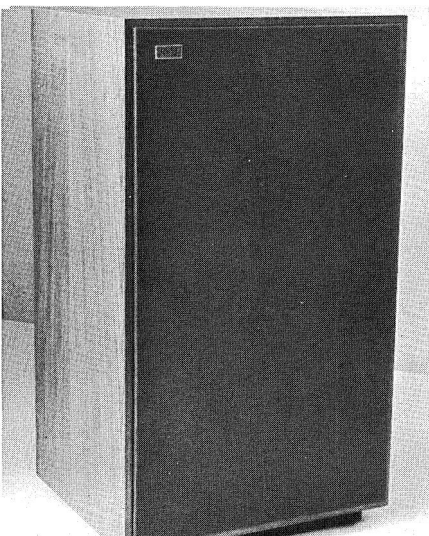
Free-standing home speaker system. Designed for larger rooms. Electrical delay circuit to shape sound distribution. HC 30W RMS over speci-



MMG Emperor 101, 102



Keith Monks Elf



Keith Monks KM70

fied range (60W music rating). FR: 30 Hz-22 KHz. Finish: teak. Size: $33 \times 19\frac{1}{2} \times 9\frac{1}{2}$ in. Weight 51 lb. Price: £70.

KM70 ★

Floor-standing acoustic labyrinth system. KEF bass driver, tweeter and modified TCL unit. HC: 30W RMS (requires at least 15W RMS to drive system efficiently). FR: 25 Hz-22 KHz. Finish: teak. Price: £86.

KM70/F ★

Similar specification to KM70 but with special finish in formica. Also available to special order in white, teak or rosewood finish. Price: £92.

MORDAUNT-SHORT LTD

The Courtyard, Heath Road, Petersfield, Hampshire. Tel: Petersfield 4761.

MS 200 ★

Infinite baffle enclosure with 8in bass unit, 4in mid-range unit and HF 1300 high frequency unit. Crossover: 800 Hz and 5 KHz. Printed circuit network. FR: 40 Hz-15 KHz. HC 25W. vci: 8 ohms. Dimensions: $21 \times 13 \times 9$ in. Weight: 32 lb approx. Finish: teak or walnut veneer, or white. Price: £42.

MS 400 ★

Infinite baffle enclosure with one 12in bass driver, one HF 1300 mid-range unit and one STC high frequency tweeter. Crossover: 2-25 KHz and 11 KHz. Printed circuit network. FR: 35 Hz-25 KHz. HC 25W. vci: 8 ohms. Dimensions: $27 \times 15 \times 9$ in, on $1\frac{3}{4}$ in plinth. Weight: 43 lb approx. Finish: teak or walnut veneer, or white. Price: £52 10s.

MS 700

Infinite baffle enclosure with 12in bass driver, 4in mid-range unit and Decca-Kelly 30W ribbon tweeter. Crossover: 800 Hz and 4.5 KHz. Multi-stage crossover network. FR: 25 Hz-25 KHz. HC: 30W. vci: 8 ohms. Dimensions: $33 \times 17 \times 12$ in, on $1\frac{3}{4}$ in plinth. Weight: 52 lb approx. Finish: teak or walnut veneer, including rear of cabinet. Price: £73 10s.

NICHOLS ACOUSTIC FITMENTS

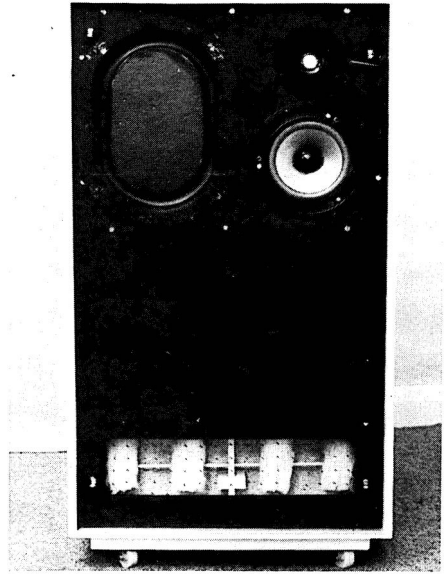
See Derwent.

NIVICO

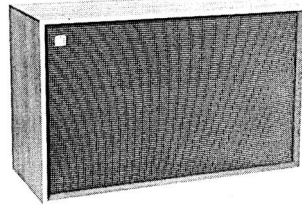
Distributors: Denham and Morley (Overseas) Ltd, 453 Caledonian Road, London, N7. Tel: 01-607 6568.

5320

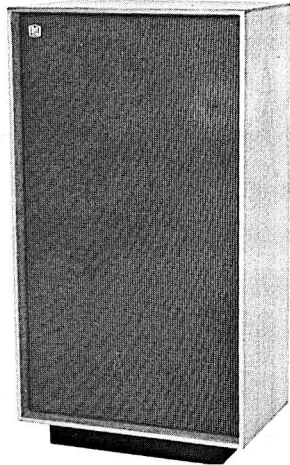
Infinite baffle enclosure with units. 8in bass driver, $3\frac{1}{2}$ in mid-range unit, 2in horn tweeter. Crossover: 5 KHz, 10 KHz. FR: 35 Hz-20 KHz. HC: 30W RMS. Impedance: 8 ohms. Finish: walnut. Size: $21\frac{1}{2} \times 13 \times 9\frac{3}{4}$ in. Weight: 19 $\frac{3}{4}$ lb. Price: £43 15s.



Keith Monks KM70/F with front cover removed



Mordaunt-Short MS200



Mordaunt-Short MS400

★ Indicates entry is illustrated

5340

Infinite baffle enclosure with units. 12in bass driver, mid-range unit, 3½in tweeter, 2in super tweeter. HC: 40W RMS. FR: 20 Hz-20 KHz. Crossover: 1 KHz, 7 KHz, 10 KHz. Impedance: 8 ohms. Finish: walnut. Size: 28½ × 16½ × 15¼in. Weight: 47½ lb. Price: £86.

GB-1E

Non-directional spherical speaker system. Four free-edge 5in bass drivers, four horn tweeters. HC: 80W (minimum power 25W RMS). FR: 20 Hz-20 KHz. Crossover: 5 KHz. Impedance: 8 ohms. Size: 13½in diameter. Weight: 26½ lb. Finish: black metal perforated for maximum diffusion effect and then hermetically sealed. Acoustic damping inside enclosure. Can be used suspended from the ceiling or on the Nivico GBS-1E floor stand. Price: (speaker) £84; (GBS-1E floor stand) £9.

NORDMENDE

Distributors: TAK Continental Importers,
16a High Street, Stone, Staffordshire.
Tel: Stone 3232, 3233.

LB31

Bookshelf type in natural walnut or white. HC 15W RMS. FR 45 Hz-20 KHz. vci: 5 ohms. Dimensions: 6¼ × 7 × 10½in approx. Price: £18 18s (PT paid).

LB32

White/eggshell paint with offset front panel in red, or walnut or Rio rosewood with offset front panel in radiant black. HC 7W RMS. FR 70 Hz-18 KHz. vci: 4½ ohms. Dimensions: 9 × 8 × 5½in approx. Price: £18 18s (PT paid).

LB33

Natural walnut, teak, Rio rosewood or elm. HC 10W RMS. FR 48 Hz-20 KHz. vci: 5 ohms. Dimensions: 7 × 8 × 10½in approx. Price: £18 18s (PT paid).

LB41

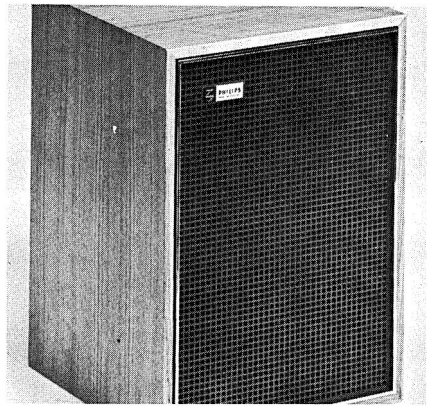
Walnut with white front or matt black. HC 7W RMS. FR 70 Hz-18 KHz. vci: 4½ ohms. Dimensions: 7 × 7 × 8in approx. Price: £18 18s. (PT paid).

LB60

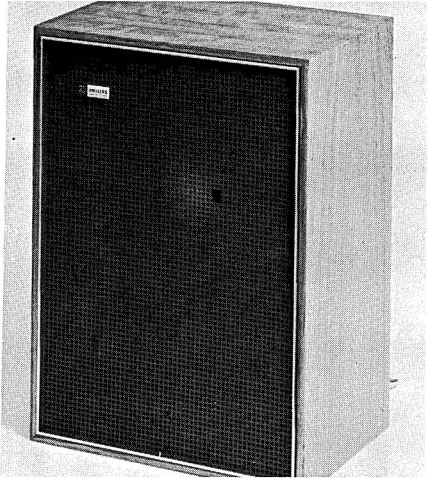
Finished in red, white, radiant black, green, walnut, teak or Rio rosewood and available with elegant chromium-plated stand for tilting. HC 20W RMS. FR 35 Hz-20 KHz. vci: 8 ohms. Dimensions: 30 × 15 × 7in approx. Price: £40 19s plus £3 3s for stand (PT paid).

PEAK SOUND (Harrow) LTD

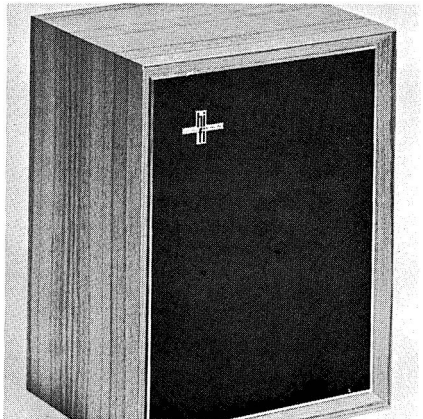
32 St Judes Road, Englefield Green,
Egham, Surrey. Tel: Egham 5316.



Philips RH481



Philips RH482



Philips RH491

Baxandall Enclosure

Designed for 9×5in speaker and special equaliser network. FR: 60 Hz-16 KHz. flat 100 Hz-10 KHz. HC 10W. vci: 15 ohms. Afrormosia. Size: 18×12×9½in. Price on application.

PHILIPS ELECTRICAL LTD

Century House, Shaftesbury Avenue,

London. WC2. Tel: 01-437 7777.

RH481 ★

Infinite baffle enclosure with 5in dual cone unit. FR: 60 Hz-16 KHz. HC 6W. vci: 8 ohms. Dimensions: 10¾×7¼×7¾in. Teak veneered cabinet. Price: £8 16s 5d (plus £2 3s 7d PT).

RH482 ★

Infinite baffle enclosure with 7in dual cone unit. FR: 60 Hz-18 KHz. HC 10W. vci: 8 ohms. Dimensions: 13¾×9¾×7¾in. Teak veneered cabinet. Price: £14 8s 8d (plus £3 11s 4d PT).

RH491 ★

Infinite baffle enclosure with 7in woofer and 1in tweeter. Crossover: 1.600 Hz. FR: 55 Hz-20 KHz. HC 20W. vci: 8 ohms. Dimensions: 11¾×9¾×7¼in. Teak veneered cabinet. Price: £17 12s 10d (plus £4 7s 2d PT).

RH497 ★

Infinite baffle enclosure with 10in woofer, 5in mid-range and 1in tweeter. Crossover: 600 Hz and 4 KHz. FR: 40 Hz-20 KHz. HC: 40W. vci: 8 ohms. Teak veneered cabinet. Countour switch to adjust top response. Price: £42 (including PT).

RH496

Infinite baffle enclosure with 8in woofer, 5in mid-range and 1in tweeter. Two crossover filters (frequencies 700 Hz and 3 KHz). FR: 35 Hz-20 KHz. HC 20W. vci: 8 ohms. Teak veneered cabinet. Dimensions: 13½×18½×8¾in. Price: £34 (PT not applicable).

PIONEER

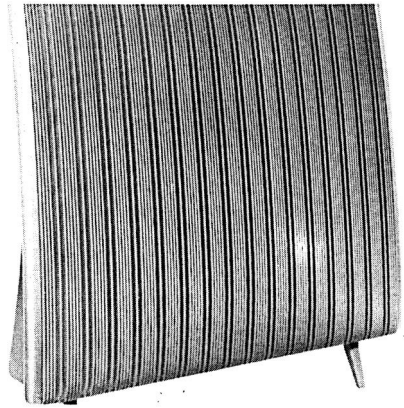
Distributors: Shriro (UK) Ltd.
Electronics Division, Lynwood House,
24-32 Kilburn High Road, London. NW6.
Tel: 01-624 9102.

CS-52T

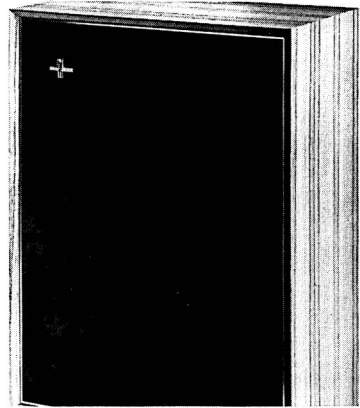
Compact 2-way bass reflex enclosure. 6½in bass/mid-range unit and 2½in tweeter. vci: 4 ohms. FR: 45 Hz-20 KHz. Sensitivity: 93 dB. HC 15W RMS. Finish: walnut. Size: 13¾×8½×8¾in. Cable and wall brackets provided. Price: £26 14s 4d (including PT).

CS-53

Two-speaker bass reflex enclosure. Shelf or floor. 12in bass/mid-range, 3½in tweeter. vci: 8 ohms. FR: 45 Hz-20 KHz. Sensitivity: 100 dB. HC 40W (music). Finish: oiled walnut. Size: 22½×



Quad Electrostatic



Philips RH497

16½×11¾in. Cable and felt feet provided. Screw terminal and jack connections. Price: £41 13s 2d (including PT).

CS-77

Three-way bass reflex enclosure. 12in bass, 5in mid-range, horn tweeter. Fibre glass lined cabinet. FR: 35 Hz-25 KHz. Crossover frequencies: 800 Hz, 6 KHz. vci: 8 ohms. HC 50W (music). Sensitivity: 102 dB. Finish: lattice grille, oiled walnut sides. Size: 14¾×25½×12¼in. Weight: 48 lb. Connections: screw or jack. Cable and felt feet provided. Price: £68 13s 7d (including PT).

QUAD

Acoustical Manufacturing Co Ltd.
St Peter's Road, Huntingdon, Hunts.
Tel: Huntingdon 2561/2. Cables: Acoustical.

Quad Electrostatic ★

Full range doublet covering 45 Hz-18 KHz. Attenuation outside band asymptotic to 18 dB/

★ Indicates entry is illustrated

8ve. Total integrated radiation at max output equivalent to 95 phons in rooms of up to 5,000 cu ft with average reverberation. Dispersion approx 70 deg horizontal; 15 deg vertical. Imp 30-15 ohms. 40 Hz to 8 KHz, falling above 8 KHz. Designed for use with standard Quad 303 Amplifier. Suitable for AC supplies 100-120 or 200-250V 50-60 Hz. Free-standing unit requires no enclosure or cabinet. Weight: 35 lb. Price: £66 complete.

RADFORD

Radford Acoustics Ltd. Ashton Vale Road, Bristol, BS3 2HZ. Tel: Bristol 662301.

Bookshelf II

Cabinet with speakers and crossover. 12in bass driver. 1 $\frac{3}{8}$ in tweeter. Infinite baffle. Crossover: 1.5 KHz. FR: 55 Hz-14 KHz. HC: 50W. Impedance: 8-12 ohms. Finish: afrormosia veneer. Size: 21 x 12 x 9in. Weight: 34 lb. Price: £32 10s.

Monitor II

Cabinet with speakers and crossover. 12in bass driver. 3in mid-range unit. 1 $\frac{3}{8}$ in tweeter. $\frac{3}{4}$ in super HF. Bass unit in infinite baffle, mid-range acoustic line loading. Crossover: 500 Hz. 4.2 KHz, 10 KHz. FR: 45 Hz-25 KHz. HC: 50W. Impedance: 8-12 ohms. Dimensions: 30 x 12 x 10 $\frac{1}{2}$ in. Finish: afrormosia veneer. Weight: 55 lb. Price: £60.

Auditorium II

Cabinet with speakers and crossover. 12in bass driver. 3in mid-range unit. 1 $\frac{3}{8}$ in tweeter. $\frac{3}{4}$ in super HF. Bass unit infinite baffle. Crossover: 500 Hz. 4.2 KHz, 10 KHz. FR: 35 Hz-25 KHz. HC: 50W. Impedance: 8-12 ohms. Finish: afrormosia veneer. Size: 35 $\frac{3}{4}$ x 16 x 13in. Weight 70 lb. Price: £80.

Studio 12

Cabinet with speakers and crossover. 12in bass driver. 3in mid-range unit. 1 $\frac{3}{8}$ in tweeter and $\frac{3}{4}$ in super HF. Crossover: 500 Hz, 4.2 KHz, 10 KHz. FR: 45 Hz-25 KHz. Transmission line loading on bass driver. HC: 50W. Impedance: 8-12 ohms. Finish: afrormosia veneer. Size: 45 $\frac{1}{4}$ x 17 x 15in. Weight: 114 lb. Price: £100.

RADON INDUSTRIAL ELECTRONICS CO LTD

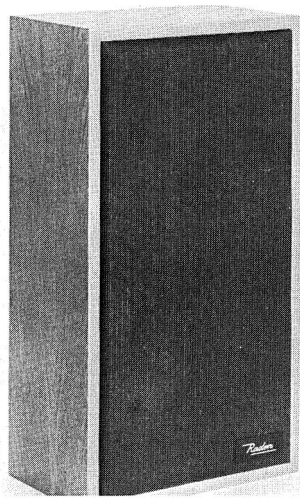
Brooklands Trading Estate, Orme Road, Worthing, Sussex. Tel: Worthing 34904.

Jewel Range

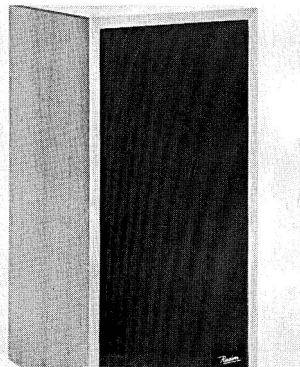
Range of six speakers in hand-built teak enclosures. Finished in satin lacquers and charcoal-coloured fronts. Brass key plates for wall mounting. Impedances: 8 or 15 ohms.

Amethyst SC/1 ★

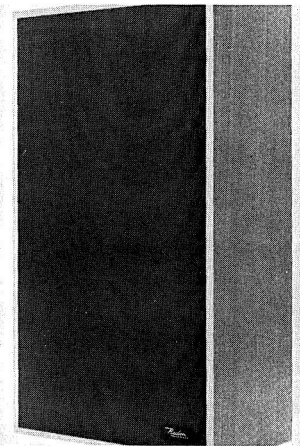
Infinite baffle. HC 10W maximum. FR: 60 Hz-



Radon Amethyst



Radon Opal



Radon Sapphire

17 KHz \pm 6 dB. System comprises 6½in woofer with ceramic magnet of 10,000 gauss and 1in voice coil; and 4in tweeter with crossover. Size: 19 × 10 × 6in. Price: £11 5s (plus £2 12s 11d PT).

Emerald SC/2

Infinite baffle. HC 12W maximum. FR: 50 Hz-10 KHz \pm 5 dB. 10 × 6in woofer with aluminium centre cone and high compliance PVC suspension; tweeter and crossover. Price: £16 10s (plus £3 18s 3d PT).

Opal SC/3 ★

Infinite baffle. HC 15W maximum. FR: 20 Hz-20 KHz \pm 8 dB. Speakers: 13 × 8in woofer using ceramic magnet of 11,000 gauss, high compliance PVC surround, aluminium centre cone; tweeter with 10,000 gauss ceramic magnet, driven from crossover network at 5 KHz. Dimensions: 23 × 12 × 11in. Price: £18 15s.

Sapphire SC/4 ★

Enclosure with 12in woofer using ceramic magnet of 15,500 lines and 1¾in speech coil. 4 × 4in tweeter assembly on heavy diecast alloy frame for non-directional sound. HC 25W maximum. FR: 20 Hz-18 KHz \pm 2 dB. Cabinet size: 30 × 16 × 9in. Price: £36.

Topaz SC/5 ★

Infinite baffle enclosure with units. 14 × 9in bass driver, 5in mid-range unit, 3¾in tweeter. FR: 50 Hz-20 KHz. HC: 20W RMS. Impedance: 8 ohms. Size: 28 × 16 × 13in. Weight: 32 lb. Finish: natural teak satin lacquer. Special crossover provides control to mid-range and HF frequencies. Bass unit fitted with laminated glass fibre cone and diecast chassis. Price: £63.

Pearl SC/6

Labyrinth enclosure with units. 10in Goodmans Axiom bass driver, two 3¾in tweeters. Crossover: LC network. FR: 40 Hz-18 KHz. HC: 10W RMS. Impedance: 8 or 15 ohms. Size: 25 × 16¾ × 15¾in. Weight: 28½ lb. Finish: teak. Cabinet fitted with acoustic resistance and special baffle system for level response. Price: £42.

System 500

Infinite baffle enclosure with unit. 6½in long-throw bass driver with PVC surround. FR: 40 Hz-18 KHz. HC: 6W. Impedance: 8 or 15 ohms. Size: 8 × 11 × 6in. Weight: 6 lb. Finish: teak. Price: £8 12s 6d (plus £2 0s 6d PT).

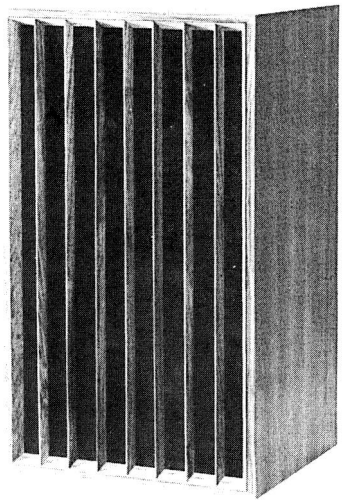
ROGERS DEVELOPMENTS (Electronics)

LTD

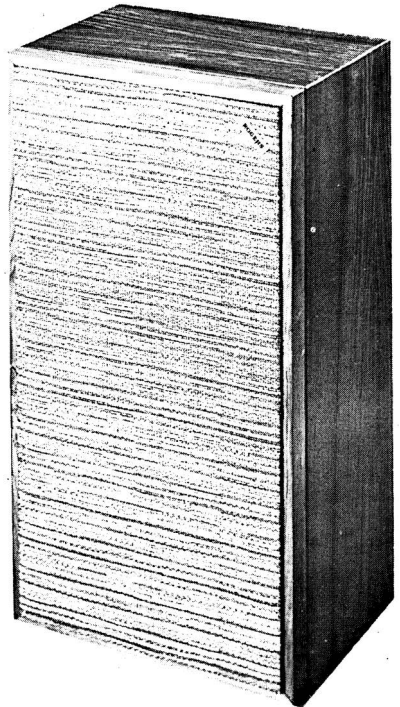
4/14 Barmeston Road, Catford, London, SE6.
Tel: 01-698 7424/4340. Cables: Rodevco, London, SE6.

Wafer speaker system

Infinite baffle. 5in unit plus tweeter. FR: 40 Hz-

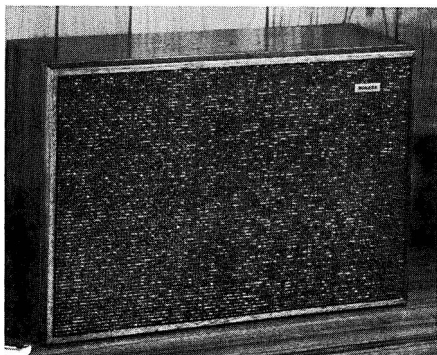


Radon Topaz

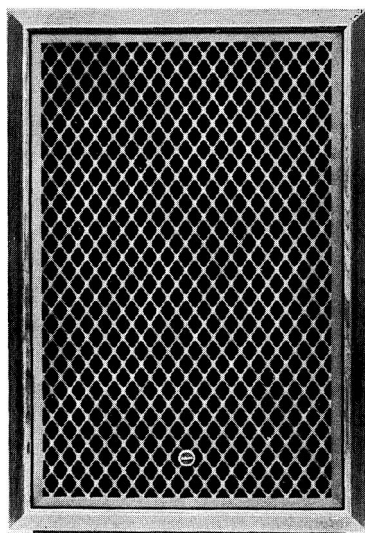


Rogers Ravensbourne "Compact"

★ Indicates entry is illustrated



Rogers Ravensbrook 3



Sansui SP30: SP50: SP200: SP300

16 KHz. HC 12W. vci: 15 ohms. Solid afrormosia frame with black fret material. Size: $13\frac{1}{8} \times 16\frac{5}{8} \times 2\frac{1}{2}$ in. Price: £16 (plus £4 0s 1d PT).

Ravensbourne Compact ★

Infinite baffle enclosure with units. 8in high-flux bass driver, $3\frac{3}{4}$ in. HF 1300 tweeter. Crossover 2.5KHz. FR: 50 Hz-14 KHz. HC 10-15W RMS. Finish: teak veneer. Size: $22 \times 11\frac{1}{2} \times 8\frac{3}{8}$ in. Price: £25 (plus £6 5s 1d PT).

Ravensbrook 3-Speaker System ★

Infinite baffle enclosure with three units. One high-flux 8in bass driver, two 3in tweeters. Crossover: 2 KHz (12 dB per octave). FR: 40 Hz-20 KHz. HC: 15W (20W speech and music). Impedance: 8 ohms. Size: $19 \times 13 \times 7\frac{3}{8}$ in. Weight: 18½ lb. Finish: teak with black/gold

grille material. Incorporates special method of construction and new damping material. Price: £47 10s for matched stereo pair.

ROLA-CELESTION

See Celestion.

SANSUI

Sole UK importer: Brush Cle vite Co Ltd, Thornhill, Southampton, SO9 1QX. Tel: Southampton 45166.

Distributors for Scotland, North and Midlands: Audio Distributors Ltd, Oldington Trading Estate, Stourbury Road, Kidderminster, Worcs. Tel: Kidderminster 3293.

Sansui SP30 ★

Pipe-duct bass reflex enclosure with $6\frac{1}{2}$ in cone type woofer and 2in horn tweeter. HC 20W. vci: 8 ohms. FR: 50 Hz-20 KHz. Crossover: 7 KHz. Dimensions: $16\frac{1}{8} \times 10\frac{1}{8} \times 7\frac{3}{8}$ in. Weight: 9.9 lb. Price: £25 5s 1d (plus £6 3s 6d PT).

Sansui SP50 ★

Horn type enclosure with units. 8in bass driver, 2in horn tweeter. Crossover 7 KHz. FR: 50 Hz-20 KHz. HC 25W. Impedance 8 ohms. Dimensions: $12\frac{3}{4} \times 9\frac{3}{4} \times 19\frac{3}{4}$ in. Weight: 19.8 lb. Finish: American walnut, hand carved grille. Price: £35 3s 7d (plus £8 11s 11d PT).

Sansui SP200 ★

Reflex enclosure with five units. 12in bass driver, two 5in mid-range units, two 2in horn tweeters. Crossover: 1.5 KHz and 5 KHz. FR: 35 Hz-20 KHz. vci: 8 ohms. HC 40W RMS. Three-position level control. Finish: American walnut. Size: $15\frac{1}{2} \times 12\frac{1}{2} \times 25\frac{3}{4}$ in. Weight: 40½ lb. Price: £63.

Sansui SP300 ★

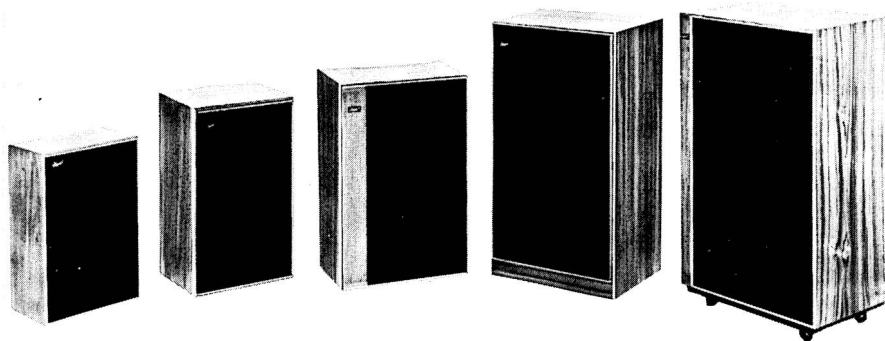
Reflex enclosure with four units. 12in bass driver, 5in mid-range unit, two 2in horn tweeters. Crossover: 1.5 KHz and 6 KHz. FR: 30 Hz-20 KHz. vci: 8 ohms. Special pipe ducted bass reflex design. HC 50W RMS. Finish: American walnut. Size: $18 \times 27\frac{1}{2} \times 16\frac{1}{2}$ in. Weight: 78½ lb. Price: £97 10s.

SANYO

Sanyo Marubeni (UK) Ltd, Sanyo House, Bushey Mill Lane, Watford, Herts. Tel: Watford 25354/6.

SX-7

Speaker enclosure with four units. 12in bass driver, $6\frac{3}{4}$ in mid-range unit, two horn tweeters. vci: 8 ohms. HC: 30W. FR: 30 Hz-20 KHz. Size: $17\frac{1}{4} \times 11\frac{3}{8} \times 28\frac{3}{4}$ in. Price: £49 15s.



Sheppard Audio range

SHEPPARD AUDIO LTD

31 New Berries Parade, Radlett, Herts.
Tel: Radlett 779 5440.

SA/2 ★

Infinite baffle cabinet with speakers and crossover. $13\frac{1}{2} \times 8\frac{1}{4}$ in bass driver, 3in tweeter. Crossover: 3.5 KHz. C/R network. FR: 40 Hz-20 KHz. HC: 15W. Impedance: 8 ohms. Size: $18 \times 11\frac{1}{4} \times 7\frac{1}{4}$ in. Weight: 18 lb. Finish: teak or walnut (mahogany to order). Horizontal or vertical mounting. Black Vynair grille, anodised aluminium trim. Price: £26 10s.

SA/3 ★

Infinite baffle cabinet with speakers and crossover. $13\frac{1}{2} \times 8\frac{1}{4}$ in bass driver, 3in mid-range unit, T27 tweeter. Crossover: 3.5 KHz, 5 KHz. FR: 45 Hz-20 KHz. HC: 15W. Impedance: 8 ohms. Size: $21 \times 12 \times 9$ in. Weight: 27 lb. Finish: teak or walnut (mahogany to order). Horizontal or vertical mounting. Gold/brown grille and anodised trim. Price: £31.

SA/4 ★

Infinite baffle cabinet with speaker and crossover. $13\frac{1}{2} \times 8\frac{1}{4}$ in bass driver, two 3in mid-range units, T27 tweeter. Crossover: 3.5 KHz, 5 KHz. FR: 40 Hz-20 KHz. HC: 18W. Impedance: 8 ohms. Size: $23\frac{1}{4} \times 15 \times 10\frac{1}{4}$ in. Weight: 37 lb. Finish: teak or walnut (mahogany to order). Harlech grille front, anodised trim. Strongly braced cabinet. Price: £38.

Aldenham ★

Infinite baffle cabinet with speakers and crossover. KEF B139 bass driver, B110 mid-range unit, T27 tweeter. Crossover: 800 Hz, 4 KHz. FR: 40 Hz-20 KHz. Impedance: 8 ohms. Size: $23\frac{1}{4} \times 15 \times 10\frac{1}{4}$ in. Weight: 42 lb. Finish: teak or walnut (mahogany to order). Mid-frequency control ± 5 dB. Black grille. Wood strip decoration down lefthand side of grille, anodised trim top and bottom edges. Price: £54.

Waltham Monitor ★

Infinite baffle cabinet with speakers and crossover. 13×9 in bass driver, 5in mid-range unit, $1\frac{1}{2}$ in upper frequency unit, T27 tweeter. Crossover: 800 Hz, 3.5 KHz, 6.5 KHz. FR: 25 Hz-25 KHz. HC: 25W. Impedance: 8 ohms. Size: $29\frac{1}{2} \times 15\frac{1}{2} \times 12\frac{1}{2}$ in. Weight: 52 lb. Finish: teak or walnut (mahogany to order). ± 5 dB controls on mid-range and upper frequency units. Special BAF and rubber fibre acoustic damping. Optional extra: black vynide base and castors. Price: (speaker system) £63 10s.

Waltham Monitor Elite ★

Infinite baffle cabinet with speakers and crossover. 13×9 in bass driver, 5in mid-range unit, $1\frac{1}{2}$ in upper frequency unit, T27 tweeter. Crossover: 800 Hz, 3.5 KHz, 6.5 KHz. FR: 20 Hz-25 KHz. HC: 30W. Impedance: 8 ohms. Size: $29\frac{1}{2} \times 17\frac{1}{2} \times 12\frac{1}{2}$ in. Weight: 57 lb. Finish: teak or walnut (mahogany to order). Controls on mid-range and upper frequency units. Special BAF loading and rigid construction. Price: £69.

SINCLAIR RADIONICS LTD

22 Newmarket Road, Cambridge.
Tel: Cambridge 52996.

Q16

Slim shelf-mounting enclosure with unit. High compliance full-range driver with aluminium speech coil and ceramic magnet. 11,000 gauss. HC: 14W RMS. Impedance: 8 ohms. FR: 60 Hz-16 KHz. Infinite baffle construction. Size: $9\frac{3}{4} \times 9\frac{3}{4} \times 4\frac{3}{4}$ in. Finish: natural solid teak surround with black cellular foam front. Price: £8 19s 6d.

System 2000

Compact speaker enclosure of contemporary design. FR 100 Hz-15 KHz. HC 10W RMS. Impedance 8 ohms at 1 KHz. Finish: solid aluminium. Size: $10\frac{1}{2} \times 8\frac{1}{2} \times 8\frac{1}{2}$ in. Price: £12 12s.

★ Indicates entry is illustrated

SONICS CORPORATION

UK distributor: B. H. Morris & Co (Radio) Ltd, 84-88 Nelson Street, Tower Hamlets, London, E1 2DY. Tel: 01-790 4824.

AS-57

Bookshelf speaker system with 7 × 5in unit. HC 10W (music power). vci: 8 ohms. FR: 70 Hz-18 KHz. Finish: walnut. Dimensions: 15 $\frac{3}{4}$ × 5 $\frac{3}{4}$ × 8 $\frac{1}{2}$ in. Weight: 5.06 lb. Price: £15 per pair (including PT).

AS-303

Bookshelf enclosure with three units: 12in extra low resonance woofer with a long travel voice coil; 6 $\frac{1}{2}$ in sealed back mid-range unit; and exponential horn-type super tweeter. HC 30W (music power). vci: 8 ohms. FR: 35 Hz-20 KHz. Finish: walnut, hand-rubbed oil finish. Dimensions: 25 × 14 $\frac{3}{4}$ × 11 $\frac{7}{8}$ in. Weight: 26.4 lb. Price: £31 10s each.

AS-330

Five-speaker system in reflex enclosure with precision tuned pipe ducted port design. Speakers: 12in high compliance, long throw voice coil woofer; two 6 $\frac{1}{2}$ in acoustically isolated mid-ranges; and two horn-type HF tweeters. Crossover network: 3-way 12 dB/oct LC type network, 600 Hz and 5 KHz. HC 40W (music). vci: 8 ohms. FR: 30 Hz-20 KHz. Rear-mounted push-button tone control. Finish: walnut, hand-rubbed oil finish. Size: 26 × 15 $\frac{3}{8}$ × 11 $\frac{5}{8}$ in. Weight: 37.4 lb. Price: £59 10s each.

AS-440

Pipe ducted $\frac{3}{4}$ in hardwood reflex enclosure with glasswool acoustic insulation with six speakers in 4-way system. Speakers: 16in low resonance woofer; two 6 $\frac{1}{2}$ in high efficiency sealed back mid-range units; two 3 $\frac{1}{2}$ in cone type low treble units; and horn-type super high treble unit. Crossover network: 4-way 12 dB/oct LC type network, 600 Hz, 3.5 KHz and 10 KHz. HC 60W (music). vci: 8 ohms. FR: 25 Hz-20 KHz. Finish: walnut hand-rubbed oil finish. Dimensions: 28 × 18 $\frac{1}{8}$ × 13in. Weight: 48.4 lb. Price: £72 each.

SONAB LTD

136 Mansfield Road, Acton, London, W3.
Tel: 01-993 0849.

Sonab V-1

Enclosure with one upward-facing 8 $\frac{1}{2}$ in unit. FR: 49 Hz-17 KHz (DIN). HC: 35W (DIN). Impedance 8 ohms. Size: 12 × 12 × 12 $\frac{1}{2}$ in. Weight 10 lb. Finish: jacaranda, teak, walnut, white, red, yellow or blue. Price: £38 10s (including PT).

Sonab OA-4

Enclosure with upward-facing 8 $\frac{1}{2}$ in bass/middle driver and three 2in tweeters. Crossover: 3.5

KHz. FR: 44 Hz-18 KHz (DIN). HC: 35W (DIN). Impedance: about 7 ohms. Size: 11 $\frac{1}{2}$ × 17 × 17 $\frac{1}{2}$ in. Weight: 20 lb. Finish: jacaranda, teak, walnut, oak or white. Price: £45.

Sonab OA-5

Enclosure with 8 $\frac{1}{2}$ in upward-facing bass/middle driver and four 2in tweeters. Crossover: 2.7 KHz. HC: 40W (DIN). FR: 37 Hz-18 KHz (DIN). Impedance: about 7 ohms. Size: 9 $\frac{1}{2}$ × 17 × 24in. Weight: 22 lb. Finish: jacaranda, teak, walnut, oak, deal, white, red, blue or green. Price: £58 10s.

Sonab OA-6

Enclosure with six units and built-in bass amplifier. Units: 8 $\frac{1}{2}$ in bass driver, 8 $\frac{1}{2}$ in mid-range unit, four 2in tweeters. Bass speaker driven by 26W RMS built-in amplifier. Distortion 0.1%. Crossover: 200 Hz and 2.7 KHz. FR: 26 Hz-18 KHz (DIN). HC: 50W (DIN). Impedance: about 7 ohms. Size: 9 $\frac{1}{2}$ × 17 × 27in. Weight: 44 lb. Finish: jacaranda, walnut, teak, oak, deal or white. Price: £137 5s.

SONY (UK) LTD

Pyrene House, Sunbury Cross,
Sunbury on Thames.
Tel: Sunbury on Thames 87644/7.

SS-23

Infinite baffle type with one 5in unit. HC 6W. FR: 100 Hz-15 KHz. vci: 8 ohms. Weight: 8 lb. Finish: walnut. Dimensions: 9 × 16 × -in. Price per pair: £25 11s 4d (plus £6 5s 8d PT).

SS-103

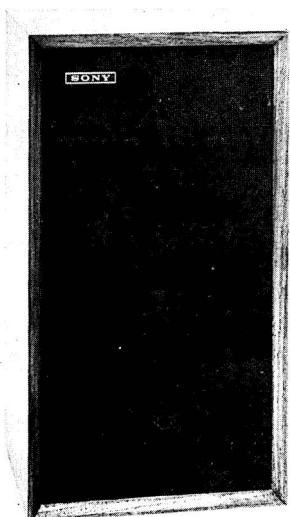
Infinite baffle type with 10in and 3in units. HC 8W. FR: 30 Hz-20 KHz. vci: 8 ohms. Weight: 12 lb. Finish: walnut. Dimensions: 16 $\frac{9}{16}$ × 16 $\frac{9}{16}$ × 7 $\frac{1}{2}$ in. Price (each): £22 6s (plus £5 10s 3d PT).

SS-1000 Monitor ★

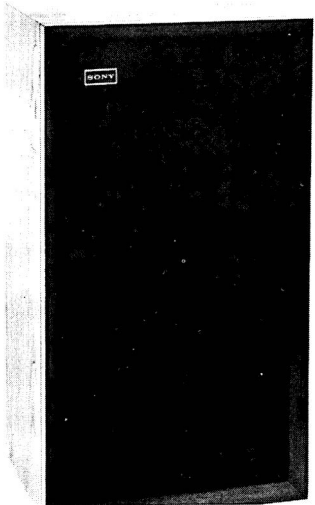
Infinite baffle type with three units. Bass radiator: 10 × 6in laminated glass-metal cone; upper-mid frequency unit of wide dispersion pressure type; ultra high-frequency unit with low-mass direct radiator extending response smoothly into supersonic region. HC 10W. FR (±5 dB): better than 100 Hz-25 KHz. vci: 8 ohms. Weight: 15 lb. Finish: walnut. Dimensions: 8 × 16 $\frac{1}{2}$ × 8 $\frac{1}{2}$ in. Designed and made in Gt Britain by B & W Electronics to Sony specifications. Available only in matched pairs. Price (each): £32 (no PT).

SS-2800

Infinite baffle type with 10in LF cone, 6 $\frac{1}{2}$ in mid-range and 2in HF horn unit. HC 20W. FR: 40 Hz-20 KHz. vci: 8 ohms. Weight: 35 lb. Crossover frequencies: 600 Hz and 6 KHz. Finish: walnut. Dimensions: 13 $\frac{3}{8}$ × 23 $\frac{1}{2}$ × 9 $\frac{9}{16}$ in. Features high and mid-frequency level controls giving ±4 dB. Price: £47 3s.



Sony SS-1000 Monitor



Sony SS-3000 Monitor

SS-3000 Monitor ★

Infinite baffle type with three units: $13\frac{1}{2} \times 8\frac{1}{2}$ in bass radiator and pressure HF unit and ultra HF unit. HC 15W. FR: better than 60 Hz-14 KHz (± 3 dB) and 40 Hz-25 KHz (± 5 dB). vci: 8 ohms. Weight: 53 lb. Finish: walnut. Dimensions: $28\frac{1}{2} \times 15\frac{3}{4} \times 11\frac{1}{2}$ in. Designed and made in Gt Britain by B & W Electronics to Sony specifications. Price (each): £63.

SS-3100

Infinite baffle type with 12in LF unit, $6\frac{1}{2}$ in mid-range unit and 2in horn type HF unit. Crossover frequencies: 400 Hz and 5 KHz. HC 30W. FR:

30 Hz-20 KHz. vci: 8 ohms. Weight: 55 lb. Finish: walnut. Features level controls, HF and mid-range, ± 4 dB. Price: £86.

SS-3300

Infinite baffle type with 12in LF cone unit, 5in mid-range cone unit and 2in horn type HF unit. HC 25W. FR: 30 Hz-20 KHz. vci: 16 ohms. Crossover frequencies: 500 Hz and 3 KHz. Weight: 90 lb. Finish: eurasian teak. Dimensions: $22\frac{7}{8} \times 31\frac{1}{2} \times 14\frac{5}{8}$ in. Crossover unit can be switched out giving direct connections to the three units for three-channel systems. Price: £123 10s.

STENTORIAN

Whiteley Electrical (Radio) Co Ltd,
Victoria Street, Mansfield, Notts.
Tel: Mansfield 24762.

C3 Junior Console

Bass reflex for corner position. 1 or 2 drive units. Rec HF816 or HF1012 with T10 tweeter, if required. Crossover 3 KHz. FR: (HF816) 50 Hz-14 KHz; (HF1012 and T10) 30 Hz-14 KHz. Size: $33 \times 22\frac{1}{2} \times 18\frac{1}{2}$ in. Price without units: £17 13s 9d (plus £1 15s 1d PT).

C2 Senior Corner Console

Bass reflex for corner position. 10in or 12in drive unit with tweeter, if required. Crossover 3 KHz. FR: (HF1012 and T10) 30 Hz-14 KHz; (HF1214 and T12) 25 Hz-17 KHz. Size: $35 \times 30 \times 19$ in. Price without units: £21 18s 3d (plus £2 3s 6d PT).

Model C4 Corner Console

Similar design to Model C2 but suitable for smaller room. Designed for Stentorian HF810 or HF812. Size: $26 \times 17 \times 7\frac{1}{2}$ in. Price without unit: £9 12s 3d (plus 19s 1d PT).

C14 Thoresby Bass Reflex Corner Console

Designed to utilise acoustic properties of walls. Takes 8in or 10in units with provision for tweeter. Size: $31 \times 19\frac{3}{8} \times 17$ in. Choice of mahogany (C14) or walnut (C14A) finish. Price: (C14 mahogany) £18 5s 6d (plus £1 16s 3d PT); (C14A walnut) £18 13s 1d (plus £1 17s PT). Cabinet only without speaker units.

C15 Thoresby Bass Reflex Console

Designed for 8in or 10in units with provision for tweeter. Size: $31 \times 19\frac{3}{8} \times 18$ in. Choice of mahogany (C15) or walnut (C15A) finish. Prices: (C15 mahogany) £19 15s 11d (plus £1 19s 4d PT); (C15A walnut) £20 7s 9d (plus £2 0s 6d PT). Cabinet only without speaker units.

LC93

Infinite baffle enclosure with unit. One 9in HF912-67 speaker unit. FR 60 Hz-20 KHz. HC 10W RMS. Impedance 15 ohms. Acoustically loaded cabinet. Speaker has graded melaminated cone with silicon rubber-over-cambic

★ Indicates entry is illustrated

suspension. Size: $19 \times 12\frac{1}{2} \times 8\frac{1}{2}$ in. Weight: 20 lb. Finish: teak or rosewood veneer. Price: (teak) £14 12s 8d (plus £3 12s 4d PT); (rosewood) £15 15s 4d (plus £3 17s 11d PT).

LC94

Labyrinth enclosure with unit. One 9in HF912-67 speaker unit. FR 45 Hz-20 KHz. HC 10W RMS. Impedance 15 ohms. Acoustic labyrinth with acoustic resistance incorporated in pipe. Special 9in speaker as fitted in LC93. Size: $29\frac{1}{2} \times 23\frac{3}{4} \times 6\frac{1}{2}$ in. Weight: 39 lb. Finish: oiled teak or rosewood veneer. Price: (teak) £22 10s 5d (plus £5 11s 3d PT); (rosewood) £23 19s 11d (plus £5 18s 7d PT).

LC95

Reflex enclosure with units. One 12in HF1214-67 bass driver, one 8in T812-67 mid- and upper-frequency speaker. Crossover: $\frac{1}{4}$ -section L/C 1 KHz. FR 27 Hz-20 KHz. HC 15W RMS. Impedance 15 ohms. Acoustically loaded bass reflex cabinet. 12in unit melamine treated paper cone with cambric surround, 8in unit-melamine treated paper ribbed cone and surround. Size: $31\frac{1}{2} \times 20\frac{3}{4} \times 13\frac{1}{2}$ in. Weight: 62 lb. Finish: oiled teak or rosewood veneer. Price: (teak) £50 18s 11d; (rosewood) £53 1s 9d.

TANDBERG

Farnell-Tandberg Ltd, 81 Kirkstall Road, Leeds. Tel: Leeds 35111.

Tan 7 ★

Infinite baffle in teak or rosewood with 6×10 in and 2in units. HC: 20W music power. FR: 60 Hz-16 KHz. vci: 3.2 ohms. Dimensions: $20\frac{1}{2} \times 10 \times 10\frac{1}{2}$ in. Prices: (teak) £21 13s 2d (plus £5 6s 10d PT); (rosewood) £23 5s (plus £5 15s PT).

Tan 10 and Tan 11

Infinite baffle speakers in teak with $6\frac{1}{2}$ in and 2in units. HC: 20W music. FR: 60 Hz-16 KHz. vci: 4 ohms. Dimensions: Tan 10, $7\frac{1}{2} \times 9\frac{1}{8} \times 9\frac{1}{2}$ in; Tan 11, $12\frac{5}{8} \times 6 \times 8\frac{1}{2}$ in. Price: £14 8s 8d (plus £3 11s 4d PT).

Tan 12 ★

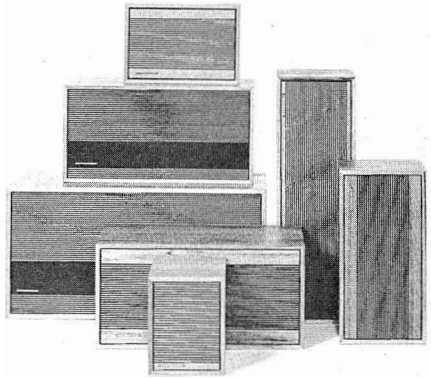
Infinite baffle with $6\frac{1}{2}$ in and 2in units. HC: 20W music. FR: 50 Hz-16 KHz. vci: 4 ohms. Dimensions: $17\frac{1}{4} \times 7\frac{1}{2} \times 8\frac{1}{2}$ in. Prices: (teak) £16 4s 6d (plus £4 6s 6d PT); (rosewood) £17 17s 8d (plus £4 8s 4d PT).

Tan 13

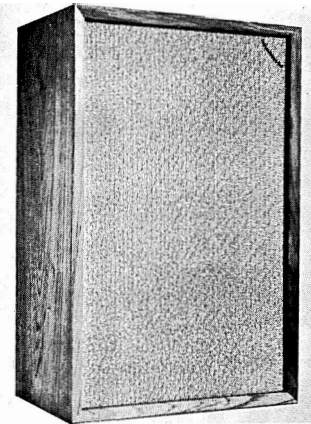
Infinite baffle with 6×10 in and 2in units. HC: 20W music. FR: 60 Hz-16 KHz. vci: 3.2 ohms. Dimensions: $25 \times 9\frac{1}{4} \times 8\frac{1}{2}$ in. Prices: (teak) £22 9s (plus £5 11s PT); (rosewood) £24 13s 3d (plus £6 1s 9d PT).

Tan 15 ★

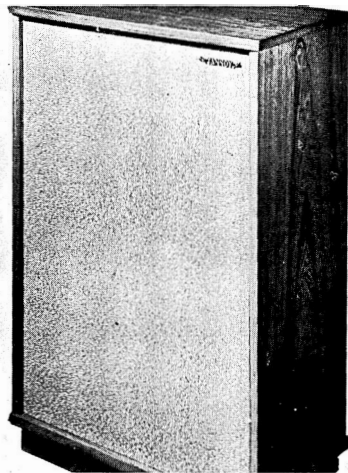
Infinite baffle with 12in, 5in and $2\frac{1}{2}$ in units. HC: 45W music. FR: 35 Hz-16 KHz. vci: 4 ohms.



Tandberg speaker enclosures



Tannoy Monitor III LZ



Tannoy Lancaster 12 or 15

Dimensions: $27\frac{1}{2} \times 11 \times 13\frac{3}{4}$ in. Prices: (teak) £42; (rosewood) £44 10s (no PT).

Tan 17

Infinite baffle with 8in, 4×7 in and $2\frac{1}{2}$ in units. HC: 30W. FR: 35 Hz-16 KHz. vci: 4 ohms. Dimensions: $20\frac{1}{2} \times 10 \times 10\frac{1}{2}$ in. Prices: (teak) £35; (rosewood) £37 (no PT).

TANNOY

Tannoy Products Ltd, West Norwood, London, SE27.
Tel: 01-670 1131. Cables: Tannoy, London.

III.LZ Mk II ★

Infinite baffle forward facing. Monitor Gold III.LZ dual concentric unit with crossover network. FR: 30 Hz-20 KHz. Size: $14 \times 10\frac{3}{4} \times 23\frac{1}{4}$ in. Price: £41.

Lancaster ★

Reflex (single port) forward facing. Free-standing. One Monitor Gold 12in with crossover network. Size: $33\frac{1}{2} \times 21\frac{1}{2} \times 12\frac{1}{2}$ in. (including 2in plinth). Price: £54.

Lancaster

Reflex (single port) forward facing. Corner placing. One Monitor Gold 12in with crossover network. Size: $33 \times 25 \times 16\frac{3}{4}$ in (including 2in plinth). Price: £54.

Lancaster

Aperiodic free-standing enclosure. One Monitor Gold 15in with crossover network. Size: $33\frac{1}{2} \times 21\frac{1}{2} \times 12\frac{1}{2}$ in (including 2in plinth). Price: £60.

Lancaster

Aperiodic corner-standing enclosure. One Monitor Gold 15in unit with crossover. Size: $33 \times 25 \times 16\frac{3}{4}$ in (including 2in plinth). Price: £60.

Rectangular York

Reflex (single port) enclosure. Forward facing. Complete with Monitor Gold 15in dual concentric unit with crossover. Crossover 1 KHz. FR: 23 Hz-20 KHz. Size: $15 \times 23\frac{1}{2} \times 42$ in. Price: £77 10s.

York

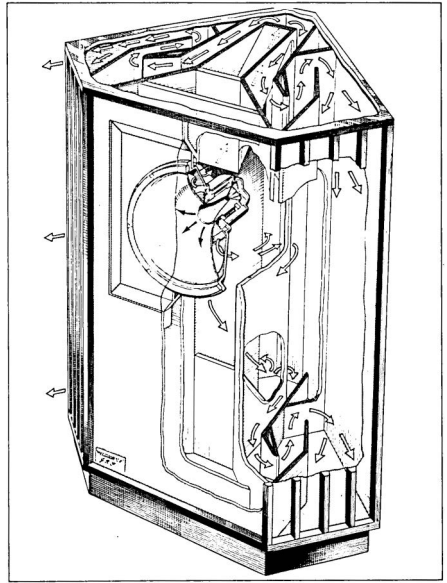
Reflex enclosure. Forward facing unit. Dual throated ports. Corner placing. One Monitor Gold 15in dual concentric unit with crossover. FR: 35 Hz-20 KHz. Size: $45\frac{1}{2} \times 32 \times 22\frac{1}{2}$ in. Price: £77 10s.

Rectangular GRF

Single folded horn. Forward facing with front exits. Complete with one Monitor Gold 15in dual concentric unit. Crossover 1 KHz. FR: 23 Hz-20 KHz. Size: $17\frac{1}{4} \times 23\frac{1}{2} \times 42$ in. Price: £107 10s.

Corner GRF ★

Folded horn. Rear loaded horn, forward facing unit. Corner placing. One Monitor Gold 15in



Tannoy Corner G.R.F.

dual concentric unit. FR: 20 Hz-20 KHz. Size: $48 \times 38 \times 29$ in. Price: £124 10s.

Guy R. Fountain Autograph

Folded horn. Front and rear horn loaded unit. Corner placing. One Monitor Gold 15in unit with crossover. FR: 20 Hz-20 KHz. Size: $58\frac{1}{2} \times 43 \times 26\frac{1}{2}$ in. Price: £167 10s.

Tannoy speakers are available in various finishes including teak, mahogany and walnut. Also special finishes quoted on request.

TELEFUNKEN

Distributors: AEG (Great Britain) Ltd, AEG House, Chichester Rents, Chancery Lane, London. WC2. Tel: 01-242 9944.

RB40/41

System comprising two units: $5\frac{1}{2}$ in bass driver and 5×3 in mid/treble unit. vci: 4 ohms. HC: 15W. FR: 50 Hz-20 KHz. Finish: walnut. Dimensions: $9\frac{3}{4} \times 6\frac{3}{4} \times 6\frac{3}{8}$ in. Price: £12 15s (plus £3 PT).

WB60/61

Enclosure comprising two units: $5\frac{1}{2}$ in bass driver and 5×3 in mid/treble unit. HC: 15W. FR: 45 Hz-18 KHz. Finish: teak. Dimensions: $18\frac{1}{2} \times 6\frac{1}{2} \times 10$ in. Price: £19 3s 6d (plus £4 9s PT).

RB70H

Enclosure comprising two units: 8in bass driver and 7×5 in mid/treble. vci: 4 ohms. HC: 25W.

★ Indicates entry is illustrated

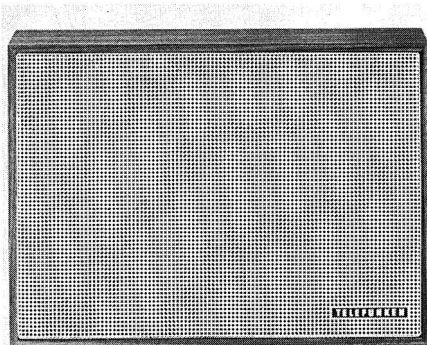
FR: 40 Hz-18 KHz. Finish: teak. Dimensions: $21 \times 10\frac{1}{4} \times 9\frac{1}{4}$ in. Price: £26 8s 4d (plus £6 2s 8d PT).

L250 Hi-Fi

Enclosure comprising three units: 8in bass driver and two 5×3 in mid/treble units. vci: 4 ohms. HC: 35W. FR: 35 Hz-20 KHz. Finish: walnut. Dimensions: $18 \times 7\frac{1}{8} \times 12\frac{3}{4}$ in. Price: £34 10s 3d (plus £8 0s 3d PT).

WB50 ★

Speaker system comprising enclosure with units. $5\frac{1}{2}$ in bass driver, 5×3 in mid-range/treble unit. vci: 4 ohms. HC: 15W. FR: 45 Hz-18 KHz. Finish: Stradivari. Dimensions: $16\frac{1}{4} \times 12 \times 4\frac{1}{4}$ in. Price on application.



Telefunken WB.50

TELETON

Teleton Electro (Distributors) Co Ltd,
Teleton House, Robjohns Road, Widford,
Chelmsford, Essex.
Tel: Chelmsford 62442. Telex: 99338.

SA 1003

Closed compact box. 4in unit. Impedance: 4 ohms (1003/4 model) or 8 ohms (1003/8). HC: 8W max, 5W RMS. FR: 70 Hz-16 KHz. Finish: walnut. Dimensions: $6\frac{1}{4} \times 9\frac{1}{4} \times 5$ in. Price: £5 5s (including PT).

SB 7

Closed compact box. $6\frac{1}{2}$ in woofer, $2\frac{1}{2}$ in cone-type tweeter. Impedance: 8 ohms. HC: 15W max, 10W RMS. FR: 50 Hz-20 KHz. Finish: walnut with aluminium bezel. Dimensions: $13\frac{1}{4} \times 9\frac{3}{4} \times 10\frac{1}{2}$ in. Price: £13 10s (including PT).

SB 1202

Closed compact box. 5in woofer, 3in tweeter. Impedance: 4 or 8 ohms. HC: 15W max, 10W RMS. FR: 50 Hz-20 KHz. Finish: walnut. Dimensions: $7\frac{1}{4} \times 12\frac{1}{4} \times 6\frac{1}{4}$ in. Price: £11 (including PT).

SB 1602

Open compact box. Four special $6\frac{1}{2}$ in units and $2\frac{1}{2}$ in tweeter. HC: 20W max, 15W RMS. Impedance: 4 or 8 ohms. FR: 50 Hz-20 KHz. Finish: walnut. Dimensions: $18\frac{1}{4} \times 22\frac{1}{4} \times 4$ in. Price: £17 (including PT).

SB 25

Closed compact box. 10in woofer, $2\frac{1}{2}$ in tweeter. Impedance: 8 ohms. HC: 20W max, 15W RMS. FR: 50 Hz-20 KHz. Finish: walnut. Dimensions: $12\frac{1}{4} \times 22\frac{1}{4} \times 10\frac{3}{4}$ in. Price: £27 15s (including PT).

SD 2100

Closed compact box. 12in woofer, 6in mid-range, $2\frac{1}{2}$ in cone tweeter. Impedance: 8 ohms. HC: 50W max, 35W RMS. FR: 40 Hz-20 KHz. Finish: walnut. Dimensions: $14\frac{3}{4} \times 25 \times 11\frac{3}{4}$ in. Price: £31 5s.

TOSHIBA

Distributor: Hanimex (UK) Ltd,
15-24 Great Dover Street, London, SE1.
Tel: 01-407 8161.

SS15

Infinite baffle speaker comprising two units: 8in free edge bass driver and 3in cone tweeter, with crossover network at 5 KHz. FR: 60 Hz-20 KHz. HC: 16W at 8 ohms. Soft/normal tone selector. Dimensions: $7\frac{5}{8} \times 17\frac{1}{2} \times 10\frac{5}{8}$ in. Weight: 19.8 lb. Walnut finish. Supplied with $16\frac{1}{2}$ ft of cable and wall suspension bracket. Price: £29 10s (including PT).

SS25

Reflex enclosure comprising three units: 8in free edge bass driver, $3\frac{1}{2}$ in horn tweeter and 8in passivespeaker with crossover network at 5 KHz. FR: 50 Hz-20 KHz. HC: 25W at 8 ohms. Tone selector switch. Supplied with 16ft of cable. Size: $21\frac{1}{8} \times 11\frac{3}{4} \times 7\frac{3}{8}$ in. Price: £36 (including PT).

SS30

Infinite baffle enclosure comprising three units: 10in free edge bass driver, 10in mid-range unit, 5in tweeter. Paper cone passive unit. FR: 40 Hz-20 KHz. Impedance: 8 ohms. HC: 40W. Walnut finish. Size: $15\frac{3}{4} \times 29\frac{1}{8} \times 8\frac{3}{8}$ in. Price: £68.

SS41

Infinite baffle speaker comprising three units: 12in bass driver, mid-frequency horn and tweeter horn, with crossover networks at 700 Hz and 5 KHz. Mid- and upper-frequency levels adjustable ± 3 dB. FR: 30 Hz-20 KHz. HC: 40W at 8 ohms. Dimensions: $29 \times 16 \times 17$ in. Weight: 50.7 lb. Walnut finish. Price: £88 (including PT).

TRANSMISSION ELECTRONICS LTD
495-499 Oxford Road, Reading, Berkshire.
Tel: Pangbourne 2882.

IMF Studio

Transmission line enclosure with units. Speakers: 8in bass driver, 5in mid-range, 1½in tweeter, ¾in supertweeter. Crossover: 14-element electrical, 750 Hz, 3.5 KHz, 13 KHz. FR: 25 Hz-40 KHz. Recommended driving power: 20-60W (can handle up to 100W music programme). Impedance: 4-8 ohms. Finish: natural teak or walnut. Size: 36×14×15in. Weight: 68 lb. Special model available at extra cost with separate mid-range transmission line loading for additional power handling. Special model also includes independent mid- and high-level controls. Price: (standard version) £71 8s.

IMF Domestic Monitor

Transmission line enclosure with units. Speakers: 13×9½in bass driver, 6in mid-range, 1½in tweeter, ¾in super tweeter. Crossover: 14-element electrical, 350 Hz, 3.5 KHz, 13 KHz. FR: 18 Hz-40 KHz. Recommended driving power: 35-100W. Impedance: 4-8 ohms. Finish: natural teak or walnut for domestic model. Size: 40×17¼×19¾in. Weight: 120 lb. Price: £102 18s.

IMF Professional

Similar specification to IMF Domestic except as follows. Finish: laboratory grey, rosewood or teak laminate. Size: 42×17¼×19¾in. Weight: 140 lb. Contains separate mid-range transmission line loading for additional power handling. Has separate independent mid- and high-level controls. Price on application, from £160.

TRIPLETONE MANUFACTURING CO LTD

Factory No. 1, 138 Kingston Road, Wimbledon, SW19. Tel: 01-542 1189.

Concerto ★

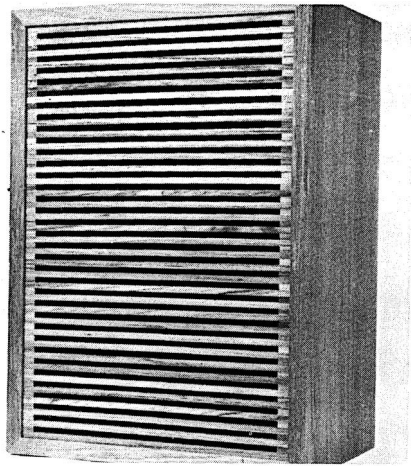
Bass reflex enclosure employing twin-cone full range 8in unit. FR: 40 Hz-17 KHz. HC 10W RMS. vci: 2-3 ohms, 8 ohms or 15 ohms. Size: 19½×13¼×9in. Weight: 19 lb. Finish: teak. Horizontal or vertical mounting. Price: £12 (plus £3 6s PT).

VITAVOX LTD

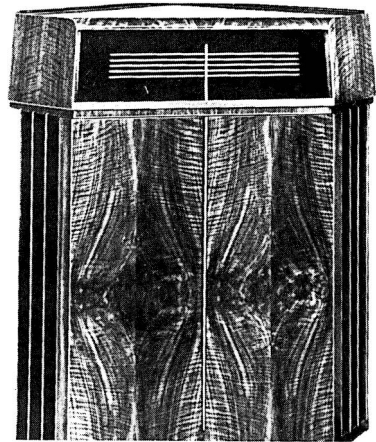
Westmoreland Road, London, NW9.
Tel: 01-205 8671. Cables: Vitavox, London, NW9.

Klipschorn ★

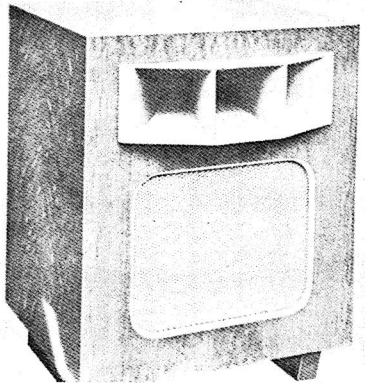
Double channel horn system. Folded LF horn with AK152 drive unit. Forward-facing HF horn with S2 pressure unit. Filter network



Tripletone Concerto

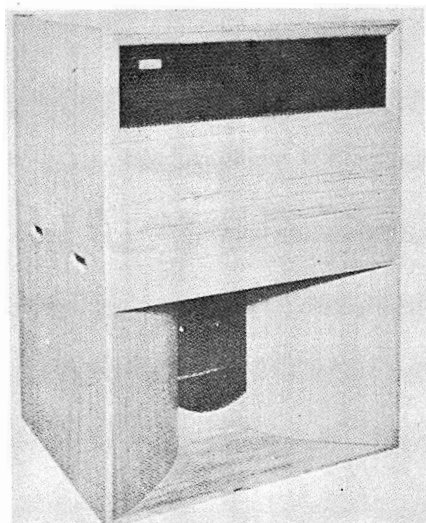


Vitavox Klipschorn

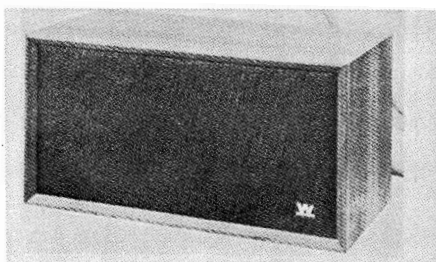


Vitavox Bitone 3200

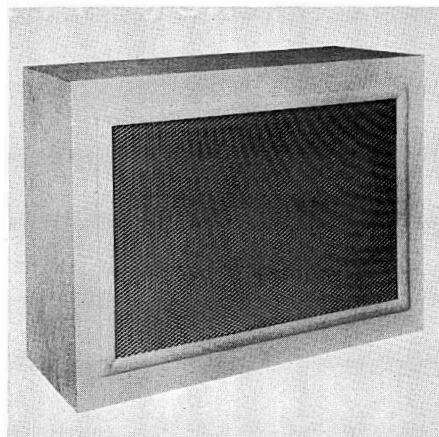
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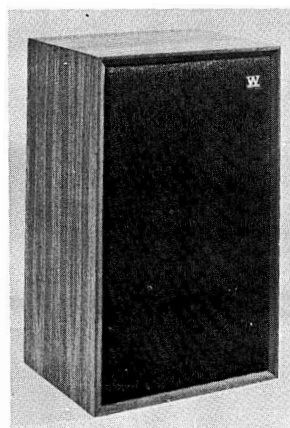
Vitavox Bi-tone Major



Wharfedale Super Linton



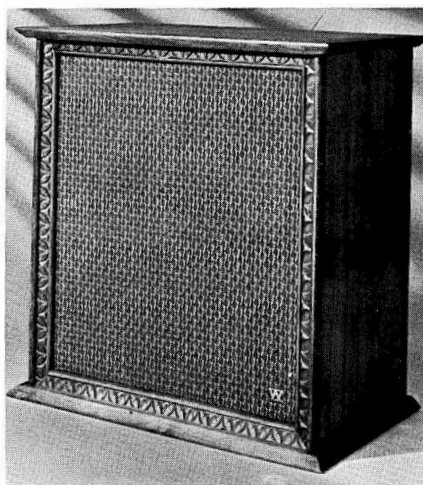
Vitavox Mini-Bitone



Wharfedale Melton



Wharfedale Denton



Wharfedale Rosedale

incorporated. Crossover 500 Hz. FR: 30 Hz-15 KHz. High translational efficiency. Size: 51 × 30 × 27in. Weight: 210 lb. with drive units. Price: on application.

Bitone Series 3200 ★

Double channel sound system comprising three-cell horn (distribution 60° wide × 20° high) with 12in LF driver in vented enclosure. Filter network 1 KHz crossover attenuation 12 dB per octave. HF balance control 0-8 dB attenuation. HC 20W. FR: 50 Hz-15 KHz. Size: 24 × 20 × 19 in. Weight: 70 lb. Price: on application.

Bitone Series 6200

Similar specification to 3200 but with six-cell horn giving distribution 60° wide × 40° high. Size: 29 × 20 × 20in. Weight: 78 lb. Price: on application.

Bitone Major ★

Double channel sound system comprising HF dispersive horn and S.2 HF pressure unit (distribution 90° wide × 20° high) with 15in LF driver in special reflex enclosure. Filter network 500 KHz. Crossover attenuation 12 dB/octave. HF balance control 0-8 dB attenuation. HC 30W. FR: 35 Hz-16 KHz. Size: 42 × 30 × 24in. Weight: 168 lb. Price: on application.

Mini Bitone ★

Double channel sound system comprising horn and infinite baffle enclosure. 12in AK124 cone type bass driver, GP2 high frequency pressure unit. Crossover: 1 KHz. FR: 50 Hz-15 KHz. HC: 20W RMS. Impedance: 100V line. Finish: Formica laminate. Size: 24 × 18 × 9in. Weight: 35 lb. Price: on application.

WHARFEDALE

Rank Wharfedale Ltd, Bradford Road, Idle, Bradford, Yorks. Tel: Bradford 612552.

Airedale

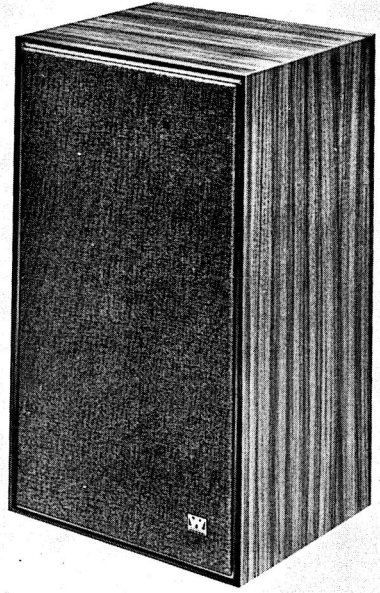
Omni-directional three-speaker system, incorporating 15in bass driver, 8in mid-range radiator, 3in treble unit. Acoustic resistance loading. Crossover: 400 Hz and 3 KHz. FR: 20 Hz-20 KHz. Mid-range and treble attenuator controls at rear. vci: 15 ohms. Size: 39 × 27 × 14in. Weight: 91 lb. HC 20W RMS. Finish: oiled walnut, polished walnut or oiled teak. Price: £69 10s.

Denton ★

Two-unit enclosure. 8in bass driver, 3in tweeter. Crossover: 1-75 KHz. FR: 65 Hz-17 KHz. vci: 4-8 ohms. HC 15W RMS. Finish: oiled teak or polished walnut. Size: 9 $\frac{3}{4}$ × 14 × 8 $\frac{3}{4}$ in. Price: £13 10s 1d (plus £3 5s 10d PT).

Dovedale III ★

Infinite baffle enclosure with 1in tweeter, 5in



Wharfedale Dovedale III

mid-range and 12in bass speakers. Crossover: 450 Hz and 3 KHz. FR: 40 Hz-20 KHz. HC 35W RMS. vci: 4-8 ohms. Dimensions: 24 × 14 × 12in. Finish: teak or walnut. Electro-mechanical crossover system. Price: £39 10s.

Melton ★

Infinite baffle enclosure with 3in tweeter and 12in bass speakers. Crossover: 1-750 Hz. FR: 45 Hz-17 KHz. HC 25W RMS. vci: 4-8 ohms. Dimensions: 21 × 13 × 10 $\frac{1}{4}$ in. Finish: teak or walnut. Price: £29 10s.

Rosedale ★

Infinite baffle enclosure with 1in tweeter, 5in mid-range and 15in bass speakers. Crossover: 450 Hz and 3 KHz. FR: 35 Hz-20 KHz. HC 45W RMS. vci: 4-8 ohms. Dimensions: 24 × 23 × 13 $\frac{1}{2}$ in. Finish: teak or walnut. Period style cabinet. Price: £55.

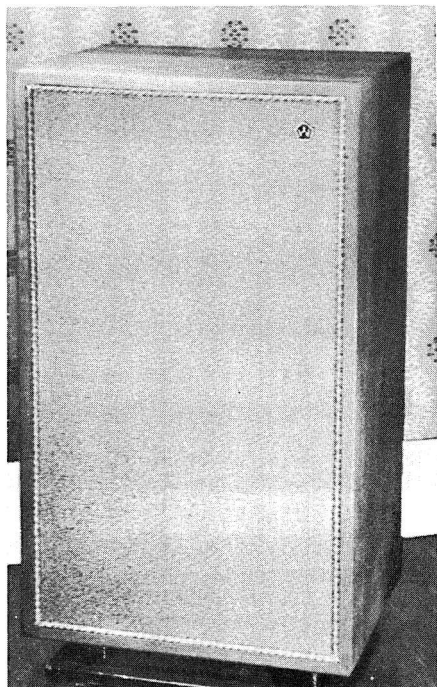
Super Linton ★

Two-unit enclosure. 8in bass driver, 3in tweeter. Crossover: 1-75 KHz. FR: 40 Hz-17 KHz. vci: 4-8 ohms. HC 15W RMS. Finish: oiled teak or polished walnut. Size: 19 × 10 × 10in. Price: £16 17s 8d (plus £4 2s 4d PT).

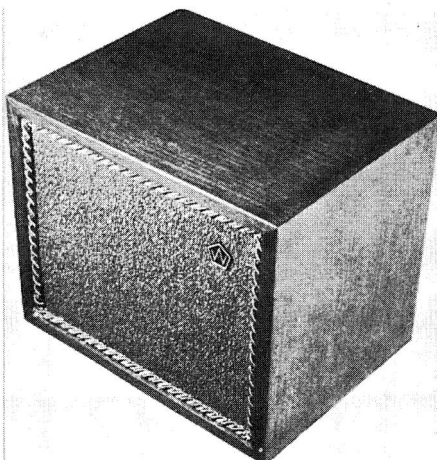
WHITELEY ELECTRICAL RADIO CO LTD

See Stentorian.

★ Indicates entry is illustrated



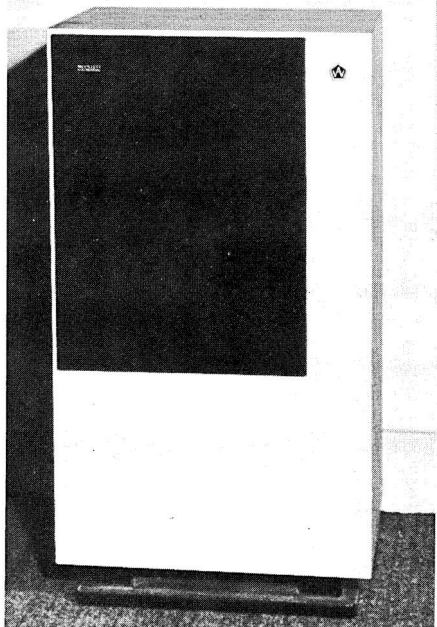
Woollett Kelsey



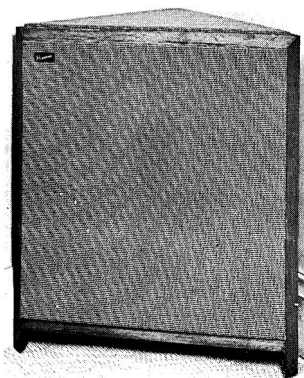
Woollett Claremont



Woollett Frensham and electrostatic



Woollett Grasmere Futura



Worden Panosona—three versions

L. G. WOOLLETT & CO LTD

21 Anerley Station Road, London, SE20.

Tel: 01-778 9003.

Claremont ★

Electrostatic mid-range and HF system. Constant charge push-pull electrostatic unit. Crossover 1.6 KHz, -6 dB/octave. FR: 1.6 KHz-20 KHz. HC 20W RMS. Impedance: 16 ohms. Cabinet contains mains polarising unit, crossover, phase corrector for transistor amplifiers, depolarising circuit, pre-set treble attenuator (12 dB range). Mains 200-250V (100-125V to order). Finish: Veneered wood, with Vynair. Size: $11\frac{1}{2} \times 8\frac{3}{4} \times 8\frac{1}{4}$ in. Weight: 4 lb 12 oz. Price: £22 15s.

Kelsey Bass ★

Infinite baffle frontal-loaded enclosure intended for use as a bass speaker. Small/large room middle switching. Unit 12in foam surround. FR: 20 Hz-5 KHz. HC 20W. vci: 16 ohms. Finish: veneered wood. Size: $33\frac{3}{4} \times 18 \times 14$ in. Weight: 52 lb. Price: £44.

Kelsey Full Range

Infinite baffle. Two units; constant charge push-pull electrostatic unit and 12in foam surround bass driver. Small/large room middle switching. Crossover $\frac{1}{4}$ -section 1.6 KHz. FR: 20 Hz-20 KHz. HC 20W RMS. Impedance 16 ohms. Phase corrected for transistor amplifiers. Mains: 200-250V AC (100-125V AC to order). Finish: veneered wood with brown flecked Vynair. Size: $33\frac{3}{4} \times 18 \times 14$ in. Weight: 56 lb. Price: £58 15s.

Frensham Bass ★

Similar specification to Kelsey Bass but in horizontal cabinet on 6in legs. Small/large room middle switching. Cabinet size: $31 \times 14\frac{3}{4} \times 16$ in. Price: £44.

Leven

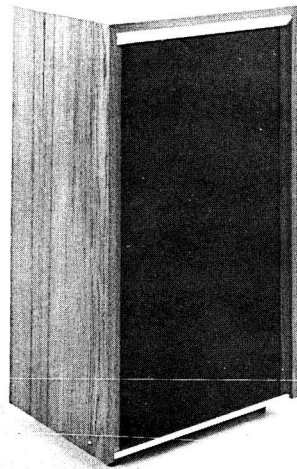
Similar specification to Claremont but in bow-fronted cabinet $10 \times 8\frac{1}{2} \times 8\frac{1}{2}$ in. Price: £21 10s.

Grasmere Futura ★

Infinite baffle enclosure with frontal-loading. 12in bass driver plus push-pull constant charge electrostatic. Crossover 1.6 KHz ($\frac{1}{4}$ -section). FR: 20 Hz-20 KHz. HC: 20W RMS. Impedance: 16 ohms (8 ohm transformer available). Variable treble and middle range. Size: $34 \times 18 \times 14$ in. Weight: 52 lb. Finish: matt white, wood veneer and black fabric. Price: £58 15s.

Grasmere Moderna

Similar size and specification to Futura. Finish: wood veneer and black fabric. Price: £58 15s.

**Wye Electronics 500****Panosona Reproducer ★**

Double horn with diffusing chamber. Corner reproducer, designed for near plane-wave distribution from single speaker unit. Available in three versions: (Model A) Size: 54in high, 24in wide, 14 $\frac{1}{2}$ in to corner. FR: (with Lowther PM6 or PM7) 20 Hz to over 18 KHz. (Model B) Size: 48in high, 21 $\frac{1}{2}$ in wide, 12 $\frac{1}{2}$ in to corner. FR: (with Richard Allan CG8T) 30 Hz-17 KHz; (Model C) Size: 27in high, 24in wide, 13in to corner. FR: (with Richard Allan CG8T) 30 Hz-17 KHz. Prices: Model A (speaker enclosure only) £46; Model B (enclosure only) £36; Model C (enclosure only) £28. Lowther, PM6 £20 10s; PM6 Mk 1 £23 10s, PM7 £31; Richard Allan CG8T £6 12s 5d. All prices including PT where applicable.

Panosona Bookshelf Speaker

Designed in accordance with the principles of the Panosona Corner Reproducers. Size: $16 \times 9 \times 9\frac{1}{2}$ in. Recommended drive units: Richard Allan CG8T £6 18s 2d tax paid). Finish: light, medium or dark mahogany, teak, walnut or oak. Contrasting Tygan¹ or Vynair front covering. Price: (enclosure only) £14 including UK purchase tax.

WYE ELECTRONICS LTD

Queen Street North, Chesterfield, Derbyshire.

Tel: Chesterfield 51116.

Stereo 500 ★

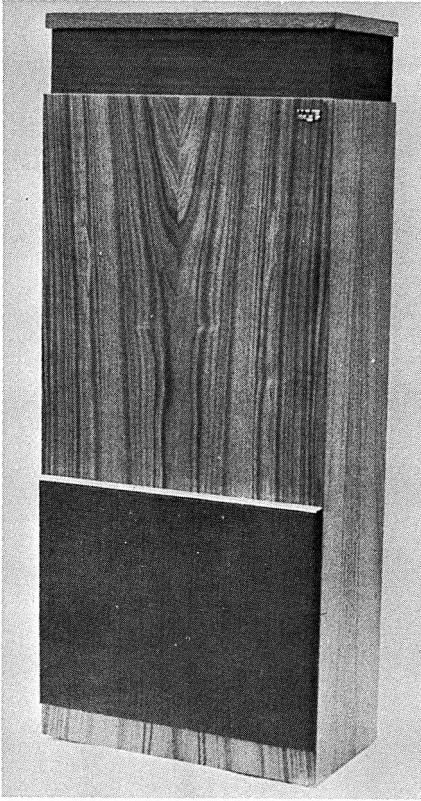
Compact two-unit enclosure. 6 $\frac{1}{2}$ in high flux bass driver, 3 $\frac{3}{8}$ in tweeter. Rear mounted socket and 9ft connecting lead. Finish: rosewood or teak. Size: $13\frac{1}{4} \times 8\frac{1}{2} \times 8\frac{1}{2}$ in. Price: (per pair) £23 3s 6d

WORDEN AUDIO DEVELOPMENTS LTD

54 Chepstow Road, London, W2.

Tel: 01-229 4996.

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Wye Electronics 1300 column

(plus £5 0s 11d PT); (per speaker) £14 2s 2d (including PT).

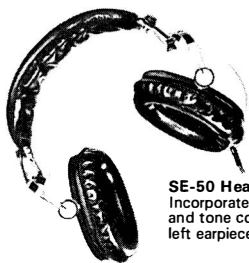
Stereo 138

Two-unit enclosure. 13 × 8in bass with aluminium centre cone and 3 $\frac{3}{8}$ in HF tweeter. FR: 25 Hz-18 KHz. HC 10W RMS. vci: 4 ohms. Crossover: 5 KHz. Size: 19 $\frac{3}{4}$ × 12 × 8 $\frac{1}{2}$ in. Price: £18 18s.

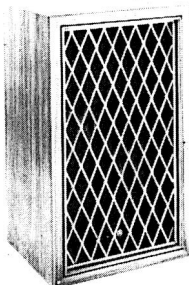
1300 Hi-Fi ★

Two-unit column enclosure speaker with 12in bass unit and HF1300 3in tweeter. FR: 25 Hz-15 KHz. vci: 4, 8, 16 ohms. Crossover: 3 KHz. Size: 36 × 15 × 7 $\frac{1}{2}$ in. Price: £37 16s.

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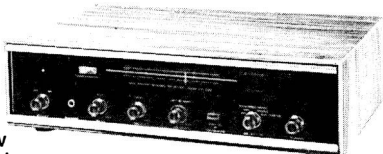


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KX-330 AM/FM/SW Stereo Receiver
Music power output: 20 W at 4 ohms (IHF) Frequency response: 40 to 100,000 Hz \pm 3dB (Overall) FM Frequency range: 87.5 to 108 MHz. AM Frequency range: 525 to 1605 kHz. SW Frequency range: 3.8 to 12 MHz.



SX-440 AM/FM Multiplex Stereo Receiver
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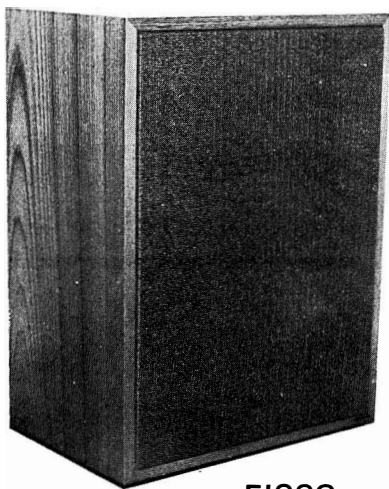
SHIRI (UK) LTD., *Electronics Division*, Lynwood House, 24-32 Kilburn High Road, London, N.W.6. Tel: 01-624 9102/3



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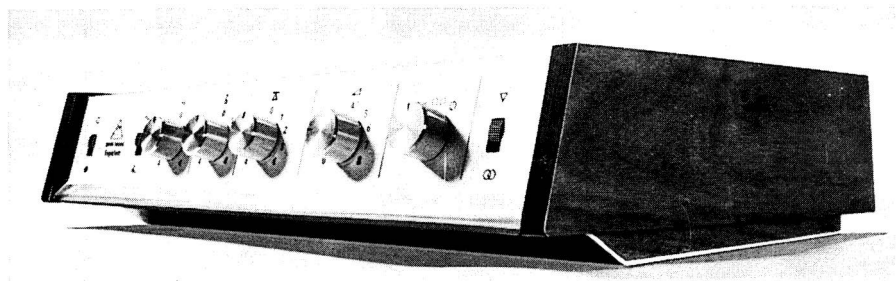
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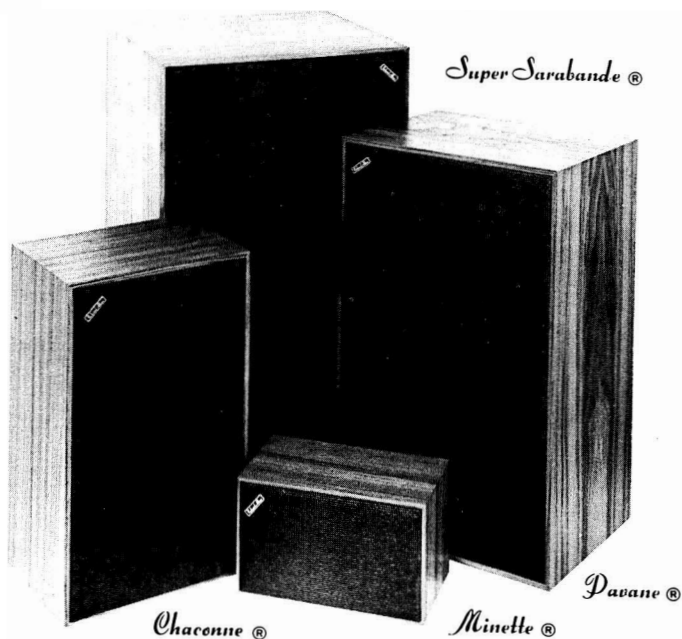
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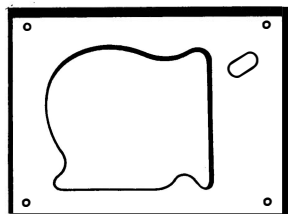


Richard Allen Radio Limited, Bradford Road, Gomersal,
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Telephone Cleckheaton 2442/3

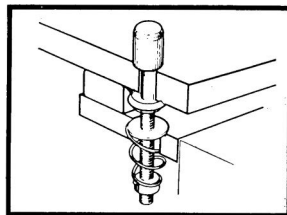


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Designed to take the majority of modern equipment. Can be custom built to suit customer's requirements. Standard size: 41 × 17 × 8in (plus legs and Perspex lid). Finish: teak or mahogany. Price: £15 15s.

Split-level cabinet

Designed to take modular amplifiers and tuners, with fixed position for turntable. Turntable on upper level covered with clear plastic top. Amplifier or tuner/amplifier sited below. Another lower level available for separate tuner and amplifier set-up. Record storage section alongside. Space for approximately 100 LPs. Clear plastic sliding doors. Cabinet finish: teak, mahogany or pine veneer. Available with wooden lid. Two sizes: (transcription) 36 × 16 × 20in with 6in legs; (auto-changer) 34 × 15 × 20in with 6in legs. Prices: (transcription) £20 10s; (auto-changer) £19 10s.

A. DAVIES & CO

56 Wellesley Road, London, NW5.
Tel: 01-485 5775.

Cabinets

For most makes of speakers made to order.

DULCI

Lee Products (Great Britain) Ltd., 10-18 Clifton Street, London, EC2. Tel: 01-247 6711.

Dulci WS1

Wooden sleeve designed to accommodate Dulci 207, FMT7 or FMT7S. Finish: teak. Size: 3in high (plus feet), 14in wide, 6in deep. Price: £3.

Dulci WS2

Wooden sleeve designed to accommodate Dulci FMT7 tuner and 207 amplifier. Finish: teak. Size: 3in high (plus feet), 28in wide, 6in deep. Price: £7.

DYNATRON RADIO LTD

St. Peters Road, Furze Platt, Maidenhead, Berks. Tel: Maidenhead 23331.

RSU1 ★

Record storage and equipment console with rails to accommodate Dynatron models HFC20, HFC21, HFC22, TRV21, P72 or P100. Inside has shelf which can accommodate TRV21, 45 rpm records, tape spools or other accessories. Sectioned vertical space for approximately 150 LPs. Full-length lockable doors. Mounted on castors. Finish: teak or walnut. Prices: teak £22 10s; walnut £27 10s.

RSU3 ★

Walnut-finish Queen Anne period cabinet with shelf for TRV21 tuner-amplifier and space for about 150 LPs. Mounted on castors. Size: 23½ × 21¼ × 14¾in. Price: £39 10s.

RSU2

Modern-style teak-veneered cabinet with drop-down front for sorting records. Top will accommodate audio units. Space for about 250 LPs. Price: £29 15s.

EATON AUDIO FITMENTS

Leopold Street, Long Eaton, Nottingham, NG10 4QF. Tel: Long Eaton 2662/2818.

Speaker, amplifier, tuner and record cabinets made to customers' requirements. Submit full details for quotation. See also Speaker Enclosure Section.

A. R. FRANKLIN

(Audio Engineer), 4 Birch House, Penge, London, SE25. Tel: 01-659 0912.

Custom Built cabinets ★

Period Queen Anne design. Housing for equipment and record storage provided as fitted furniture or as shelves. Personal service in the home. Quotations on request. Queen Anne cabinet as illustrated. Price: £80.

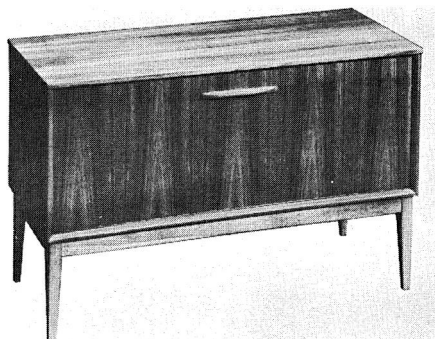
HAMPSTEAD HIGH FIDELITY

91 Heath Street, Hampstead, London, NW3.
Tel: 01-435 6377 and 0999.

Hampstead ★

Low upright cabinet with split lift-up lids. Takes gram unit and tape deck. Pull out front hopper for tuner and control unit or integrated amplifier. Accommodates any control unit or integrated amplifier not exceeding 14in in depth. Available with well to hold complete tape recorder not exceeding 9in high. Space to take Ferrograph or Revox with professional spools. Size: (standard model) 40 × 26 × 21in. Finish: teak or mahogany, other finishes to order. Price: (teak

★ Indicates entry is illustrated



Dynatron RSU.1



Hampstead High Fidelity



Dynatron RSU.3



Hampstead Hi-Fi Nimrod (view 1)



Franklin Queen Anne-style chest



Hampstead Hi-Fi Nimrod (view 2)

or mahogany) £55; quotations given for special finishes.

Nimrod ★

Modern compact equipment cabinet. Tuner/amplifier mounts horizontally in end section of unit with separate up-and-over lid in matching wood. Gram turntable mounts at lower level with smoked grey clear plastic lid which lays flush to amplifier section. Size: 30×21×17in. Finish: oak or teak, other finishes to order. Price: (oak or teak) £43 10s; quotations given for special finishes.

Special cabinets and fittings made to order. Designs and drawings prepared for complete room or house hi-fi schemes.

HOLDER PEARCE LTD

66 Grove Road, Eastbourne, Sussex.
Tel: Eastbourne 26565.

*Built-in or free-standing equipment cabinets designed and built to meet customers' exact requirements. Lift-up or drop-down lids, accommodation to suit any equipment, all standard finishes and also special finishes to blend with furnishing. Details and prices on application.

HOWLAND-WEST LTD

2 Park End, South Hill Park, London, NW3.
Tel: 01-794 6666.

Viking Standard ★

Lowline shelf-mounting equipment cabinet. Sliding perspex lid to record or tape deck compartment. Accommodation for amplifier, control unit, record unit or tape deck. Size: 39in wide, 19¼in deep, 12in high (14in plinth optional extra). Amplifier compartment: 18½×16¾×10½in. Motor board: 18×19in. Control panel: 17½×6in. Finish: teak and matt black. Price: £23 10s (plus £2 3s PT); plinth £7 (plus 12s 10d PT).

Viking Major ★

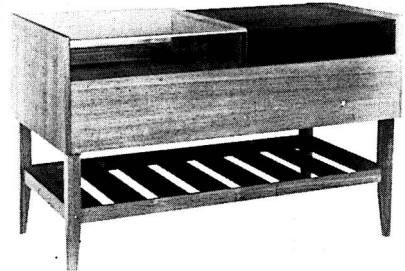
Lowline shelf- or plinth-mounting equipment cabinet. Sliding perspex lid to record or tape deck compartment. Accommodation for amplifier, control unit, tuner, record unit or tape deck. Size: 51in wide, 19¼in deep, 12in high (14in plinth optional extra). Amplifier compartment: 30½×16¾×10½in. Motor board: 18×19in. Control panel: 29½in wide, 6in high. Finish: teak and matt black. Price: £27 (plus £2 9s 4d PT); plinth £7 (plus 12s 10d PT).

Clearview HW1

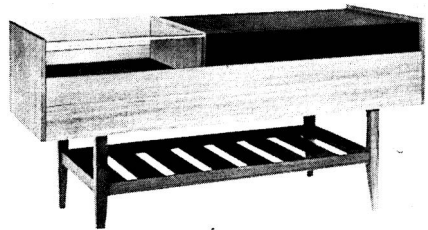
Cabinet in teak, walnut or rosewood. Takes gram unit or tape deck. Lift-off perspex lid. Overall size: 18¼×16½×8½in. Clearance above board 3¾in, below board 4½in. Price: £9 15s (plus 17s 9d PT).



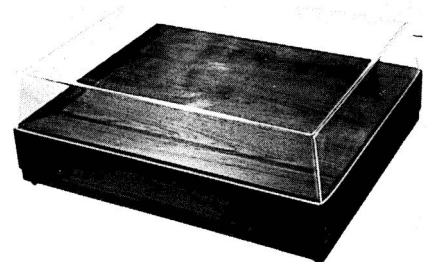
Holder Pearce free-standing assembly



Howland-West Viking Standard

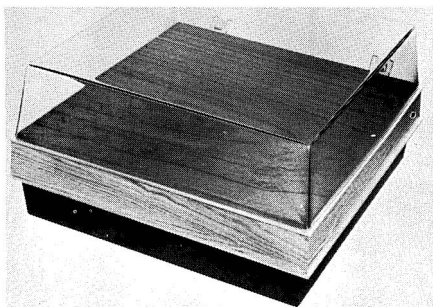


Howland-West Viking Major

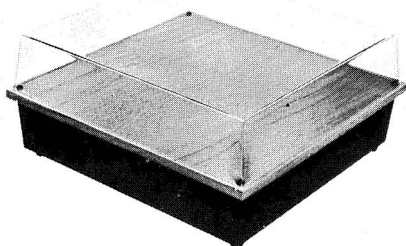


Howland-West HW12

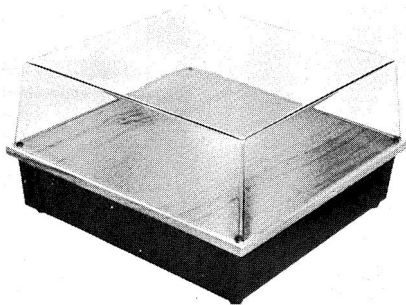
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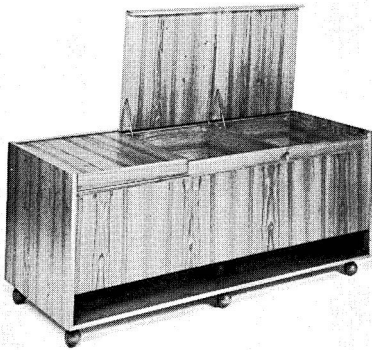
Howland-West HW14



Howland-West HW15/LT



Howland-West HW15/HT



Imhofs Type 10 trolley

Extra high top HW1-EH

Special version of H.W.1 provides 6in clearance above motor board. Additional cost: 16s 5d.

Clearview HW12 ★

Cabinet in teak. Takes gram unit or tape deck. Lift-off perspex lid. Overall size $23\frac{1}{2} \times 19 \times 8\frac{1}{2}$ in. Clearance above board $3\frac{3}{4}$ in, below board $4\frac{1}{2}$ in. Price: £12 15s (plus £1 3s 3d PT).

Clearview HW14 ★

De luxe turntable or tape deck cabinet with perspex cover. Teak or rosewood with black base. Size: $18\frac{3}{4} \times 19\frac{1}{4} \times 9\frac{1}{2}$ in. Space above board 4in, below top of board $4\frac{1}{2}$ in. Fully-sprung anti-feedback base, adjustable feet for levelling, fitted with Bulgin mains socket and colour-coded phono sockets; supplied with Clearview lid stay and spirit level for fitting by user. Price: £21 (plus £1 18s 5d PT).

Clearview HW15LT ★

Teak/black turntable cabinet with Perspex cover. Size: $17\frac{1}{2} \times 16\frac{1}{4} \times 7\frac{1}{4}$ in. Space above board $3\frac{1}{4}$ in, below top of board $3\frac{1}{4}$ in. LT version board uncut. LT version board cut for Garrard SP25, AT60, 3000 etc., 4LT version cut for Garrard AP75, SL75, SL95 etc. Price: £7 10s (plus 13s 8d PT on LT or £1 16s 7d on 1LT and 4LT).

Clearview HW15HT ★

Teak/black turntable cabinet with perspex cover. Size: $17\frac{1}{2} \times 16\frac{1}{4} \times 9$ in. Space above board 5in, below top of board $3\frac{1}{4}$ in. Cut-board versions, 1HT and 4HT, as above. Price: £8 (plus 14s 7d PT on HT or £1 19s on 1HT and 4HT).

IMHOFS

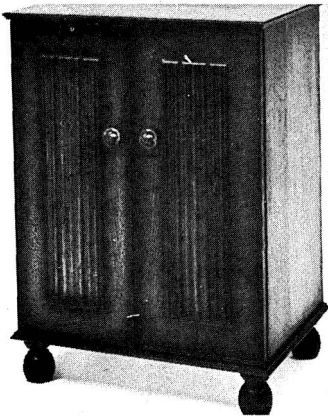
112-116 New Oxford Street, London, WC1.
Tel: 01-636 7878. Cables: Imcase, London, WC1.

Type 10 ★

Trolley equipment cabinet. A larger version of the trolley L cabinet. A third compartment has been added to accommodate a tape recorder or to provide storage space for records. Three separate lids, each with a stay, give access to the compartments. Size: 54 $\frac{1}{2}$ in wide, 21in deep, 24in high (including 3in castors). Motor boards: left 17in wide, centre 18 $\frac{3}{4}$ in wide, right 16in wide, all 19in deep. Finish: light or dark sapele mahogany, two-tone mahogany or walnut. Teak or Jacobean styling at slight extra cost. Price: £43 15s 9d (plus £3 14s 3d PT).

HFU/18 Mk II ★

Compact upright style cabinet with lift-up lid and two front opening doors concealing control panel. Designed to house the average small hi-fi system. Ideal unit for modern homes. Size:



Imhofs HFU/18 Jacobean

24in wide, 19in deep, 28in high (including 6in legs). Motor board 21 $\frac{3}{4}$ in wide, 17in deep. Control panel 21 $\frac{3}{4}$ in wide, 14in high. Finish: mahogany, teak or walnut. Price: £20 9s 9d (plus £1 10s 3d PT).

IMIII/AT6

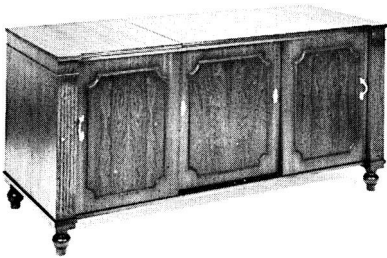
Designed to house the Garrard AT6 motor. Finish: walnut or mahogany. Lift-up lid. Size: 17 × 9 $\frac{1}{2}$ × 15 $\frac{1}{2}$ in. Price: £9 3s 6d (plus 16s 6d PT).

IMIIIB

Similar to above but measuring 19 × 8 × 18 $\frac{1}{4}$ in. Price: £9 3s 6d (plus 16s 6d PT).

HFU/12

Modern sideboard style equipment cabinet with accommodation for tape deck, transcription motor, amplifier, tuner and over 250 records. Centre sliding section conceals instrument panel and two other panels give access to storage space. Centre portion of top surface hinges up to provide access to turntable or tape deck. Size: 60in wide, 22in deep, 30in high (including 6in base). Two 19 × 19in motor boards. Control panel 19in wide, 15 $\frac{1}{2}$ in high. Left-hand compartment 19in wide, 19in deep, 11in high. Right-hand compartment 19in wide, 19in deep, 18in high. Finish: teak, walnut, sapele. Price: £56 2s 7d (plus £5 2s 5d PT).



Imhofs HFU/12 Regency

HFU/12 Regency ★

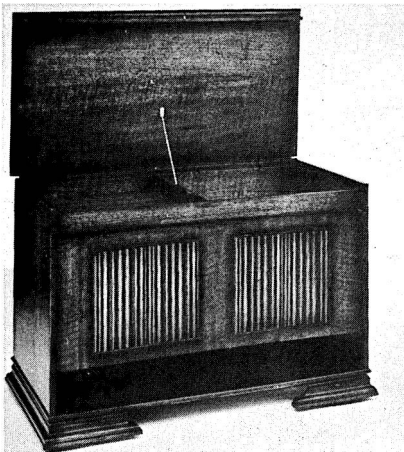
Similar to HFU/12 but in Regency styling. Size: 61in wide, 24in deep, 30in high (including 6in legs). Price £77 13s 11d (plus £6 16s 1d PT).

HFU/16M

Two compartment cabinet with drawer for tape recorder. Either side will accommodate any transcription motor (or autochanger) and is large enough for the SME3012 arm. Finish: Teak and rosewood; two-tone sapele mahogany; walnut. Single lift-up lid at top. Right-hand side has drop-down panel with withdrawable deck. Size: 41 $\frac{1}{4}$ × 22 × 28in (including 7 $\frac{1}{2}$ in legs). Compartments all 19in wide, 20in deep. Height above tape recorder deck is 12in. Price: £40. 1s 11d (plus £3 8s 1d PT).

HFU/16M Jacobean

Similar to HFU/16M but in Jacobean styling. Size: 42in wide, 22 $\frac{1}{2}$ in deep, 27in high (including legs). Price: £43 5s 9d (plus £3 14s 3d PT).

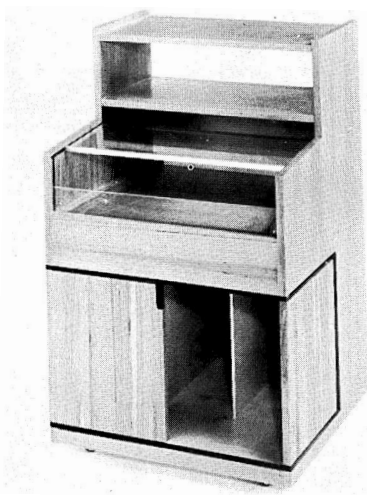


Imhofs Trolley L (Jacobean)

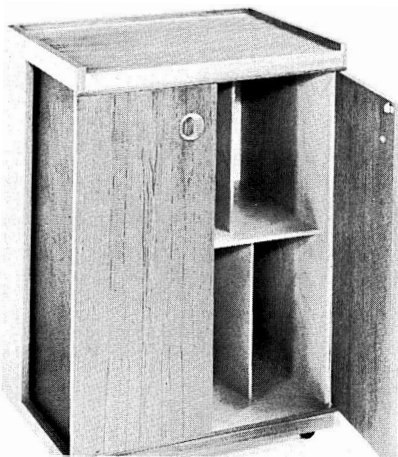
Type L

Trolley cabinet with two compartments. Easy-running finger-tip movement. Finish: Light or dark sapele mahogany, two-tone mahogany, walnut, teak. Two lift-up lids. Size: 35 $\frac{3}{4}$ × 18 × 24in (including castors). Compartments 17 $\frac{1}{2}$ in and 15 $\frac{1}{2}$ in wide, both 16in deep. Price: £33 5s (plus £2 15s PT).

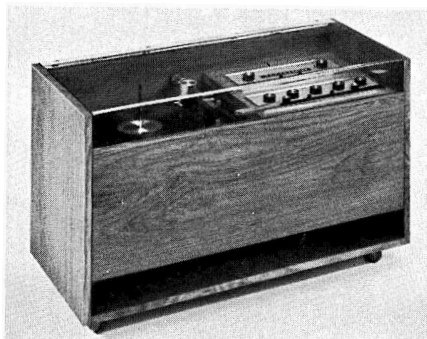
★ Indicates entry is illustrated



Imhofs HFU/22



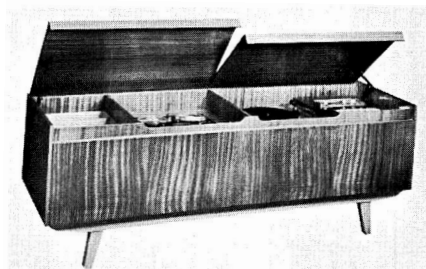
Imhofs HFU/22RS



Imhofs Imflex Mini-trolley



Largs Olympic



Largs Quartette



Largs Gresham

Type L Jacobean ★

Similar to Type L but in Jacobean style. Size: 36½in wide, 19in deep, 24in high (including 3in concealed castors). Internal sizes as trolley L. Price: £35 19s 6d (plus £3 0s 6d PT).

HFU22 ★

Console cabinet for the smaller home in upright contemporary styling. Perspex front to the motor compartment automatically drops as the clear perspex lid is pushed back. Two shelves provided for amplifier and tuner. In addition to motor compartment there is storage space for approx. 150 records. Dimensions: 35 × 21 × 19in (inc 1½in castors). Height above motor board: 5¼in. Lower shelf height: 5¼in. Finish: teak, sapele mahogany, walnut. Doors fold back flush when open. Designed to match HFU22 RS record storage cabinet. Price: £31 13s 1d (plus £2 6s 11d PT).

HFU22/RS ★

Upright record storage cabinet in contemporary styling. Hinged front doors fold back flush when open. Holds approx 300 records. Dimensions 31¾ × 22 × 16½in (inc 1½in castors). Finish: teak, sapele mahogany, walnut. Matches HFU/22 cabinet. Price: £20 9s 9d (plus £1 10s 3d PT).

Inflex Mini Trolley ★

Trolley control cabinet in contemporary styling. Lift-up perspex lid. Designed to accept transistorised amplifier and tuner, also motor and turntable. Dimensions: 20 × 32 × 15½in (inc 2in castors). Motor board: 16⅜ × 14⅜in. Equipment board: 14⅞ × 14⅞in. Finish: teak, sapele mahogany, walnut, rosewood. Designed to enable the equipment module to be removed from the cabinet to allow ease of fitting and servicing equipment. Incorporates magazine/record storage shelf. Price: £33 11s 2d (plus £2 8s 10d PT).

LARGES OF HOLBORN

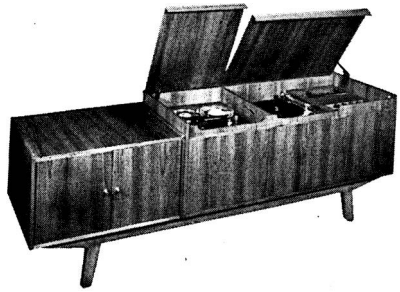
76-77 High Holborn, London, WC1.
Tel: 01-242 2626 (PBX).

Olympic ★

Upright cabinet with pull-out control panel in oiled teak, satin mahogany, walnut. Takes gram unit, tape deck, tuner and amplifiers. Lift-up lid with stay. Fitted with Shepherd castors. Overall size: 40 × 22 × 29in. Particularly suitable for Quad, Leak and Ferrograph equipment. Price: £55.

Small Olympic

Similar in style and appearance to Olympic but slightly smaller. Size: 37½in long, 18in deep, 26in high (plus 3in castors). Finish: oiled teak, satin mahogany/walnut. Price: £48.



Largs Caithness

Quartette ★

Lowline cabinet in oiled teak or mahogany/walnut satin. Two lift-up lids with tension stays. Takes gram unit, tape deck, tuner, control unit and records. Size: 66in long, 18in deep, 26in high. Price: £65.

Large Quartette

Similar in style and appearance to Quartette but especially suitable for larger equipment, i.e. Ferrograph, SME, etc. Size: 70in long, 26in high, 22in deep. Price: £70.

Classic ★

Traditional style upright equipment cabinet with top lid for gram or tape unit and two front opening doors giving access to front panel with record storage below. Overall size: 26in wide, 19¼in deep, 39in high including plinth. Motor board 23½in wide, 16½in deep, 4in below lid. Control panel 23in wide, 9½in high. Finish: Walnut, sapele or mahogany veneer. Price: £48.

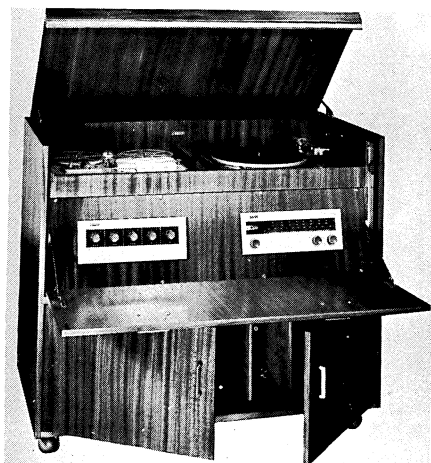
Gresham ★

Reproduction style cabinet in walnut or mahogany. Two front-opening doors with record storage. Lift-up lid. Space for tuner, control unit and turntable. Size: 40in long, 20½in deep, 33¼in high including legs. Price: £85.

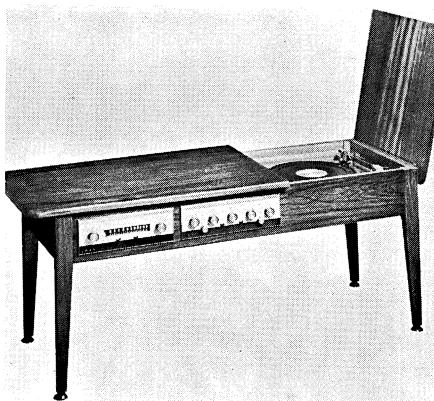
Caithness ★

Modern lowline cabinet made in three sections: main equipment cabinet, record and tape storage cabinet, plinth. Main cabinet will accommodate tuner, control unit, turntable and tape deck. Two lift-up lids. Storage cabinet has fixed top and being slightly lower than main cabinet provides ideal setting for ornament or flowers. Size: 78in long, 22in deep, 26in high including 9in plinth. Price: £95.

★ Indicates entry is illustrated



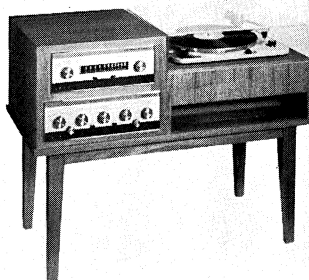
Largs Sutherland



Largs Lanark



Largs Stirling



Largs Argyll



Largs Trio



Largs Clarendon

Sutherland ★

Designed to take large amount of big equipment together with comprehensive record library. Lift-up lid with two stays covers space for turntable and tape deck, drop-down front conceals panel for tuner and control unit. Two front-opening doors at bottom give access to record storage. Size: 40in long, 21½in deep, 35in high. Finish: oiled teak or satin mahogany/walnut. Price: £75.

Stirling ★

Compact-looking modern cabinet with room for tuner, control unit, turntable and smaller types of tape unit, also space for record storage. Lift-up lid with two stays and sliding doors at front. Size: 40in long, 20in deep, 27in high including 3in castors. Finish: oiled teak or satin mahogany/walnut. Price: £59.

Trio ★

Two lift-up lids cover three compartments, the third compartment being fitted for tape deck or record storage whilst first two accommodate turntable, tuner and control unit. Modern clean style cabinet finished in oiled teak, or satin mahogany/walnut. Size: 48in long, 18in deep, 26in high including 9in legs. Price: £46.

Largs Trio

Similar in style and appearance to Trio but designed for larger equipment, i.e. Ferrograph, SME, etc. Size: 54in long, 22in deep, 26in high including 9in legs. Price: £51.

Lanark ★

Coffee table with lift-up lid concealing compartment for record unit. Accommodation for transistor tuner and amplifier. Specially designed for Leak equipment. Size: 54in long, 19½in deep, 22¾in high. Price: £40.

Argyll ★

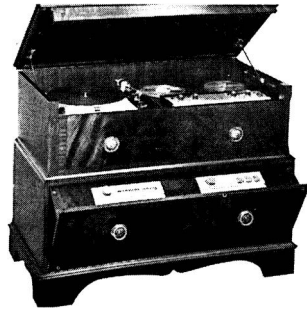
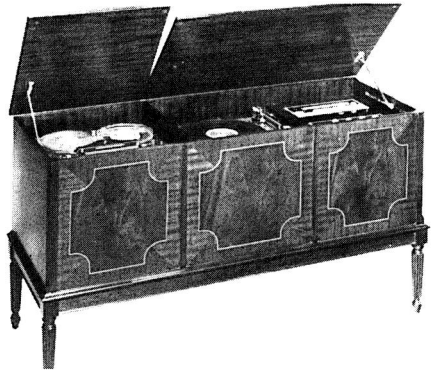
Miniature cabinet designed for transistor equipment. Right-hand section will accept all but the largest turntables. Removable transparent plastic dust cover. Left-hand section accommodates tuner and integrated amplifier. Open storage space for records. Size: 33½in long, 16½in deep, 11½in high plus 14in legs. Price: £39 10s.

Clarendon ★

Elegant reproduction cabinet with accommodation for record unit, tape deck, tuner, amplifier and record storage. Single lift-up lid. Two front-opening doors. Size (overall): 38in wide, 36¾in high (including 9½in legs), 19in deep. Motor and tape deck board: 36½in wide, 16in deep, 4in clearance below lid. Control panel: 17in wide, 15in high. Record storage: 18in wide, 15in high. Price: £98.

Beaumont ★

Traditional style with the same facilities as the

*Largs Beaumont**Largs Sherborne*

Olympic. Overall dimensions: 31 × 40 × 21½in. Motor board: 36 × 18¾in, drop 4in. Control panel: 37¼ × 5in, drop 1¾in. Price: £130.

Beaumont storage cabinet

Overall measurements: 31 × 23½ × 17in. Storage compartments: 13½in high × 19½in long, 9in high × 21in long. Price: £45.

Sherborne ★

Period style cabinet with richly figured mahogany veneer finish. Will accommodate gram motor, radio and amplifier control unit, plus tape deck or gramophone record storage. Two lift-up lids. Overall measurements: 51½in long, 17in high (plus 12in legs), 18½in deep. Tape board: 16½in wide, 16½in deep, 7½in drop. Motor board: 17½in wide, 16½in deep, 4in drop. Control panel: 14in wide, 14½in deep, 2½in drop. Piano-type hinges on lids. Fitted two brass-nylon lid stays. Price: £82.

The high-fidelity equipment cabinets listed and illustrated represent only a small selection of Largs' tailor-made products. Largs operates its own cabinet factory and invites enquiries for cabinets to customers' own specifications.

Prices quoted include delivery within 20 miles of High Holborn.

★ Indicates entry is illustrated

RECORD HOUSING

Brook Road, Wood Green, London, N22.

Tel: 01-888 7487.

Longfellow

Lowline cabinet in teak. Takes gram unit, tape deck, tuner, amplifier. Record storage (150). One central lift-up lid plus two drop flaps. Overall size: $76\frac{1}{2} \times 21 \times 14$ in (plus 9in for legs). Will take complete tape-recorder and largest players, transcription or autochange. Price: £58.

Lowflex

Lowline cabinet in teak. Takes gram unit, tape deck, tuner, amplifier, etc. Lift-up lids, one with pneumatic stay. Overall size: $59 \times 21 \times 14$ in (plus 9in for legs). Record storage on left. Partition removable if not required. Price: £42.

Britten

Upright style equipment cabinet with record storage. One lift-up lid. Accommodation for gram unit (or tape deck), tuner and amplifier plus 150 records. Size: 20in wide, $19\frac{1}{2}$ in deep, 36in high. Finish: teak, walnut or mahogany. Price: £29 10s.

Andante ★

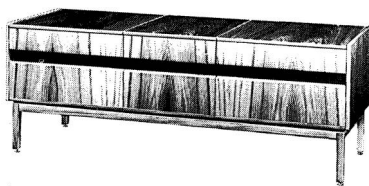
Long lowline equipment cabinet comprising three sections. Lift-up lids to right- and left-hand sections, drop front to centre section. Accommodation for turntable and pickup, including 12in SME arm; largest tape recorders, e.g. Ferrograph or Revox with 10in spools; tuner, amplifier and control unit. Size: 63in wide, 21in deep, 14in high (plus 9in legs). Finish: teak. Adjustable glides to legs provide firm level standing even on irregular floors. Price: £46.

Cantelina ★

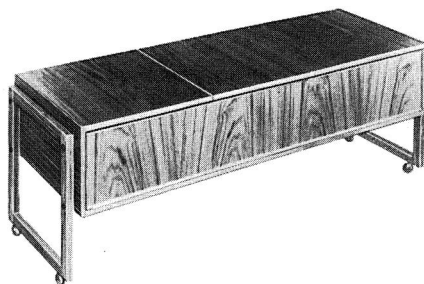
Lowline cabinet. teak leg frame fitted with black and chrome castors. One lid and one drop-down flap. Accommodation for turntable, amplifier and tuner. Dimensions: $22\frac{1}{2} \times 50\frac{1}{4} \times 17$ in; turntable section 18in wide $\times 15\frac{3}{4}$ in deep; amplifier section $28\frac{1}{4} \times 7\frac{1}{4} \times 14\frac{1}{2}$ in. Finish: teak. Price: £25 16s 5d (plus £2 10s 7d PT).

Playview Junior

Shelf unit to house Garrard SP25, AP75 or other similar size motor units. Size 8in high, $16\frac{1}{2}$ in wide, 14in deep. Finish: teak. Mounting board $15\frac{1}{4}$ in wide, 13in deep. Clear plastic lid which will hinge back or can be lifted off. Cruciform stand optional extra. Price: (cabinet only) £7 15s.



Record Housing Andante



Record Housing Cantelina



Record Housing Scan Plan

Playview Senior

Shelf unit to accommodate large turntables such as Garrard 301, 401, Goldring/Lenco, etc. Mounting board 17 $\frac{3}{4}$ in wide, 17 $\frac{1}{2}$ in deep. Finish: teak. Clear plastic lid which will hinge back or can be lifted off. Size: 8in high, 18 $\frac{1}{2}$ in wide, 18 $\frac{3}{4}$ in deep. Cruciform stand optional extra. Price: (cabinet only) £9 19s.

Replacement boards

In the event of changing the motor unit replacement mounting boards are available for both the Playview Junior and Playview Senior. Prices on application.

Scan Plan ★

Shelving and cabinet system for housing audio separates and records in a small space and at an economical cost. Has space for motor turntable unit plus amplifier or tuner/amplifier. Compartment beneath will hold 150 records. Sliding doors. System adjustable to suit requirements and can be extended by adding further units alongside. Size: 36in high, 20in wide, 16 $\frac{1}{2}$ in deep. Price: £18 18s.

Hi-Flex/Shelframe system

Will accommodate shelf mounting motor and pickup, tape recorder, radio tuner and amplifier, plus 250 records in cabinet below. Sliding doors. Size: 33in wide, 36in high, 16 $\frac{1}{2}$ in deep. Price: £27.

Recaudio record/equipment cabinet ★

Adjustable cabinet and shelf system that will accommodate player unit, tape recorder, tuner and amplifier, plus 100 records. Cabinet mounted on castors. Two centre-opening full-length doors. Complete with two internal shelves and six removable record partitions. Keeps equipment free from dust (and safe from busy little fingers). Finish: teak. Size: 18in wide, 17in deep, 32in high (including castors). Price: £19 19s.

SME LTD

Steyning, Sussex, BN4 3LN. Tel: Steyning 2228.

Model 2000 ★

Plinth system with one motor-board ready cut for SME pickup arm and turntable. The one-piece acrylic lid has a stainless steel reinforcing trim. Counter-spring hinges retain the lid open when required. Dimensions: 9 × 24 × 20in. Price: £31 10s (plus £7 14s PT) in teak, walnut or rosewood.

All parts of Model 2000 are available separately. These comprise the base, motorboard, acrylic lid, spring mounts (set of four), and left- or right-hand hinge (see construction kits section).



Record Housing Reaudio



S.M.E. 2000 Plinth



Staples Ladderax Hi-Fi

★ Indicates entry is illustrated

STAPLES & CO LTD

Staples Corner, Junction Edgware Road and
North Circular Road, London, NW2.
Tel: 01-452 1144/7.

Ladderax ★

Unit system hi-fi cabinet designed to fit Staples Ladderax assembly. Lift-up main lid giving access to space for tuner, control unit and record or tape deck. Front panel removable to facilitate installation. Will accept most modern equipment. Size: 35in wide, 17in deep, 18 $\frac{3}{4}$ in high. Motorboard: 33 $\frac{3}{4}$ × 16 × $\frac{1}{2}$ in, height above 5 $\frac{3}{4}$ in. Finish: teak or rosewood veneer. Full details of other matching units on request. Prices from about £38.

STENTORIAN

Whiteley Electrical Radio Co. Ltd., Victoria Street, Mansfield, Notts.
Tel: Mansfield 24762.

C16 Thoresby Equipment Console

Upright style equipment cabinet with lift-up lid. Takes most makes of gram unit or tape deck, amplifier, control unit and tuner. Available in mahogany or walnut. Supplied packed flat and easily assembled in a few minutes with a screwdriver only. Size: 19 $\frac{3}{8}$ × 18 × 31in. Price: (C16 mahogany) £23 1s 5d (plus £2 5s 10s PT); (C16A walnut) £23 16s 9d (plus £2 7s 4d PT).

TYSONS

41 Russell Street, Leamington Spa.
Tel: Leamington Spa 24935.

Tysonic Dower Chest.

Lowline style in oak. Suitable for gram unit, tape deck, tuner, amplifier. Lift-up lid. Generally 36in to 48 in long. Price: £40 to £55.

Equipment installed in antique or reproduction furniture to customers' requirements. Dower chests a speciality.

WHITELEY ELECTRICAL RADIO CO LTD

See Stentorian.

If you buy the wrong stereo, you'll never hear the last of it.

When you fork out for stereo equipment you've only got three things to guide you:

Reputation. Recommendation. And your ear.

Ignore any one of them and you could be in for a very expensive bad buy.

And this is where Leak comes in — to save you from years of niggling doubt and disappointment.

Back in 1931, H. J. Leak and D. W. Turpin pioneered stereo. While now, in 1970, Leak are still leading all the stereo-types who've followed (British, Japanese, German, Swedish alike). With amplifiers, with speakers and with tuners.

Recommendation, reputation?

The **Gramophone** says of Leak: "There is a delicacy of reproduction that is absent from most others."

Hi-Fi News: "... undoubtedly sets a very high standard and will make many friends."

So now, it's just up to you.

And your ear.



LEAK IS A MEMBER
OF THE RANK ORGANISATION

LEAK H I F I
- the real sound of music

H. J. Leak & Co. Ltd., Bradford Road, Idle,
Bradford, Yorkshire. Tel: 0274 612552.

Listen carefully.

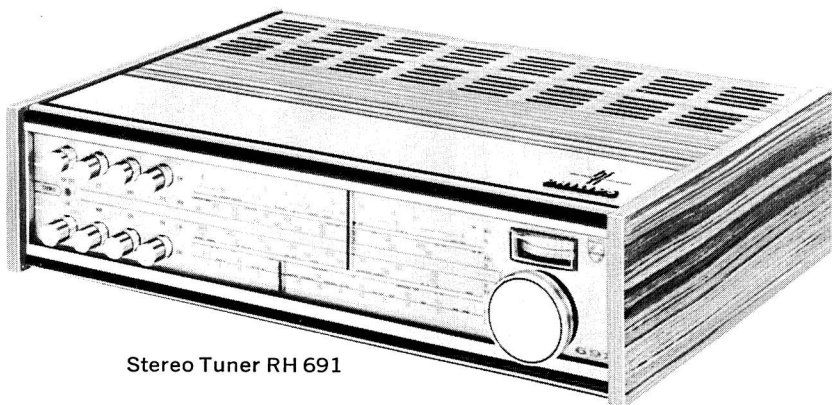
We make hi-fi equipment for the man who listens carefully and knows what good equipment should (or shouldn't) sound like.

Like this superb 2 x 30 watts stereo amplifier with 3 position physiology switch, 3 position scratch filter and push button rumble filter.

Or this 4 waveband stereo tuner with Automatic Frequency Control for stable reception on FM. And a silent tuning control to reduce inter-station noise.

Just two of the 32 units which make up the Philips Audio Plan. 17 separate systems in all. And all of them for people who want the best and recognise it when they hear it.

Philips Audio Plan.



Stereo Tuner RH 691



Stereo Amplifier RH 591

PHILIPS



LOWTHER  *towards perfection*

High efficiency drive units plus horn loading offer a standard of reproduction seldom equalled, never surpassed.

Lowther enclosures provide direct, indirect or omni-directional sound display.

Lowther amplifying equipment also provides second to none high quality performance.



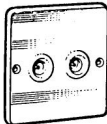
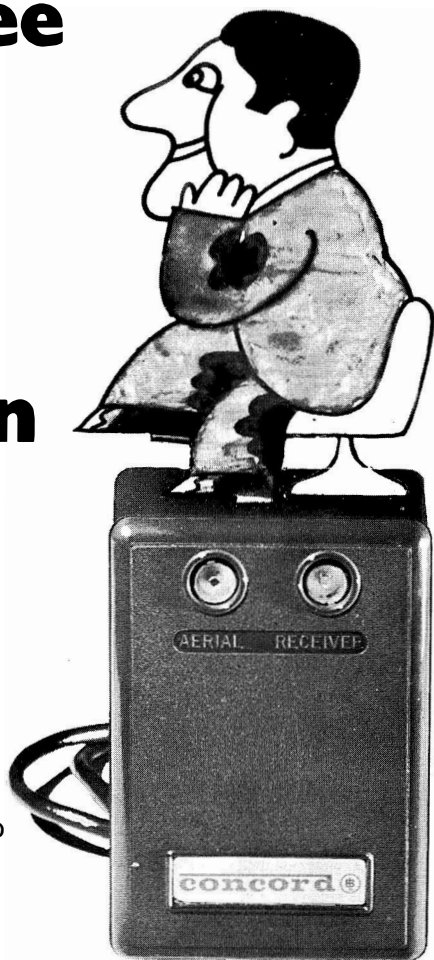
LOWTHER MANUFACTURING CO.,
ST. MARK'S ROAD,
BROMLEY, KENT.

Belling-Lee Concord will give you a fourth dimension in sound

(well almost)

Nominal flat response from 40mHz to 860mHz including all band II making it ideal for stereo reception, gain 12dB nominal. This means the strength of the signal from the existing aerial will be amplified by FOUR times.

EASILY AND QUICKLY INSTALLED
NO ADJUSTMENT REQUIRED
FULLY TRANSISTORED
DEVELOPED BY BELLING-LEE



L1893
New VHF/UHF
flush mounting diplexer



L1480
Single coaxial
flush mounting outlet



L735A
Coaxial socket for termination
of aerial downloads for FM installation



BELLING-LEE TELEVISION EQUIPMENT

Belling and Lee Ltd., Television Equipment Division, Gt. Cambridge Rd., Enfield, Middx.
Telephone: 01-363 5393 Telex: 263265 Cables: 'Radiobel' Enfield.

Directory of FM/VHF Aerials

★ Indicates entry is illustrated

AERIALITE LTD

West Heath, Congleton, Cheshire.
Tel: Congleton 3892/9.

Aerpole 900/MU

Band II outdoor dipole with stand-off arm and universal bracket to fit up to 2in diameter masts. Price: £1 16s.

Aeraitch 901/XU

Band II wide-spaced H array with attachment to fit masts up to 2in diameter. Price: £2 5s.

Aerfringe 902/XU

Band II three-element array comprising director, folded dipole and reflector. Bracket for mast attachment up to 2in diameter. Price: £3 5s.

Aerfringe 903/XU

Band II four-element array comprising folded dipole, two directors and a reflector. Bracket for attachment to mast up to 2in diameter. Price: £3 13s 6d.

Aerialite also manufactures a range of AM aerials including vertical rod types and anti-static systems. Full details on request.

ANTIFERENCE LTD

Bicester Road, Aylesbury, Bucks.
Tel: Aylesbury 2511.

Loft 233

Band II three-element loft aerial with folded dipole. Universal mounting clamp with stand-off arm. Fully adjustable for angle and direction. Price: £2 6s 9d.

214

Band II single dipole (array only) with one-hole fitting for 1in dia masts. Price: £1 6s.

214/1A

Band II single dipole array with 7in stand-off arm and universal 'grip-on' clamp to fit masts up to 2in diameter. Price: £1 15s.

214/2B

Band II wall mounting single dipole array. 15×1in stand-off arm and universal fitting bracket. Price: £1 19s.

214/9C

Band II chimney mounting single dipole array.

3ft×1in swan-neck arm and single lashing. Price: £3 4s.

224

Band II dipole and reflector array with universal clamp to fit masts up to 2in diameter. Price: £2 6s 3d.

224/9M

Band II dipole and reflector array with 5ft×1in cranked mast and single chimney lashing. Price: £4 10s 6d.

234

Band II three-element array comprising folded dipole, director and reflector with universal clamp for masts up to 2in diameter. Price: £3 5s 6d.

234/9M

Band II three-element array with 5ft×1in cranked mast and single lashing. Price: £5 9s 9d.

244 ★

Band II four-element array with universal clamp for masts up to 2in dia (recommended by makers for stereo). Price: £3 13s 6d.

Addex-FM

Adaptor stubs for adding to vertical Band I, III or Band I/III arrays with $\frac{3}{8}$ in or $\frac{1}{2}$ in diameter elements. Price: 12s pair.

BANG AND OLUFSEN U.K. LTD

Eastbrook Road, Gloucester, GL4 7DE.
Tel: Gloucester 21591.

2010 ★

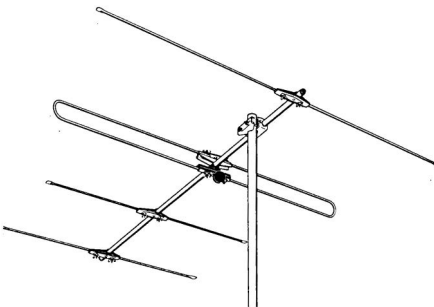
Band II telescopic V aerial for B & O tuners and tuner/amplifiers. Fits into block in back of tuner and is supplied complete with connecting lead and plug. Price: £2.

BEN NEVIS AERIALS

Belmont Works, Belmont Site, Lewis Street, Stranraer, Scotland. Tel: Stranraer 2677/8.

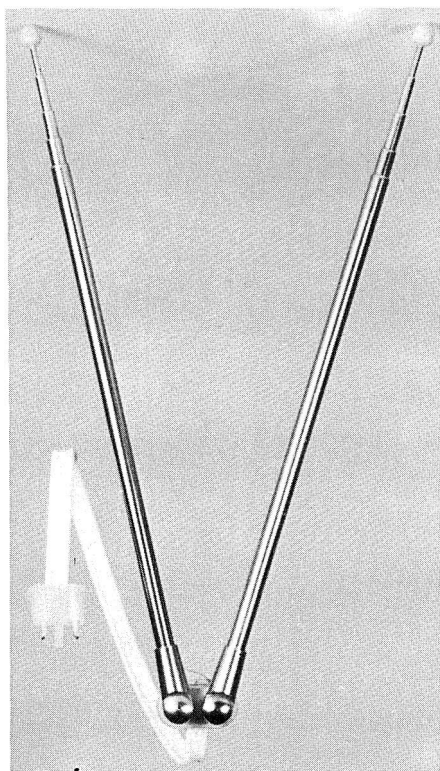
Ben Nevis V1

Band II single dipole with stand-off arm and

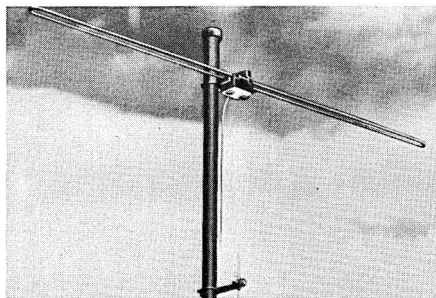


Antiference 244

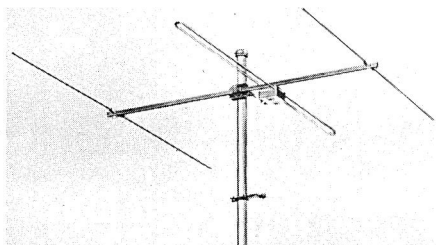
★ Indicates entry is illustrated



Bang & Olufsen 2010



Hirschmann U.1



Hirschmann U.3

universal mast clamp for 1-2in masts. Price: £1 8s 6d.

Ben Nevis V2

Band II dipole and reflector with boom and stand-off arm and universal mast clamp. Price: £2.

Ben Nevis V3

Band II three-element array comprising director, folded dipole and reflector, with stand-off arm and universal mast clamp. Price: £2 18s.

Ben Nevis V4

Band II four-element array comprising two directors, folded dipole and reflector, with stand-off arm and universal mast clamp. Price: £3 10s.

Regal RV1

Similar to V1 but aerial array plastic-coated by Plastalux process and fitted anti-vibration insulators. Ideal for exposed locations or where subject to corrosion. Price: £2 14s.

Regal RV2

Similar to V2 but array plastic-coated and fitted anti-vibration insulators. Price: £4 10s.

Regal RV3

Similar to V3 but array plastic-coated and fitted anti-vibration insulators. Price: £6 16s 6d.

Regal RV4

Similar to V4 but array plastic-coated and fitted anti-vibration insulators. Price: £8 6s 6d.

V.H.F. aerials custom-built to individual customer's specification.

HIRSCHMANN

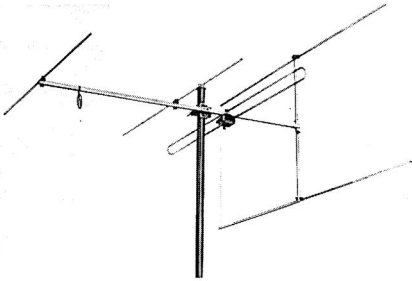
Distributors: Audio Workshops Ltd.,
Burnt Lodge Lane, Wallcrouch, Wadhurst,
Sussex. Tel: Ticehurst 503.

U.1 ★

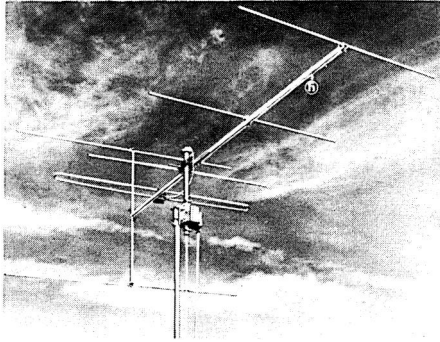
Folded dipole for VHF/FM reception. Bandwidth 88-104 MHz. May also be used under certain conditions for LW, MW and SW reception. Aerial constructed of corrosion resistant alloy. Rain-proof plug-in connection box with outlets to match either 60/75 ohms coaxial cable or 240/300 ohms balanced twin feeder. Mast clamp to fit masts of up to 2½in diameter and short stand-off arm included. Price: £3 12s 7d.

U.3 ★

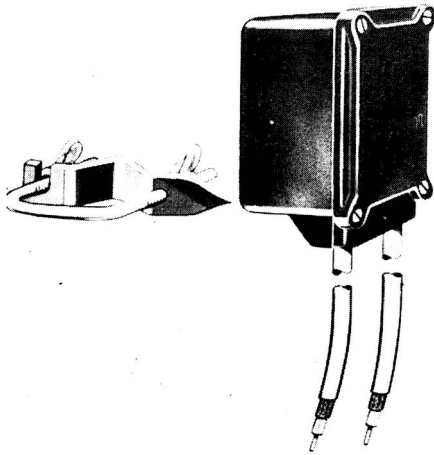
Folded dipole, reflector and director for VHF/FM reception. Bandwidth 88 to 104 MHz. Aerial constructed of corrosion resistant alloy. Rain-proof plug-in connection box with outlets to match either 60/75 ohms coaxial cable or 240/300 ohms balanced twin feeder. Rectangular boom for perfect element alignment and seamless elements for strength. Tilting clamp to fit masts of up to 2½in. Gain 5.0 dB. Front-to-back ratio 15 dB. Price: £6 5s 0d.



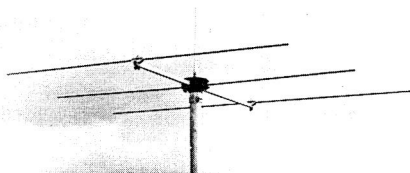
Hirschmann U.5



Hirschmann U.6 on rotator



Hirschmann Feko 14



Hirschmann Gema 3

U.5 ★

Folded dipole with two directors and special double reflector for VHF/FM reception. Specially suitable for stereo reception. Bandwidth 88 to 104 MHz. Aerial constructed of corrosion resistant alloy. Rain-proof plug-in connection box with outlets to match either 60/75 ohms coaxial cable or 240/300 ohms balanced twin feeder. Gain 7 dB. Front-to-back ratio 18 dB. Horizontal acceptance angle 63 degrees. Vertical acceptance angle 92 degrees. Mechanical length 1.45 m (approx 4½ft). Electrical length 0.5 wavelength. Tilting clamp to fit masts of up to 2½in. Rectangular boom. Price: £9 12s 7d.

U.6 ★

Special high-performance aerial with folded dipole, three directors and double reflector for VHF/FM reception. Specially suitable for stereo reception in particularly difficult positions. Bandwidth 88 to 104 MHz. Aerial constructed of corrosion resistant alloy. Rain-proof plug-in connection box with outlets to match either 60/75 ohms coaxial cable or 240/300 ohms balanced twin feeder. Gain 7.5 to 8.5 dB. Front-to-back ratio 20 dB. Horizontal acceptance angle 61 degrees. Vertical acceptance angle 80 degrees. Mechanical length 2.46 m (approx 8¼ft). Electrical length 0.7 to 0.83 wavelength. Tilting clamp to fit masts of up to 2½. Rectangular boom. Price: £13 10s.

Feko 14 ★

Coupling box to combine the outputs from two identical aerials in Band II (VHF/FM radio), complete with two input leads. This device combines the outputs from the two aerials in phase to give a combined output with an increased signal level. Coupling box constructed of black plastic (waterproof) with bracket for mounting on mast of up to 2in diameter. Total length of input leads 3.25 m (approx 10½ft). Price: £6 5s.

GEMA 1

Glass fibre rod (either 2 m or 3 m) AM aerial and single dipole FM aerial. The AM aerial consists of a glass fibre vertical rod constructed so as to render it conducting while also retaining the durable and weather resisting properties and strength of glass fibre. Included in the head of the aerial is a transformer to match both aerials to a common 60/75 ohm coaxial cable. The appropriate transformer/adaptor lead needed to feed the separated signals to the AM and FM input sockets for the tuner is supplied for either 60/75 ohms or 240/300 ohms inputs. Price: (2 metre rod and all accessories) £15 17s 9d; (3 metre rod and all accessories) £17 5s 9d.

GEMA 3 ★

Glass fibre rod (either 2 m or 3 m) AM aerial and

★ Indicates entry is illustrated

3-element FM aerial for stereo reception. The AM aerial consists of a glass fibre vertical rod constructed so as to render it conducting while also retaining the durable and weather resisting properties and strength of glass fibre. Included in the head of the aerial is a transformer to match both aerials to a common 60/75 ohm coaxial cable. The appropriate transformer/adaptor lead needed to feed the separated signals to the AM and FM input sockets of the tuner is supplied for either 60/75 or 240/300 ohms inputs. Prices: (2 metre rod and all accessories) £20 10s 2d (3 metre rod and all accessories) £21 18s 2d.

GEMA 4

Glass fibre rod (either 2 m or 3 m) AM aerial and 2-element crossed dipole omni-directional aerial for FM reception. The AM aerial consists of a glass fibre vertical rod constructed so as to render it conducting while also retaining the durable and weather resisting properties and strength of glass fibre. Included in the head of the aerial is a transformer to match both aerials to a common 60/75 ohm coaxial cable. The appropriate transformer/adaptor lead to feed the separated signals to the FM and AM input terminals of the tuner is supplied for either 60/75 ohm coaxial input or 240/300 ohms balanced twin input. Prices: (2 m rod and all accessories) £18 15s 2d; (3 m rod and all accessories) £20 3s 2d.

DR 610

Continuously variable attenuator. Input and output for 60/75 ohm coaxial cable. Max RF input 100 mW. White plastic housing. Size: diameter 2½in, height 1¼in. Price: £4 6s.

SYM 5

Balun to match 60/75 ohms coaxial cable to 240/300 ohms balanced twin feeder. Frequency range 40 to 850 MHz. (All TV Bands and VHF/FM radio.) White plastic housing with standard coaxial input socket and 4in long balanced twin feeder output lead. Price: £1 15s.

SYM 15

Balun to match 60/75 ohms coaxial cable to 240/300 ohms balanced twin feeder. Frequency range 40 to 850 MHz. (All TV Bands and VHF/FM radio.) Black plastic waterproof housing with mast clamp to fit masts of up to 2in diameter. Input and output connections made via terminals. Price: £1 17s 6d.

SYD 60

Balun to match 60/75 ohms coaxial cable to 240/300 ohms balanced twin feeder combined with variable attenuator, loss may be varied over the range of 12 to 30 dB. Frequency range 40 to 850 MHz. (All TV Bands and VHF/FM radio.) Input standard coaxial socket, output

lead 4in of balanced twin feeder. White plastic housing. Price: £2 1s 7d.

J. BEAM ENGINEERING LTD

Rothersthorpe Crescent, Northampton.

Tel: Northampton 62147.

FMG.1

Band II dipole with 7in stand-off aluminium arm with universal grip to fit any mast up to 2in diameter. ¾in aluminium elements with heavily plated universal clamp. Price: £1 15s.

FM2

Band II dipole with reflector, 1in diameter aluminium boom, heavily plated universal clamp to fit any mast up to 2in diameter. ¾in aluminium elements. Rustproof precision-cast fitting and waterproof junction box. Price: £2 6s.

FM3.L

Band II dipole, reflector and director for loft mounting. Price: £2 8s.

FM4.S ★

Band II folded dipole, two directors and folded reflector. Specially designed for stereo radio which calls for a larger signal input to overcome the drop in signal-to-noise ratio due to the multiplex stereo system. Each array is peaked on local stereo frequency. High front-to-back ratio and clean polar diagram. 1in diameter aluminium crossbar. ½in diameter elements. Waterproof junction box. Die-cast element clamps with aluminium securing bolts. Heavily plated universal clamp for masts 1in-2in diameter. For extreme range two FM4.S can be stacked one above the other (6 or 7ft apart) and connected together by PM/3 phasing and matching harness. Price: FM4.S aerial array £5; PM/3 harness £1 17s 6d.

FM6.S

Band II broad-band long-range six-element aerial covering 88-98 MHz. Array comprises dipole, reflector and four directors. Careful design of director chain provides clean polar diagram. For stacked arrays two FM6.S aerials can be connected together by PM/3 harness. Price: FM6.S aerial array £6 12s. PM/3 harness £1 17s 6d.

K.V.A. ELECTRONICS

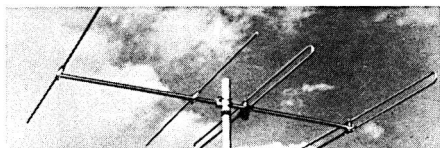
40 Monarch Parade, London Road, Mitcham, Surrey. Tel: 01-648 4884.

FML

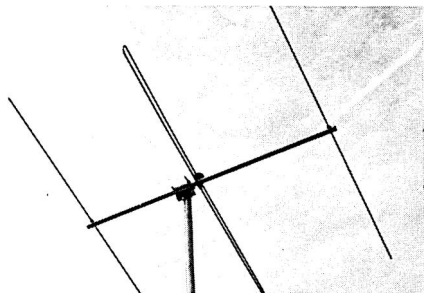
Band II loft dipole. Two-screw fixing bracket, rotatable base, arms of dipole adjustable to V for optimum results or to clear obstructions. Price: 17s 6d.

FM.SD/W

Band II wall-mounting single dipole with



J-Beam FM4S



Maxview D/FD3

fixing bracket, stand-off arm and provision for swivelling aerial for optimum results. Price: £1 10s.

FML/H

Band II loft-type H aerial comprising dipole, reflector, mounting boom and stand-off arm. Fixing bracket permits aerial to be orientated for best results. Price: £1 15s.

FML/Y3

Band II three-element loft array comprising director, folded dipole and reflector with stand-off arm and fixing bracket. Particularly suitable in areas where signal strength is poor or where 'ghosting' causes distortion. Price: £2 17s 6d.

FML/Y4

Similar to FML/Y3 but with two directors. Price: £3 5s.

FM/HC

Band II horizontally polarised outside H aerial comprising dipole, reflector, boom, cranked arm mast and chimney lashing equipment. Price: £3 10s.

MAXVIEW AERIALS LTD

Maxview Works, Setch, Kings Lynn, Norfolk. Tel: Watlington (Norfolk) 376.

Maxview D/DW

Band II wall-mounting dipole with stand-off arm and adjustable swivel fitting. Price: £1 18s.

Maxview D/DM

Band II dipole array with bracket for mast fitting. Price: £1 12s 6d.

Maxview D/HM

Band II array comprising dipole and reflector on boom. Bracket for mast mounting. Price: £2 5s.

Maxview D/S3

Band II three-element array comprising director, dipole and reflector. Bracket for mast mounting. Price: £2 12s 6d.

Maxview D/FD3 ★

Band II three-element array comprising director, folded dipole and reflector. Bracket for mast mounting. Price: £3 5s.

Maxview D/STB

Band II Twig stub add-on units for TV aerials to boost Band II reception. Price: 12s.

TELEFIELD SALES

Freestone Road, St Philips, Bristol 2. Tel: Bristol 73456.

S2

Band II stub adaptors for attaching to existing Band I or Band III aerial. Price: 11s.

D2/FM

Band II outdoor single dipole with stand-off arm for wall, eaves or fascia mounting. Price: £1 4s.

H2/FM

Band II dipole and reflector array. Price: £1 15s 6d.

3FD2/FM

Band II three-element array comprising director, folded dipole and reflector. Complete with clamp for mast attachment. Price: £2 11s 6d.

4FD2/FM

Band II four-element array comprising two directors, folded dipole and reflector. Complete with mast fixing clamp. Price: £3 4s.

6FD2/FM

Band II six-element array comprising four directors, folded dipole and reflector. Recommended for stereo radio. Complete with mast fixing clamp. Price: £4 9s.

7FD2/FM

Band II seven-element array comprising five directors, folded dipole and reflector. Specially recommended for fringe areas and for stereo radio. Complete with mast fixing clamp. Price: £5.

VISTA GAIN

Vista Gain Sales Co., St Mary-le-bow House, 54 Bow Lane, London, EC4. Tel: 01-248 3376 and 1878.

K.2

Band II indoor dipole. Heavily-plated three-step telescopic dipole adjustable for optimum results. Capacity coupled elements for complete safety. Heavy base. Supplied with three yards low-loss coaxial cable. Price: £2 9s 6d.



Model DC-534NE

-a fully-facilitated
audio system
at marvellous value

Solid state circuitry with 27 specially developed Sanyo transistors and 16 diodes produces optimum amplification power and reception sensitivity on both MW, FM and FM stereo. FM multi-adaptor gives excellent channel separation when receiving multiplex FM stereo programmes. Separate bass and treble controls for each channel, noise and rumble filters. Superbly designed hi-fi turntable with lift-off system and cueing device. Moving magnet type cartridge. Anti-skating device. Speakers Optional Extra. Automatic frequency control for stabilized FM reception. Stereo indicator light. 5 pin DIN socket at rear for record/playback.

SPECIFICATIONS

AMP/tuner—Frequency range :
MW 566-185 m FM 87.5-110 mc
Intermediate frequency : MW 470 kc
FM 10.7 mc
Sensitivity : MW 300 μ V/m FM 3 μ V
Frequency Response (c/s) : 20-20,000
 \pm 1 dB
FM distortion (%) : Less than 3.0
FM Stereo separation : (dB at 1,000 c/s) 25
Output effective power : 12W x 12W
Tone control (Bass & treble) : For each channel
Controls : Noise filter, Rumble filter
Power source : 100/117/130/200/240 V.
50/60 c/s. AC
Turntable Type : Lift-off system with
cueing device
Motor : 4-pole induction
Turntable speeds (rpm) : 33, 45

Wow and flutter (%) : Less than 0.25
Tone arm : Anti-skating device
static balanced pipe arm
Frequency response (c/s) : 20-20,000
Stylus pressure (gr.) : 3
Cartridge : Moving magnetic type stereo
cartridge
Dimensions : Amp, tuner, turntable
24 $\frac{5}{8}$ " x 15 $\frac{3}{8}$ " x 10" (617 x 390 x 255mm)
Weight : 31.7 lbs (14.4 kg)
See it at your local Sanyo dealer
or write for illustrated leaflet to—
Sanyo Marubeni (U.K.) Ltd.,
Bushey Mill Lane, Watford, Herts.
Telephone : Watford 25355.

 **SANYO**

People the world over agree there's something about a Sanyo

Videorama **STEREO 88**

Still leading the field in value for money, the Videorama Stereo 88 offers good quality sound at a reasonable price.



£45-80
retail inc p.tax

and now the **SUPER 88**

£57-75

retail inc p.tax

Super Sound, Super Quality, at a Super Price.

Big Brother to the Stereo 88



Videorama Ltd, International House, 56 Garden Street, Stafford
phone 3940

NEW DYNATRON '90' SERIES



90 Watts for outstanding performance

This new hi-fidelity stereo equipment by Dynatron has been designed for the serious listener. Selected silicon transistors are used throughout to give a high signal to noise ratio and to ensure lowest audio distortion with uniform gain over the operating range. Now available are a hi-fidelity stereo amplifier – the SA90 and a combined amplifier/playing deck – the HFC90 – using the Goldring-Lenco GL75 transcription unit and Goldring G800 magnetic cartridge. Two new loudspeaker enclosures each of 8 ohms impedance complete the range. Write for full details of the outstanding '90' Series, including the new Tuner/Amplifier.



BY APPOINTMENT
TO HER MAJESTY QUEEN ELIZABETH II
SUPPLIERS OF
TELEVISIONS & RADIOGRAMPHONES

DYNATRON

DYNATRON RADIO LTD, ST. PETER'S RD., MAIDENHEAD, BERKS. MAIDENHEAD 23331

Complete-System Hi Fi

In this section manufacturers give details of audio systems marketed as complete packages or made up from individual units. Brief specifications only are quoted since many of the units listed are fully covered in the earlier sections of the book.

The list is not comprehensive and other makers who offer similar equipment are invited to submit details for inclusion in future editions of the book.

In order that a wide choice of systems can be shown the equipment in this special section ranges from medium priced unit audio up to top quality high fidelity. But in every case the following minimum requirements are met:

- 1 Fully stereophonic record reproduction and/or tape playback.
- 2 FM or AM/FM radio tuner.
- 3 Record turntable or tape deck (or both).
- 4 Matched units (electronically and aesthetically).
- 5 Marketed as a complete system by one manufacturer.
- 6 Ready for use by purchaser without fitting parts or wiring up (apart from plugging in mains supply and connecting speakers).
- 7 Speakers in separate acoustic enclosures.

★ Indicates entry is illustrated

BANG & OLUFSEN U.K. LTD

Eastbrook Road, Gloucester, GL4 7DE.
Tel: Gloucester 21591.

Beosystem 900

Comprises Beomaster 900M tuner-amplifier, Beogram 1000 record deck with preamplifier and two Beovox 600 speakers. 900M is stereo transistorised unit. Ranges: 87.5-108 MHz, 38.5-51 m, 188-578 m, 880-2,040 m. Variable tuning. Decoder optional. Switched AFC. Output: 5W per channel into 4 ohms. FR: (± 3 dB), 30 Hz-16 KHz. HD less than 2%. Beogram

1000 gram unit with B & O type SP14A cartridge. Controls: tuning, wavebands, volume, AFC/ext aerial, mono/stereo, gram, tape, bass, treble, on/off. Dimensions: tuner-amplifier $15\frac{7}{8} \times 9\frac{1}{16} \times 5\frac{3}{4}$ in; gram unit $14\frac{1}{16} \times 12\frac{1}{8} \times 6\frac{1}{4}$ in; speakers $11 \times 5\frac{1}{2} \times 7\frac{3}{4}$ in. Finish: teak or rosewood. Prices to be announced.

Beosystem 1000

Comprises Beomaster 1000 tuner-amplifier, Beogram 1000 record deck and two Beovox 2600 speakers. Range: 87.5-108 MHz. Variable tuning. Decoder optional. Switched AFC. 15W per channel into 4 ohms. HD less than 1%. FR: 30 Hz-30 KHz. SP14A cartridge. Speakers: 1 bass unit, 1 dome unit. Controls: tuning, volume, balance, mono/stereo, tape, PU, speakers (two pairs), bass, treble, high filter, low filter. Dimensions: tuner-amplifier $19\frac{7}{8} \times 10 \times 3\frac{1}{16}$ in; gram unit $14\frac{1}{16} \times 12\frac{1}{8} \times 6\frac{1}{4}$ in; speaker $9.5 \times 23.6 \times 10.8$ in. Finish: teak or rosewood. Prices: to be announced.

Beosystem 1200

Comprises Beomaster 1200 tuner-amplifier, Beogram 1000 record deck and two Beovox 1200 speakers. Ranges: 87.5-104 MHz, 184-578 m, 857-2,040 m. Variable tuning plus 3 FM presets. Decoder fitted. Switched AFC. 15W per channel into 4 ohms. HD less than 1%. FR ($\pm 1\frac{1}{2}$ dB): 20 Hz-40 KHz. SP14A cartridge. Speakers: 1 bass unit, 1 dome unit. FR: 50 Hz-20 KHz. Controls: tuning, wavebands, presets, AFC, mono/stereo, left volume, right volume, PU, tape, treble, bass. Dimensions: tuner-amplifier $21.5 \times 8.1 \times 3.1$ in; gram unit $14\frac{1}{16} \times 12\frac{1}{8} \times 6\frac{1}{4}$ in; speaker $19.7 \times 9.5 \times 7.9$ in. Finish: teak or rosewood. Prices: to be announced.

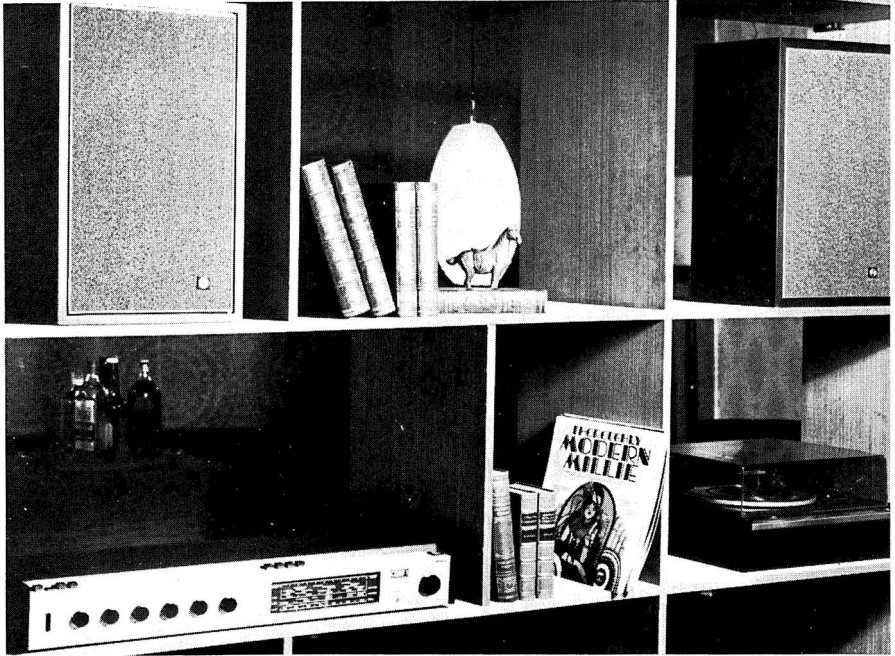
Beosystem 1600

Comprises Beomaster 1600 tuner-amplifier, Beogram 1000 record deck and two Beovox 1600 speakers. Ranges: 87.5-104 MHz, 16-49 m, 66-6-200 m, 188-578 m, 857-2,040 m. Variable tuning plus 4 FM presets. Switched AFC. Decoder fitted. 15W per channel into 4 ohms. HD less than 0.3%. FR (± 1 dB): 30 Hz-25 KHz. SP14A cartridge. Each speaker: 1 bass unit, 1 dome unit. FR 50 Hz-20 KHz. Dimensions: tuner-amplifier $16\frac{1}{2} \times 9\frac{3}{8} \times 4\frac{3}{8}$ in; gram unit $14\frac{1}{16} \times 12\frac{1}{8} \times 6\frac{1}{4}$ in; speakers $13 \times 17.3 \times 4.1$ in. Finish: teak or rosewood. Prices: to be announced.

Beosystem 2400

Comprises Beomaster 5000 tuner, Beocord 2400 tape recorder and amplifier and two Beovox 2200 speakers. Range: 87-108 MHz. Variable tuning. Decoder fitted. Switched AFC. 10W per channel in 4 ohms. FR (± 2 dB): 20 Hz-20 KHz. HD less than 1%. Controls: tuning, AFC, mono/stereo, muting, on/off, and tape recorder controls. Dimensions: tuner $18\frac{1}{2} \times 9\frac{3}{8} \times 3\frac{3}{4}$ in;

★ Indicates entry is illustrated



Bush Sound System



Dynatron Cavalcade HFC21AW

tape recorder $17\frac{3}{4} \times 8\frac{7}{8} \times 14\frac{1}{8}$ in. Prices: teak £374 10s, rosewood £378 10s (including PT).

Beosystem 3000

Comprises Beomaster 3000 tuner-amplifier, Beogram 1000 record deck and two Beovox 3000 speakers. Stereo, transistorised. Range: 87.5-108 MHz. Variable tuning plus 6 presets. Decoder fitted. Switched AFC. 38W per channel into 4 ohms. HD less than 0.3%. FR (± 1 dB): 40 Hz-20 KHz. SP14A cartridge. Controls: tuning, presets, volume, balance, loudness, AFC, mono L, mono R, magnetic PU, ceramic PU, tape, high filter, low filter, bass, treble, on/off. Dimensions: tuner-amplifier $23 \times 10\frac{1}{4} \times 3\frac{3}{4}$ in; gram unit $14\frac{1}{16} \times 12\frac{1}{8} \times 6\frac{1}{4}$ in. Prices: teak £283 10s, rosewood £289 10s (including PT).

Beosystem 5000

Comprises Beomaster 5000 tuner, Beolab 5000 amplifier, Beogram 1800 record deck and two Beovox 5000 speakers. Range: 87-108 MHz. Variable tuning. Decoder fitted. Switched AFC. 60W per channel into 4 ohms. HD less than 0.2%. FR ($\pm 1\frac{1}{2}$ dB): 20 Hz-20 KHz. 1800 unit with SP10A cartridge. Each speaker: 1 bass unit, 1 mid-range, 3 dome units; FR 30 Hz-20 KHz. Controls: 18 in number plus tuning. Dimensions: tuner $18\frac{1}{2} \times 9\frac{5}{8} \times 3\frac{7}{8}$ in; amplifier same as tuner; gram unit $17.2 \times 12.7 \times 6.3$ in; speaker $28.7 \times 18.5 \times 12.8$ in. Prices: teak £452 10s; rosewood £465 10s (including PT).

BUSH

Rank Bush Murphy Ltd, Power Road, Chiswick, London, W4. Tel: 01-994 6491.

Bush Sound System ★

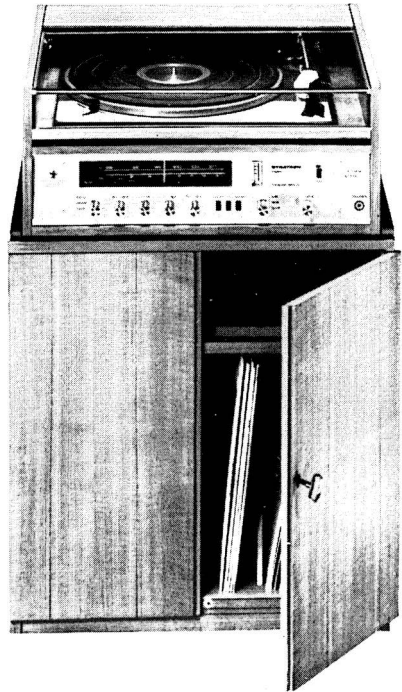
Transistorised. Range: FM 88-108 MHz, MW 187-570 m, LW 1070-1900. Variable tuning. AFC on FM. Stereo decoder fitted. Controls: function switch, volume, bass, treble, presence, balance, pushbuttons for mains on-off, remote speakers, mono/stereo. Output: 11W RMS per channel into 4 ohms. Output impedance: 4-16 ohms (maximum power at 4 ohms). FR: 40 Hz-20 KHz ± 3 dB. HD $< 0.5\%$. Motor unit: Garrard 3500. Cartridge: Sonotone 9TAHCGB. Dimensions: (radio tuner) $4\frac{3}{8} \times 16 \times 9\frac{7}{8}$ in; (amplifier) $4\frac{3}{8} \times 16 \times 9\frac{3}{8}$ in; (record deck) $8\frac{3}{8} \times 16\frac{3}{8} \times 15\frac{3}{8}$ in. Speakers: Bush A764 (Bush A763 or A765 as alternatives). Price: complete system £137 2s 4d (including PT).

CROWN

Crown Radio Co. Ltd., 137-139 Goswell Road, London, EC1. Tel: 01-253 1971/2.

SHC51, FM500, CSP7 (2)

Transistorised. Range: 87-108 MHz. 187-570 m. AFC. Multiplex decoder fitted. Includes cassette



Dynatron Cavalcade Major HFC22

recorder. Controls: bass, treble, balance, selector, record level, playback volume, push-buttons for on/off, record meter, tape play and speaker. Output: 15W RMS per channel. Response: 30 Hz-20 KHz. Output impedance: 8 ohms. Dimensions: (radio tuner) $5 \times 15\frac{1}{4} \times 10\frac{1}{2}$ in; (amplifier and recorder) $5 \times 15\frac{1}{4} \times 10\frac{1}{2}$ in. Speakers: two CSP7. Finish: oiled walnut. Price: (complete system) £154 15s 8d (plus £38 4s 4d PT).

DYNATRON RADIO LTD

St. Peters Road, Furze Platt, Maidenhead, Berks. Tel: Maidenhead 23331.

Cavalcade HFC21AW ★

Stereo radio and gram unit in walnut veneer cabinet size $19 \times 16\frac{1}{2} \times 9\frac{7}{8}$ in. Transistor circuit covers 87-108 MHz and 185-570, 1100-2000 m. Variable tuning, AFC, decoder fitted. Garrard 2025 TC unit with Sonotone 9 TAHC cartridge. Output: 8W per channel, less than 1% distortion. FR: (± 3 dB) 40 Hz-16 KHz. Output impedance: 4 ohms for speakers and 8 ohms or greater for earphones. Speakers: two LS.2014W enclosures. Controls: balance, selector, volume, loudness, bass, treble, filter, AFC on/off.

★ Indicates entry is illustrated



Dynatron HFC21AT

mains on/off. Price: £124 5s 4d (plus £29 4s 8d PT).

Cavalcade Major HFC.22 ★

Stereo radio and gram unit in teak veneer cabinet size $19 \times 16\frac{1}{4} \times 8\frac{1}{2}$ in. Transistor circuit details as above. Fitted Goldring-Lenco GL75 motor unit and Goldring G800H cartridge. Speakers: two LS.3014 enclosures. Price: £167 8s 7d (plus £24 11s 5d PT).

Cavalcade HFC21AT ★

Stereo radio and gram unit in teak veneer cabinet. Range: FM 87-108 MHz, MW 185-570 m, LW 1100-2000 m. Variable tuning.AFC. Stereo decoder fitted. Controls: balance, input selector, bass, volume, treble, loudness, mains on/off, AFC on/off, filter. Output: 8W RMS per channel. FR: 40 Hz-16 KHz ± 3 dB. Output impedance: 4 ohms, phone socket 8 ohms or greater. Distortion: 1% at rated output. Garrard 2025TC deck. Sonotone 9TAHC cartridge. Two LS1514 speaker systems. Price: (complete system) £110 10s (plus £26 PT).

FANTAVOX

Distributors: B. H. Morris (Radio) Ltd., 84-88 Nelson Street, London, E1. Tel: 01-790 4824.

SR-640

Tuner/amplifier with record deck mounted on top, plus two matched bookshelf speakers. Range: FM 88-108 MHz, AM 187-560 m. Sensitivity: FM 10 μ V for 500 mW, AM 300 μ V for 500 mW. SN: FM 50 dB, AM 35 dB. Output: 5W RMS per channel. FR: 50 Hz-15 KHz. Inputs: mag PU 5 mV, ceramic pickup 40 mV, aux 200 mV. Bass control: ± 10 dB at 50 Hz. Treble control: ± 10 dB at 10 KHz. Output impedance: 8 ohms. Mains: 230-240V 50 Hz. Consumption: 40VA. Motor unit: BSR autochanger. Speakers: Two TO-2S bookshelf type. Price: (complete system) on application.

FIDELITY RADIO LTD

6 Olaf Street, London, W11. Tel: 01-727 0131.

Unit Audio One

Stereo tuner/amplifier and record deck with two matched speakers. 20 transistors, one integrated circuit, 7 diodes. Range: FM 87.5-108.2 MHz, MW 185-555 m, LW 1200-2000 m. Variable tuning, separate scales and pointers for AM and FM. Multiplex decoder fitted. Stereo beacon. Switchable AFC. Controls: (pushbuttons) gram, LW, MW, FM, auxiliary, AFC; (rotary controls) bass +16 dB-13 dB at 70 Hz, treble +12 dB-14 dB at 14 KHz, volume +8 dB at 100 Hz at 30 dB down from maximum volume. Output: 6W RMS per channel into 8 ohms. HD: <1.5% at rated output. FR: 55 Hz-23 KHz ± 1.5 dB at 1W with tone controls flat. Motor unit: Garrard SP25 Mk II. Cartridge: Acos GP104 ceramic. Speakers: 10in. bass driver and 4in treble unit in each enclosure. Finish: teak. Size: (tuner/amplifier and record deck) 7in high, 17in wide, 15 $\frac{1}{4}$ in deep; (speakers) 13 $\frac{1}{2}$ in wide, 18 $\frac{1}{2}$ in high, 7 $\frac{1}{4}$ in deep. Price: (complete system) £92.

J. J. FRANCIS (WOOD GREEN) LTD

123 Alexandra Road, Hornsey, London, N8. Tel: 01-888 1662.

Countdown ★

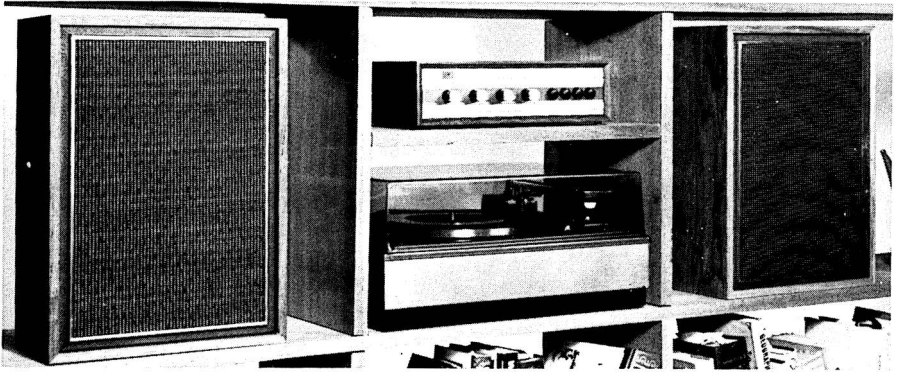
Stereo tuner and stereo amplifier with gram unit and matching speakers. Range: 87-108 MHz. Switched tuning. AFC. Multiplex decoder fitted. Controls (tuner) On-off, mono-stereo, AFC on-off, preset tuning buttons; (amplifier) balance, volume on-off, bass, treble, mode, input selector buttons. Output: 10W RMS per channel. Output impedance: 4 ohms. Motor unit: Garrard SP25 MkII. Pickup cartridge: Orbit NM22 with diamond styli. Speakers: two Francis Countdown enclosures. Size: (radio tuner) 2 $\frac{3}{4}$ \times 10 \times 8in; (amplifier) 2 $\frac{3}{4}$ \times 10 \times 8in; (record deck) 7 \times 12 $\frac{1}{2}$ \times 14in. Finish: (plinth and speakers) solid teak. Price: (complete system) £105 8s (including PT).

GOODMANS

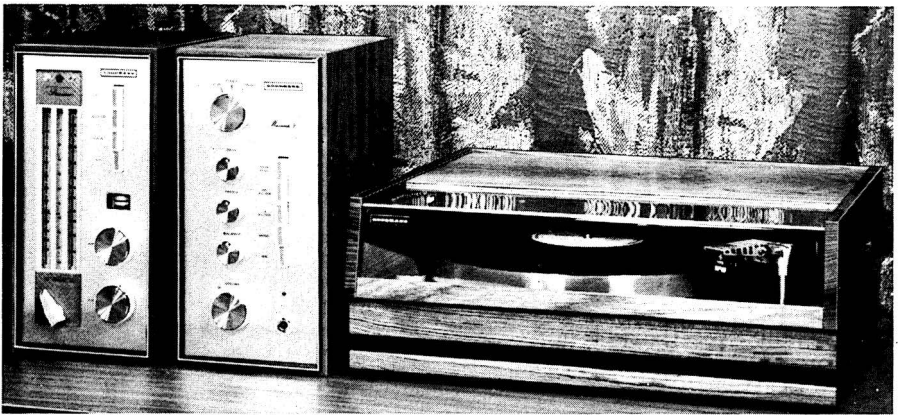
Goodmans Loudspeakers Ltd, Axiom Works, Wembley, Middlesex. Tel: 01-902 1200.

Music Suite ★

Complete stereo system comprising four units. All transistor. Range: 87.5-108 MHz. Switched tuning (five pushbuttons). Switched AFC. Controls: mains on-off, bass, treble, balance, volume, input selector. Output: 15W RMS per channel into 4 ohms. FR: 30 Hz-20 KHz ± 3 dB. Output impedance: 4-16 ohms. HD: less than 0.5% at 1 KHz. Motor unit: Garrard SP25. Cartridge: Goldring 800H. Finish: teak: 33 transistors, 15 diodes, one zener, two vari-caps.



Francis Countdown system



Goodmans Music Suite



Goodmans Audio Suite

★ Indicates entry is illustrated

Multiplex decoder fitted. Automatic stereo beacon. Size: (tuner amplifier) $4\frac{1}{2} \times 22 \times 10\frac{3}{4}$ in; (record unit) $7\frac{1}{4} \times 20\frac{1}{2} \times 16\frac{3}{4}$ in; (speakers) $7 \times 12 \times 7$ in. Price: (complete system) £111 7s (plus £29 2s 4d PT).

Audio Suite ★

System comprises Goodmans Stereomax AM/FM tuner. Goodmans Maxamp 30 stereo amplifier, Goodmans MT1000 record unit with Thorens player and two Goodmans speaker enclosures. Price: (complete system) from approximately £240 to £316 depending on choice of speakers.

HACKER

Hacker Radio Ltd., Norreys Drive, Cox Green, Maidenhead, Berks. Tel: Maidenhead 22261.

GAR.1000 ★

Transistors. Range: FM 87.5-101 MHz, MW 185-575 m, LW 1070-1940 m. Variable tuning. AFC. Multiplex decoder optional extra. Controls: tuning, aerial direction (AM ferrite rod), mains on/off, volume, balance, treble, bass, selector, low note filter, high note filter, mono/stereo switch. Output: 10W RMS per channel. Class A output. Output impedance: 8-15 ohms (10W power output with 15 ohm speakers). FR: 20 Hz-20 KHz ± 2 dB. Distortion: 0.06% at 15 ohms output (input 1 KHz with 10 dB over rated input). Motor unit: Garrard AP75. Pickup Cartridge: Goldring 800H (magnetic) with diamond stylus. Size: $9\frac{3}{8}$ in high, $31\frac{1}{2}$ in wide, $15\frac{1}{2}$ in deep. Speakers: Hacker LS.1000 (15 or 8 ohms), three-unit system. Price: (complete system) £131 3s (plus £30 17s PT).

HALCYON

Distributors: Eurovox Ltd., The Power House, Headstone Lane, Harrow, Middlesex. Tel: 01-428 1021/4.

Stereoplan 260 ★

Stereo tuner/amplifier with built-in record deck and separate matched speakers. Range: FM 87.5-101 MHz, MW 186-571 m, LW 1170-2050 m. Variable tuning. Switchable AFC. Internal ferrite rod aerial for MW, socket for external FM dipole. Controls: treble and on-off, bass, volume, balance, mono/stereo, tape, gram, radio, AFC, tuning. 15 transistors, 6 diodes. Output: 4W RMS per channel. Output impedance: 12 ohms. Gram unit: Garrard 2025 TC. Lightweight tubular arm. Cartridge: Acos GP104 ceramic. Input/output socket for tape recorder. Speaker units: high-flux 8×5 in full range in bass reflex enclosures. Finish: teak. Price: £60 (plus £13 18s 8d PT).

HEATHKIT

Manufactured by Heath Ltd., Bristol Road, Gloucester. Tel: Gloucester 29451.

Heathkit Stereo Compact ★

AD27 tuner/amplifier and record deck, Ambassador speakers (2). Transistorised. Range: FM 88-108 MHz. Variable tuning. AFC. Multiplex decoder fitted. Controls: tuning, selector, volume, balance, bass, treble, phase (stereo radio), on/off, speakers on/off, stereo/mono. Output: 10W RMS per channel. FR 12 Hz-60 KHz ± 1 dB. Output impedance: 4-16 ohms. HD < 1%. Gram motor: BSR MA-70. Pickup cartridge: Shure M44-MB. Finish: teak or walnut. Size: $7\frac{7}{8} \times 21\frac{7}{8} \times 14\frac{3}{4}$ in. Price: (in kit form) AD27 £82, two Ambassador speakers £29 16s each. Total: £141 12s.

HMV

British Radio Corporation Ltd., 284 Southbury Road, Enfield, Middlesex. Tel: 01-366 1155.

HMV High Fidelity ★

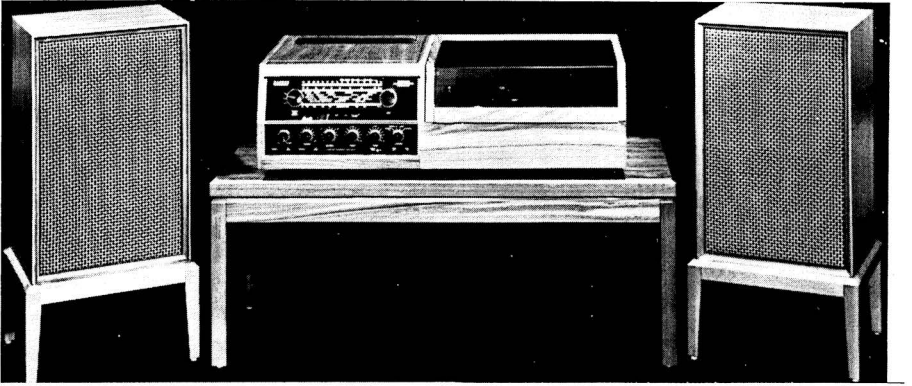
Stereo record playing equipment and radio in walnut veneer cabinets. Transistorised. Range: 87.5-108.3 MHz. Pushbutton preselected tuning. AFC. Stereo multiplex decoder fitted. Controls: mains on/off, bass, treble, balance, volume, six station pushbuttons, mono/stereo switch, gram selector, tape selector. Output: 15W RMS per channel. FR: 40 Hz-16 KHz $+0.5$ dB - -1.0 dB. Output impedance: 4 ohms. HD: less than 0.5% at rated output. Motor unit: Lenco transcription. Cartridge: Goldring 800E free field. Speakers: separate enclosures containing 12in Goodmans bass driver and 4in mid- and high-frequency unit in each. Crossover: 1.5 KHz. Size: (amplifier/tuner/control unit) 4in high, 21 $\frac{1}{2}$ in wide, 10 $\frac{1}{4}$ in deep; (record deck) 6 $\frac{3}{4}$ in high, 17 $\frac{3}{4}$ in wide, 14in deep. Price: (complete system) £202 17s (including PT); stand type 9400 £13 14s extra.

L.L. ELECTRONICS LTD

9 Brydges Road, London, E15. Tel: 01-534 3800.

LL 4000M/FM

Transistorised. Range: 88-108 MHz. Variable tuning. Multiplex decoder fitted. Controls: selector, mono/stereo, bass, treble, balance, volume on/off, tuning. Output: 15W RMS per channel. Output impedance: 8 ohms. FR 20 Hz-20 KHz. HD at rated output 1%. Motor unit: Garrard SP25. Cartridge: Goldring 800. Size: $21 \times 16\frac{1}{2} \times 11\frac{1}{2}$ in. Speaker units: 6 $\frac{1}{2}$ in bass driver, 3 $\frac{1}{2}$ in tweeter, L/C crossover. Finish: teak. Price: £108 13s 10d (plus £24 5s 10d PT).



Hacker GARI000 with LS1000/15 speakers



Eurovox Halcyon Stereoplan 260



Heathkit AD-27 Compact



HMV Hi-Fi System

★ Indicates entry is illustrated

LUXOR

Distributors: Luxitone, 84 Bolsover Street, London W1. Tel: 01-636 2901.

Luxor 4903 ★

Transistorised. Range: 87-101 MHz. Variable and preset tuning. AFC. Multiplex decoder fitted. Controls: mains on/off, volume, bass cut or boost, treble cut or boost, balance, output selector (speakers or phones), tuning, preselected stations, mono/stereo, three filters. Output: 20W RMS per channel. FR: 20 Hz-20 KHz. HD 2% at rated output. Luxor motor. Luxor cartridge. Size: 6×36×13in. Table 13in high available as optional extra. Speakers: Luxor SH102 (2). Price: (complete system) £151 16s (plus £35 2s PT). Table £5 5s extra.

As above but with Luxor KH820 speakers (2). Price: (complete system) £184 9s 10d (plus £33 9s 2d PT). Table £5 5s extra.

Luxor 4902 ★

Transistorised. Range: 87-101 MHz. Variable and preset tuning. AFC. Multiplex decoder optional. Controls: mains on/off, treble cut and boost, AFC on/off, volume, selector, preset tuning, balance, bass cut and boost. Output: 9W RMS per channel. FR 35 Hz-18 KHz. Output impedance: 3-5 ohms. HD 3% at rated output. Luxor motor. Luxor cartridge. Size: 6×20×12in. Speakers: Luxor KH500 (2). Price: (complete system) £90 19s (plus £21 8s PT).

As above but with Luxor KH520 speakers (2). Price: (complete system) £97 15s (plus £23 PT).

MUSICRAFT

Musicraft Audio Products Ltd., 63 High Street, Hounslow, Middlesex. Tel: 01-570 4640.

Musicraft 10-10

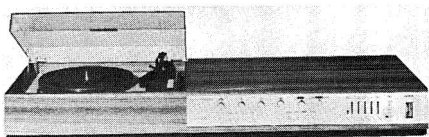
Transistorised stereo tuner/amplifier with gram unit. Range: FM 88-108 MHz. Variable tuning. AFC. No radio decoder. Controls: selector, treble, bass, volume on-off, balance. Output: 10W RMS per channel. FR: 30 Hz-20 KHz ±2 dB. Output impedance: 8-15 ohms. HD: 0-4% at rated output. Motor unit: Garrard SP25. Cartridge: Shure M3D. Size: 24¾in high, 27in wide, 17¾in deep. Speakers: Jordan Watts module in recommended enclosure. Finish: teak veneer. Price: £140 (including PT).

NATIONAL

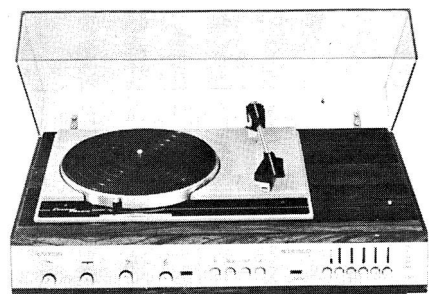
Distributors: Unamec Ltd., P.O. Box 1, United Africa House, Blackfriars Road, London, SE1. Tel: 01-928 2070.

National SG-999A

Stereo tuner/amplifier with "hide-away" record



Luxor 4903



Luxor 4902

deck and twin speaker enclosures. Range: FM 87.5-108 MHz, MW 187-571 m. Stereo decoder fitted. 21 transistors, 15 diodes. Controls: treble, bass, volume, mains on-off, balance FM radio selector, AFC switch, tuning. Visual indicators on bass, treble and volume controls. FET input stage. Output: 10W per channel. Speaker enclosures with two units in each. One 7in long-throw bass driver, one 2½in tweeter. Four-speed automatic changer with lightweight tubular arm. Stereo ceramic cartridge. Auxiliary inputs. Finish: oiled walnut or teak. Size: (main unit) 6×18×16in; (speaker boxes) 10½×14×6 in. Weight: (main unit) 30½ lb; (speaker boxes) 5¼ lb each. Price: £142 1s (plus £28 3s PT).

NIVICO

Distributors: Denham and Morley (Overseas) Ltd., 453 Caledonian Road, London, N7. Tel: 01-607 6568.

MSL-15ED

Miniature audio system comprising tuner/amplifier with record deck on top, plus two matched bookshelf speakers. Range: FM 88-108 MHz, MW 187-560 m. Variable tuning. Sensitivity: FM 5µV. AM 15µV. Output: 5W RMS per channel. 16 transistors, 7 diodes. IF: FM 10.7 MHz, AM 455 KHz. Four-speed single player unit. Lightweight tubular arm. Ceramic cartridge with diamond stylus. FR. 50 Hz-20 KHz. Infinite baffle enclosures with 6½in full

range units. Provision for stereo decoder. Stereo headphone jack. Ferrite rod aerial for AM. 300 ohm aerial input for FM (balanced). Output impedance: 8 ohms. Size: (tuner/amplifier/record unit) $6\frac{3}{8} \times 16\frac{3}{4} \times 12\frac{3}{4}$ in; (speakers) $13\frac{3}{8} \times 9\frac{1}{2} \times 12\frac{3}{4}$ in. Weight: (complete system) 21½ lb. Price: (including stereo decoder) £85 16s (including PT).

Other Nivico complete audio systems include 8920 (£99 15s 1d), 9540E (£179 11s 6d) and SSL46E (£248 6s). Full details not available at time of going to press but specifications can be obtained from the distributors.

NORMENDE

Distributors: TAK Continental Importers, 16a High Street, Stone, Staffordshire. Tel: Stone 3232, 3233.

8002

Comprises 8002/PE record deck, /ST tuner-amplifier and T40 tape recorder, all designed to DIN 45 500 standards. Motor unit is four speed with precision adjustment, arm suitable for all ½-in centre cartridges but fitted with Shure M75MG cartridge as standard. Tuner-amplifier covers VHF. 30.6-51 m, MW and LW with five VHF presets. Uses FETs and gives 30W RMS per channel. Recorder is ¼-track three-motor design with three speeds and featuring automatic tape tension control and built-in slide type mixing console for mono and stereo and mic, radio and gram inputs. Prices: /PE £72 9s, /ST £162 15s, /T40 £163 16s (including PT).

PHILIPS ELECTRICAL LTD

Century House, Shaftesbury Avenue, London WC2. Tel: 01-437 7777.

RF834

Solid-state stereo radio-gram system, decoder being an optional extra, with two speaker enclosures. Ranges: 88-100 MHz, 200-550 m, 1,200-2,000 m. Variable tuning. Switchable AFC. Philips GC047 autochange unit with GP300 crystal pickup. Power output: 3 W RMS per channel at 10% total HD. FR (± 3 dB): 40 Hz-20 KHz. Output impedance: 8 ohms. Controls: waveband buttons, tuning, AFC, gram, volume, balance, bass, treble. Finish: teak. Dimensions: $16\frac{3}{4} \times 14\frac{1}{4} \times 7\frac{3}{4}$ in; speakers, containing 4½ in dual-cone unit, $7\frac{1}{4} \times 7\frac{1}{4} \times 10\frac{1}{4}$ in. Price: £68 16s 2d (plus £16 3s 10d PT).

System

Comprising GA105 record deck, RH690 tuner, RH580 amplifier, RH481 speakers. Solid-state stereo. Ranges: 87.5-108 MHz, 187-577 m,

1,154-2,000 m. Variable tuning. AFC. Decoder fitted. Philips GC005 single record player with GP200 ceramic pickup. Output: 6W per channel. HD: $< 1.5\%$ for 2×5 W. FR (± 3 dB): 65 Hz-20 KHz. Output impedance: 8 ohms. Controls: waveband, input selection, tuning, volume, balance, bass, treble, on/off. Finish: simulated teak. Dimensions: tuner, $13 \times 2\frac{7}{8} \times 8\frac{1}{2}$ in; amplifier-control unit, $13\frac{1}{8} \times 2\frac{7}{8} \times 8\frac{1}{2}$ in; record deck, $13 \times 5 \times 9\frac{1}{2}$ in; speakers, with 5in dual-cone unit, $7\frac{1}{4} \times 10\frac{3}{4} \times 7\frac{3}{8}$ in. Price: £94 19s 3d (plus £17 0s 9d PT).

System

Comprising GA105 record deck, RH781 tuner-amplifier, RH481 speakers. Solid-state stereo. Ranges: 87.5-108 MHz, 30.6-50.4 m, 185-214 m, 213-580 m, 800-2,000 m. Variable tuning plus 3 VHF presets. AFC. Decoder fitted. Philips GC005 single player with GP200 ceramic pickup. Output: 5½ W per channel. HD $< 2\%$ at 1 KHz at $2 \times 4\frac{1}{2}$ W. FR: 35 Hz-20 KHz. Output impedance: 8 ohms. Controls: waveband buttons, gram, volume, balance, bass, treble, on/off. Finish: teak veneer. Dimensions: tuner-amplifier $20\frac{1}{4} \times 4\frac{3}{8} \times 8\frac{7}{8}$ in; record deck, $13 \times 5 \times 9\frac{1}{2}$ in; speakers, with 5in dual-cone unit, $7\frac{1}{4} \times 10\frac{3}{4} \times 7\frac{3}{8}$ in. Price: £93 16s (plus £23 3s 6d PT).

System

Comprising RH892 tuner-amplifier-player and RH482 speakers. Solid-state stereo. Ranges: 87.5-108 MHz, 187-571 m, 1,154-2,000 m. Variable tuning. Decoder fitted. AFC. Philips GC017 single player with GP200 ceramic pickup. Power: 8W per channel. HD: 2% at 2×6 W. FR (± 3 dB): 60 Hz-20 KHz. Output impedance: 8 ohms. Controls: waveband, tuning, input selection, mono/stereo, volume, balance, bass, treble, scratch filter, rumble filter, on/off. Finish: teak. Dimensions: $21\frac{3}{4} \times 4 \times 11$ in; speakers, with 7in dual-cone unit, $9\frac{7}{8} \times 13\frac{1}{4} \times 7\frac{3}{8}$ in. Price: £125 1s 10d (plus £30 18s 2d PT).

System

Comprising GA217 record deck, RH691 tuner, RH590 amplifier, RH491 speakers. Solid-state stereo. Ranges: 87.5-108 MHz, 16.2-50.8 m, 187-571 m, 750-2,000 m. Variable tuning. Decoder fitted. AFC, switchable. Philips GC017 single player with GP200 ceramic pickup. Output: 10W per channel. HD: 1% at 2×10 W. FR ($\pm 1\frac{1}{2}$ dB): 20 Hz-20 KHz. Output impedance: 8 ohms. Controls: waveband, tuning, silent tuning, input selector, AFC, external AM aerial, mono/stereo, volume, balance, bass, treble, scratch filter, rumble filter, on/off. Finish: teak. Dimensions: tuner, $14\frac{3}{8} \times 4 \times 10\frac{3}{8}$ in; amplifier-control unit, $14\frac{3}{8} \times 4 \times 10$ in; record deck, $11\frac{1}{8} \times 9\frac{1}{4} \times 5$ in; speakers, containing 7in and 1in

★ Indicates entry is illustrated

units, $9\frac{1}{8} \times 11\frac{7}{8} \times 7\frac{1}{4}$ in. Price: £176 10s 7d (plus £31 10s 2d PT).

System

Comprising GA202 record deck, RH790 tuner-amplifier, RH496 speakers. Solid-state stereo. Ranges: 87.5-104 MHz, 16.7-50.4 m, 187-571 m, 1,154-2,000 m. Variable tuning with 3 VHF presets. Decoder fitted. AFC, switchable. GC002 player with GP411 magneto dynamic pickup. Output: 20W per channel. HD: 0-15% for 2×15 W. FR ($\pm \frac{1}{2}$ dB): 20 Hz-20 KHz and (± 3 dB) 10 Hz-50 KHz. Output impedances: 8-16 or 4 ohms. Controls: waveband, tuning, AFC, input selection, mono/stereo, volume, loudness, balance, bass, treble, scratch filter, on/off. Finish: teak. Dimensions: tuner-amplifier, $20\frac{3}{4} \times 4\frac{3}{8} \times 10\frac{3}{8}$ in; record deck, $15\frac{1}{2} \times 13\frac{1}{4} \times 5\frac{1}{8}$ in; speakers, containing 8 in, 5 in and 1 in units, $13\frac{1}{2} \times 18\frac{3}{8} \times 8\frac{7}{8}$ in. Price: £219 11s 2d (plus £37 8s 10d PT).

System

Comprising GA202 record deck, RH691 tuner, RH591 amplifier, RH497 speakers. Ranges: 87.5-108 MHz, 16.2-50.8 m, 187-571 m, 750-2,000 m. Variable tuning. Decoder fitted. AFC, switchable. GC002 transcription player with GP411 magneto dynamic pickup. Output: 20W per channel. HD: 0-5% for 2×20 W. FR ($\pm \frac{1}{2}$ dB): 20 Hz-20 KHz and (± 3 dB) 10 Hz-50 KHz. Output impedance: 8-16 ohms or 4 ohms. Finish: teak. Dimensions: tuner, $14\frac{1}{8} \times 3\frac{3}{8} \times 10\frac{3}{8}$ in; amplifier-control unit, $16\frac{1}{2} \times 3\frac{7}{8} \times 10\frac{3}{8}$ in; record deck, $15\frac{1}{2} \times 13\frac{1}{4} \times 5\frac{1}{8}$ in; speakers, containing 10 in, 5 in and 1 in units, $16\frac{1}{4} \times 21\frac{1}{4} \times 8\frac{3}{8}$ in. Price: £274 17s 7d (plus £29 2s 6d PT).

PYE

Pye Group (Radio & Television) Ltd., P.O. Box 49, St Andrews Road, Cambridge, CB4 1DS. Tel: Cambridge 58985.

Ekco Trident

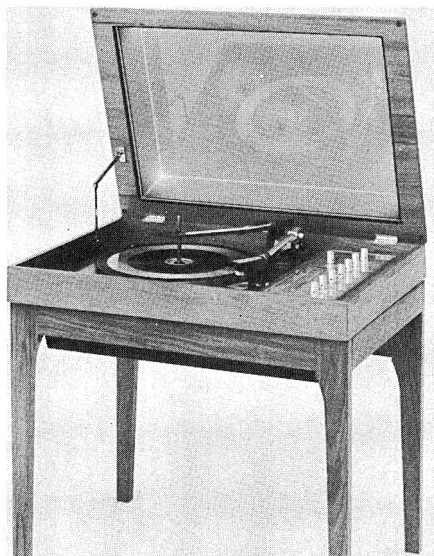
Transistorised. Range: 87.5-100 MHz. Switched tuning with AFC. Multiplex decoder optional extra. Controls: on/off, radio, gram, tape, bass, volume/stereo balance, bass boost, tuning. Output: 3W RMS per channel. FR: 50 Hz-20 KHz ± 3 dB. Output impedance: 4-8 ohms. Distortion: 5%. Motor unit: Philips GC032. Cartridge: GP200. Overall dimensions: $6\frac{3}{4} \times 15 \times 11$ in. Speakers: two matching enclosures with 6×4 in drive units. Finish: teak veneers. Price: £60 14s 3d (plus £14 5s 9d PT). Stand: (optional extra) £4 8s 3d (plus 7s 9d PT).

RADON

Radon Industrial Electronics Co. Ltd., Brooklands Trading Estate, Orme Road, Worthing, Sussex. Tel: Worthing 34904.



Radon AP200 Arundel



Radon AP200/C

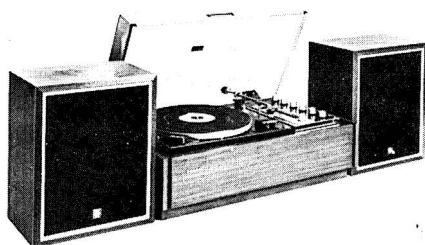


Sanyo DC91E

Arundel AP200 ★

Transistorised stereo tuner/amplifier and gram unit in compact table style cabinet. Range: 87-106 MHz. Variable tuning. AFC. Stereo decoder fitted. Controls: input selector, AFC on-off, volume, balance, bass, treble, scratch filter, rumble filter, tuning, mains on-off. Output: 10W RMS per channel. FR: 35 Hz-18 KHz. Output impedance: 8-15 ohms. HD: 0.1% at rated output. Motor unit: Garrard SP25 Mk II or Garrard SL65B. Pickup cartridge: Goldring G800H. Size: $8\frac{1}{2} \times 22 \times 16$ in. Finish: teak with transparent cover, teak surround. Speakers: Radon Pearl SC/6. Price: (Complete system with two speakers) £183 11s 4d (plus £20 6s 4d PT).

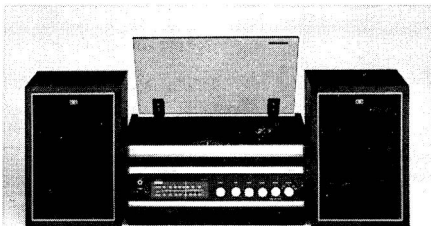
Complete systems also available with Radon Emerald, Opal, or Topaz speakers. Prices from approximately £160 to £248 for complete system.



Sanyo DC534



Sanyo DC434E



Sharp GS5600

SANYO

Sanyo Marubeni (U.K.) Ltd., Sanyo House, Bushey Mill Lane, Watford, Herts. Tel: Watford 25354/6.

DC91 ★

Tuner/amplifier with record player and two matched speakers. 20 transistors plus three FETs. Range: FM 88-108 MHz, MW 187-560 m. Variable tuning. AFC. Multiplex decoder fitted. Controls: mains on-off, speaker switching, bass, treble, volume, tuning, balance, input selector. Output: 6W RMS per channel. FR: 40 Hz-30 KHz. Output impedance: 8-16 ohms. Distortion: <0.6% at rated output. Sanyo induction gram motor. MGT III ceramic cartridge. Wood grain finish to cabinets. Size: (tuner/amplifier/gram) $7 \times 18 \times 20$ in; (speakers) $10 \times 8 \times 17\frac{1}{4}$ in. Price: (complete system) £103 4s 10d (plus £25 10s 2d PT).

DC534 ★

Tuner/amplifier/record player with two matched SX-6 speakers. Range: FM 87-108 MHz, MW 187-560 m, SW 25-80 m. 27 transistors. Variable tuning. AFC. Multiplex decoder fitted. Controls: mains on-off, volume, bass, treble, balance, rumble filter, noise filter, input selector. Output: 12W RMS per channel. FR: 20 Hz-20 KHz ± 3 dB. Output impedance: 8 ohms. Sanyo four-pole synchronous gram motor. MG2 moving magnet cartridge. Wood grain finish. Size: (tuner/amplifier/record unit) $10 \times 25\frac{3}{8} \times 15\frac{3}{8}$ in; (speakers type SX-6) $17\frac{3}{8} \times 11\frac{1}{4} \times 28\frac{3}{4}$ in. Price: (complete system) £208 7s 4d (plus £26 17s 8d PT).

SHARP

Sharp Electronics (U.K.) Ltd., 48 Derby Street, Manchester, M8 8HN. Tel: 061 832 6115.

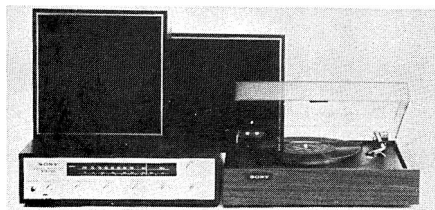
GS5400

Tuner/amplifier, record deck and separate matching speakers. Transistors. Range: 88-108 MHz, 186-566 m. Variable tuning. AFC. Stereo decoder fitted. Controls: on-off tone, left hand volume, right hand volume, tuning, function selector. Output: 6W RMS per channel. FR: 30 Hz-17 KHz. Output impedance: 8 ohms. Sharp motor (double insulation). Sharp ceramic pickup cartridge. Speakers: $6\frac{1}{2}$ in full range. Finish: walnut. Size: (tuner/amplifier record unit) $8\frac{1}{4} \times 18\frac{1}{4} \times 13$ in; (speaker enclosures) $8\frac{1}{4} \times 6\frac{3}{4} \times 11\frac{1}{2}$ in. Price: £72 17s 2d (plus £17 2s 10d PT).

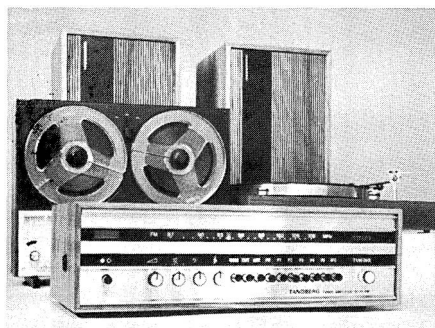
GS5500

Tuner/amplifier, record deck and separate matching speakers. Transistors. Range: 88-108 MHz, 186-566 m. Variable tuning. AFC. Stereo decoded fitted. Controls: on-off, bass, treble, balance, volume, AFC on-off, tuning.

★ Indicates entry is illustrated



Sony HPI22



Tandberg Hi-Fi FM

function selector. Output: 12W RMS per channel. FR: 30 Hz-17 KHz. Output impedance: 8 ohms. Sharp motor. Sharp high-compliance ceramic cartridge. Speakers: 6½ in bass driver, 3½ in horn tweeter. Finish: walnut. Size: (tuner/amplifier record deck) 8¾ × 18½ × 16 in; (speaker enclosures) 10 × 8¾ × 15½ in. Price: £111 14s 4d (plus £26 5s 8d PT).

GS600 ★

Tuner/amplifier, record deck and matching speakers. Range: 88-108 MHz, 186-566 m. Variable tuning. AFC. Stereo decoder fitted. Controls: mains on-off, tuning, bass, treble, volume, balance, AFC on-off, function selector. Output: 21W RMS per channel. FR: 30 Hz-20 KHz. Output impedance: 8 ohms. Sharp motor unit. Sharp magnetic cartridge. Speakers: 8 in bass driver, 4 in diecast horn tweeters. Finish: walnut. Size: (tuner/amplifier record unit) 9½ × 22 × 16¾ in; (speaker enclosures) 11½ × 17 × 9½ in. Price: £160 5s 9d (plus £37 14s 3d PT).

SONY (U.K.) LTD

Pyrene House, Sunbury Cross, Sunbury on Thames, Tel: Sunbury on Thames 87644/7.

HP-122 ★

Comprises stereo tuner-amplifier, record deck

and two speakers. Ranges: 87-108 MHz, 187-566 m. Variable tuning. Decoder fitted. Switchable AFC. Output: 3W per channel at 8 ohms. FR: 45 Hz-15 KHz. HD: less than 5%. Motor: Sony PS-122. Cartridge: Sony VX-13P crystal. Each speaker contains 6½ in woofer and 2 in tweeter. Dimensions: tuner-amplifier 16¼ × 12¼ × 4¾ in; record deck 16¼ × 12 × 5¾ in. Finish: walnut. Price: £79 4s (plus £19 11s PT).

TANDBERG

Farnell-Tandberg Ltd., 81 Kirkstall Road, Leeds. Tel: Leeds 35111.

System ★

Comprising hi-fi FM tuner-amplifier with Farnell-Tandberg turntable unit plus 3000X recorder and Tan 15 speakers. Range: 87.5-108 MHz. Variable and preset tuning. Decoder fitted. AFC. Output: 15W per channel into 4 ohms. FR (±2 dB): 40 Hz-18 KHz. HD: 1%. Record unit uses Thorens TD150 Mark 2 turntable and Shure M3D cartridge. Finish: teak or rosewood. Dimensions: 17 × 8½ × 5½ in. Price: on application.

System

Comprising Huldra 9 tuner-amplifier with Farnell-Tandberg turntable plus 6000X recorder and Tan 17 speakers. Ranges: 87.5-108 MHz, 10.9-27.3 m, 27.3-66.5 m, 66.5-167 m, 187-580 m, 1,000-2,000 m. Variable and preset tuning. Decoder fitted. AFC. Output: 15W per channel into 4 ohms. FR (±2 dB): 30 Hz-20 KHz. HD: 1%. Shure M4D cartridge. Finish: teak or rosewood. Dimensions: 21¼ × 10¾ × 5½ in. Price: on application.

TELETON

Teleton Electro (Distributors) Co. Ltd., Teleton House, Robjohns Road, Widford, Chelmsford, Essex. Tel: Chelmsford 62442. Telex: 99338.

CMS.300

AM/FM stereo compact system, solid-state. Ranges: 88-108 MHz, 525-1,605 KHz. Sensitivity: 15 µV/m (signal/noise 30 dB) on FM, 200 µV/m (S/N 20 dB). Beacon stereo indicator. Separation: 30 dB (1 KHz). Output: 4.5W RMS per channel. Output impedance: 8 ohms. BSR four-speed autochanger with ceramic PU-1605 cartridge. Mains: 230V 50 Hz. Dimensions: 19¼ × 17¾ × 8 in; speakers (each with 6½ in unit) 8¾ × 12½ × 5¾ in. Price: £93 9s (including PT).



Van Der Molen Sonic 88

TOSHIBA

Distributors: Hanimex (U.K.) Ltd.,
Hanimex House, 15-24 Great Dover Street,
London, SE1. Tel: 01-407 8161.

FS2500

AM/FM stereo radio/tuner/amplifier and record player in three-piece system. Range: FM 88-108 MHz. AM 187-565 m. Output: 7.5W per channel. Motor unit: 33½, 45 rpm. 11½in aluminium turntable. Toshiba ceramic cartridge. Speakers: (2) 6½in full range units in separate acoustic enclosures. Mains: 230-250V AC. Size: (tuner/amplifier/gram unit) 6¾ × 16 × 13½in: (speakers) 7¾ × 11¾ × 6⅝in. Weight: 21 lb. Price: £89 5s (including PT).

FS2600

AM/FM stereo tuner/amplifier and record player in three-piece system. Range: FM 88-108 MHz. AM 187-565 m. Output: 10W per channel. Motor unit: 33½, 45 rpm. Toshiba ceramic cartridge. Speakers: (2) 6½in bass driver, 3in tweeter in acoustic enclosures. Mains: 230-250V AC. Size: (tuner/amplifier/gram unit) 7 × 17 × 14in: (speakers) 10 × 8 × 16

in. Weight: 31 lb. Price: £119 19s 6d (including PT).

SM500Y

AM/FM stereo tuner/amplifier and record player in three-piece system. Range: FM 88-108 MHz. AM 187-565 m. SW1 50-150 m. SW2 16.5-50 m. Stereo decoder fitted. Output: 12W per channel. Speakers: (2) 8in bass driver, 3½in horn tweeter. Motor unit: 33½, 45 rpm. Moving magnet cartridge. Controls: bass, treble, balance, tuning, volume, mains on-off, AFC on-off, low-pass filter, high-pass filter, loudness. Size: (tuner/amplifier/gram unit) 10 × 21¾ × 16¾in: (speakers) 11 × 17½ × 7¾in. Price: £179 10s.

SP850PY

AM/FM stereo tuner/amplifier and gram unit in three-piece system. Range: FM 88-108 MHz. AM 187-565 m. SW1 50-150 m. SW2 16.5-50 m. Stereo decoder fitted. Output: 17.5W per channel. Transcription motor unit. Slim tubular arm with Toshiba IC cartridge. Speeds: 33½, 45 rpm. Belt driven turntable. Flywheel tuning. Finish: satin American walnut with black and

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silver control panel. Three-way speakers. Full details and specification on request. Price: £248 (including PT).

VAN DER MOLEN LTD

1 Mildmay Road, Romford, Essex, RM7 7DA.
Tell: Romford 41904.

Sonic 77

Tuner/amplifier with record deck combined. Stereo. 17 transistors. Range: 88-108 MHz. 185-570 m. Variable tuning. AFC. Controls: volume, on-off, bass, treble, balance, tuning, speaker on-off; push-buttons for gram, MW, VHF, AFC on-off, external input. Output: 5W per channel. FR: 40 Hz-18 KHz. Output impedance: 12 ohms. H and N: -55 dB. Crosstalk: -45 dB. Bass control: ± 12 dB at 50 Hz. Treble control: ± 12 dB at 10 KHz. Sockets for external FM dipole and AM aerial. Headphone socket (4-15 ohms). Motor unit: Garrard 2025TC. Cartridge: Sonotone 9TAHC. Mains: 230-250V 50 Hz. Speakers: wide-range unit in vented enclosure size $10\frac{3}{4} \times 7\frac{3}{8} \times 6\frac{1}{2}$ in. Size: (amplifier player unit) $9\frac{1}{2} \times 18 \times 16\frac{3}{4}$ in. Price: £81 13s 6d (including PT).

Sonic 88 ★

Tuner/amplifier with record deck combined. Stereo. 17 transistors. Range: 88-108 MHz. 185-570 m. Variable tuning. AFC. Controls: volume, on-off, bass, treble, balance, tuning, speaker, on-off; pushbuttons for gram, MW, VHF, AFC on-off, external input. Output: 11W per channel. FR: 40 Hz-18 KHz. Output impedance: 4 ohms. H and N: -65 dB. Crosstalk: -45 dB. Bass control: ± 12 dB at 50 Hz. Treble control: ± 12 dB at 10 KHz. Sockets for FM dipole and AM aerial. Headphone socket: 4-15 ohms. Turntable unit: Garrard SP25 Mk II. Cartridge: Sonotone 9TAHC. Diamond LP stylus. Mains: 230-250V 50 Hz. Speakers: $6\frac{1}{2}$ in bass driver and 3 in sealed back tweeter. L/C crossover. Size: (speakers) $10 \times 16 \times 7\frac{3}{8}$ in; (unit) $9\frac{1}{2} \times 18 \times 16\frac{3}{4}$ in. Price: £102 (including PT).

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HMV



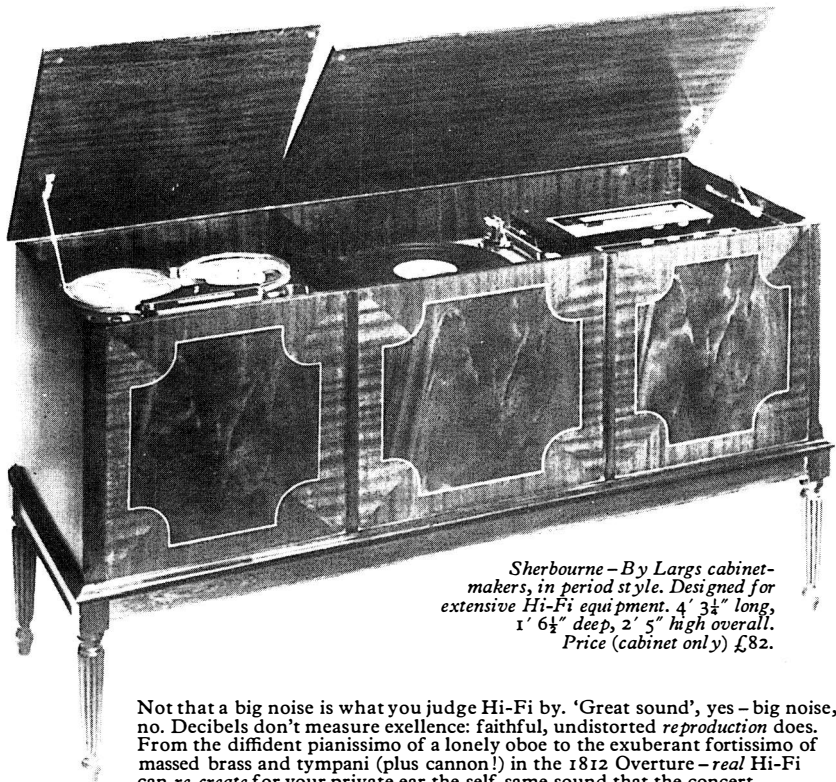
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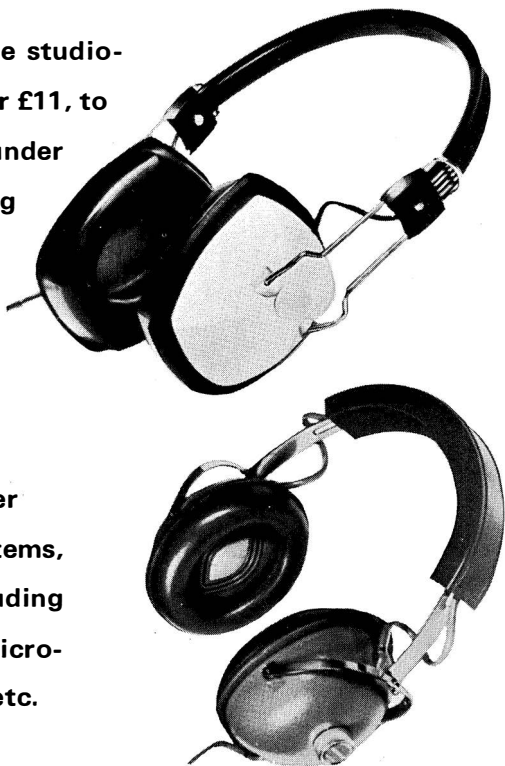
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eagle stereo headphones



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Telephone: 01-636 9606/7

Hi Fi Headphones

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A.K.G.

Distributors: A.K.G. Equipment Ltd.,
182/184 Campden Hill Road, Kensington,
London, W8. Tel: 01-229 3695.

K60 ★

Dynamic stereo headphones. FR: 16 Hz-20 KHz. Impedance: 75 ohms \pm 20% per channel over entire range, or 600 ohms \pm 20%. Distortion: < 1% max output. Weight: 7 oz. Ear cushions removable for washing. Price: £13 10s.

AMPLIVOX

Amplivox Communications Ltd., Beresford Avenue, Wembley, HA0 1RU, Middlesex. Tel: 01-902 8991.

Astrolite

High quality moving coil headphones. FR: 50 Hz-15 KHz. Impedance 200 ohms. Wired for mono or stereo. Price on application.

Astrolite LS33 ★

Lightweight moving coil headphones. FR: 20 Hz-20 KHz. Sensitivity: 0.5 mW produces comfortable listening level. Power input: 700 mW for 2% total distortion (3W momentary overload). Impedance: 200 ohms per earphone, may be connected in series, parallel or wired independently for stereo. Contoured earshells with detachable foam cushions. Fully adjustable headband. A special version with boom microphone available (LS336). Prices on application.

CLARK

Sonab Ltd., 136 Mansfield Road, Acton, London. W3. Tel: 01-993 0849.

Clark 100

Stereo headphones. FR: 10 Hz-20 KHz. Distortion: < 0.2% at 100 phn. Maximum power input: 1W per earpiece. Sensitivity: 1mW produces 100 phn at 1 KHz. Weight: 16 oz. Washable earseal covers. 10ft extended coil cord with moulded plug. Impedance: 8 ohms (also available in 300, 600 and 1200 ohms). Price: £18 13s.

Clark 200

Stereo headphones. FR: 20 Hz-17 KHz. Sen-

sitivity: 1 mW produces 105 phn at 1 KHz. Maximum power input 1W per earpiece. Impedance: 8 ohms. Weight: 16 oz. 10ft extended coil cord with moulded plug. Price: £12 13s.

Clark 300

Stereo headphones. FR: 20 Hz-17 KHz. Impedance: 8 ohms. Weight: 15 oz. 10ft extended coil cord with moulded plug. Price: £9 4s.

DUETTE

Distributors: J. J. Silber Ltd., 11 Northburgh Street, London, EC1. Tel: 01-253 8031.

ES350 ★

Stereo headphones. Impedance: 8-16 ohms. FR: 25 Hz-13 KHz. Max input: 0.5W. Price to be announced.

ES300 ★

Stereo headphones. Impedance: 8-16 ohms. FR: 25 Hz-13 KHz. Max input: 0.5W. Price to be announced.

DYNATRON RADIO LTD

St Peters Road, Furze Platt, Maidenhead, Berks. Tel: Maidenhead 23331.

SP.2

Stereo moving-coil headphones. Light weight. Padded earpieces. Impedance 8 ohms. Price: £7 10s.

EAGLE PRODUCTS

Distributors: B. Adler & Sons (Radio) Ltd., Coptic Street, London, WC1. Tel: 01-636 9606/7. Cables: Reldab, London.

S.E.1 ★

Professional Stereo Headphones. FR: 25 Hz-14 KHz. 3in dynamic speakers. Isolated right and left channels. 'Flexifoam' seals. Dual Impedance 15 ohms. Price: £4 19s 9d.

S.E.21

Professional two-way stereo headphones. FR: 25 Hz-18 KHz. Each headphone contains 2½in LF unit and ¾in treble unit. Level controls and built-in attenuator to protect ears. Impedance 16 ohms. Stereo cable and plug. Adjustable headband. Foam rubber earpads. Price: £9 18s 5d.

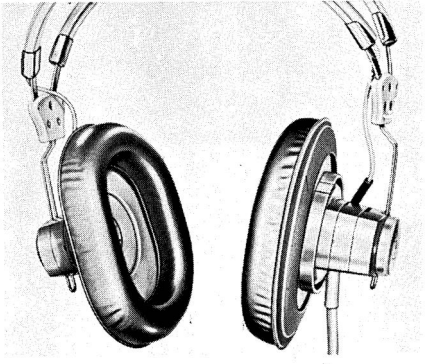
HMA.209 ★

Moving coil headphones with lightweight microphone on boom. Headphones: 16 ohms; FR: 20Hz-14KHz; max input 200mW. Microphone: moving coil; 200 ohms; FR: 200 Hz-8 KHz. Sensitivity: -75 dB. Separate cords with jack plugs for phones and mic. Price: £9 18s 5d.

S.E.5

Budget stereo headphones. FR: 30 Hz-15 KHz.

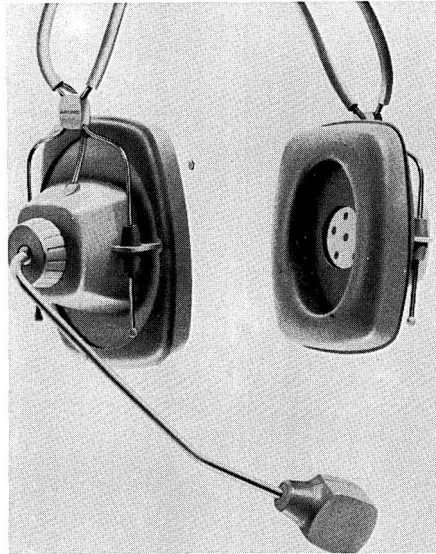
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A.K.G. K60



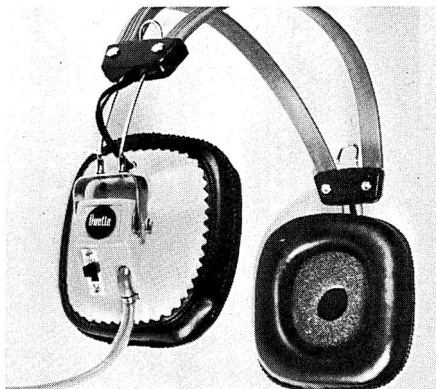
Duette ES300



Amplivox Astrolite LS33



Eagle SE1 stereo headphones



Duette ES350



Eagle HMA209

Lightweight single headband. Impedance: 8 ohms. Price: £2 19s 6d.

S.E.28

Studio stereo headphones. FR: 20 Hz-20 KHz. Dome chambers. Separate LF and tweeter units. Impedance: 8 ohms. Adjustable attenuators. Price: £11 0s 6d.

S.E.30

Studio stereo/mono headphones. FR: 30 Hz-16 KHz. Built-in stereo/mono switch. Impedance: 8 ohms. Leather ear cushions. Price: £7 7s.

JB33 ★

Stereo headphone and speaker switching and attenuation unit. Jack socket for phones. Switch permits phones only, speakers only, or both together. Moulded case with provision for screwing down. Price: £1 11s.

ECHO

Sole distributors: Adastra Electronics Ltd., 167 Finchley Road, Swiss Cottage, London, NW3. Tel: 01-624 8164/5.

HS.606D

Dual impedance mono headphones. Specially designed for monitoring, electronic musical instruments, language laboratories, etc. Instant switching from 8-16 ohms to 4K. Adjustable earpieces. Soft padded ear cushions. FR: 25 Hz-17 KHz. Power handling capacity: 0.5W. Supplied with 5ft lead fitted with jack plug. Price: £5 5s.

FOSTER

Distributors: E.R. Factors Ltd., 378 Harrow Road, Paddington, London, W9. Tel: 01-286 9530.

RDF-204

Stereo stethoscope headphones. Impedance: 8 ohms. Grey/white cushioned plastic ear pieces. Price: £2 5s.

GEOFFREY GOODWIN HI-FI LTD

137 Hale Lane, Edgware, Middlesex. Tel: 01-959 2988.

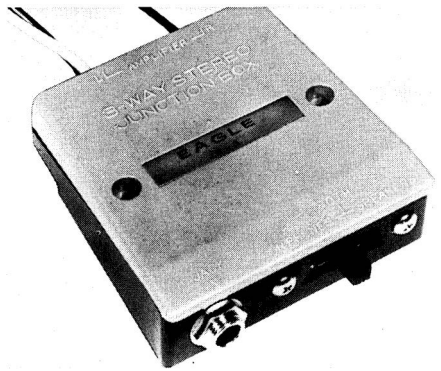
GG Audio Switch

For use in installations where two sets of speakers are employed or where a stereo headphone socket is not available. Both pairs of speakers may be operated simultaneously or either pair selected for independent use.

When unit switched to headphones both pairs of speakers are disconnected. Dimensions: $5\frac{3}{4} \times 3\frac{1}{4} \times 3\frac{1}{4}$ in. Weight: 1 lb. Finish: teak. Connections by screw terminations. Price: £4 17s 6d.

GG Headphone Control

For use when two persons wish to use stereo headphones simultaneously from the same



Eagle JB-33

source. Four controls adjust volume independently for each earpiece. Wirewound volume controls are non-interacting. Dimensions: $5\frac{3}{4} \times 3 \times 3\frac{3}{4}$ in. Finish: teak. Price: £5 10s.

GG Multi-Control

Provides facilities for two pairs of stereo speakers, or one pair of stereo speakers in room A and one speaker each in room B and C. Both pairs of speakers may be used together or independently. Separate volume controls for each speaker. Two stereo headphone sockets fitted, selector switch cutting out speakers when in phone position. All four ear-pieces have independent volume control. Dimensions: $12 \times 3\frac{1}{2} \times 4$ in. Finish: teak. Price: £12 10s.

GRUNDIG (Great Britain) LTD

Newlands Park, London, SE26. Tel: 01-778 2211.

211

High quality stereo headphones. Fitted with J21 plugs for connection to Grundig tape recorders. FR: 30 Hz-20 KHz. Distortion factor 1% at 1 mW, 3% at 90 mW. Impedance 400 ohms per system. Supplied with $5\frac{1}{2}$ ft cable. Price: £7 10s.

220

High quality stereo headphones. Fitted with $5\frac{1}{2}$ ft of cable and J21 plugs. FR: 16 Hz-20 KHz. Distortion factor less than 0.3% at intensities of 120 phn. Fluid-filled ear covers. Padded headband. Impedance 400 ohms per system. Price: £22 13s.

ITT-STC

Standard Telephones & Cables Ltd., Electro-Mechanical Product Division, West Road, Harlow, Essex. Tel: Harlow 26811.

★ Indicates entry is illustrated



I.T.T. Components 65/1B



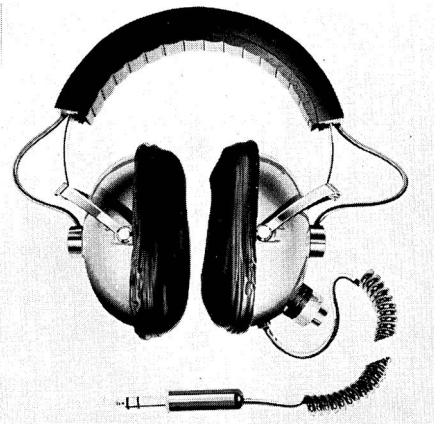
Koss SP3X-C



Kirkman Clean



Koss 727B



Koss Pro-4A



Koss ESP-6

65/11 ★

Broadcast quality headset. FR: 30 Hz-15 KHz. Impedance: 300 ohms. Foam rubber earpads. Supplied complete with 54in tinsel cable. Price: £7 7s.

KIRKMAN (Crawley) LTD

40 The Broadway, Crawley, Sussex.
Tel: 0293 26670.

Cleen Stereo Headphone Unit

Supplied in chassis form for mounting on panel or shelf (teak case will be available later). Signal from each channel is delayed and fed to opposite channel to simulate natural stereo. Three-position switch; loud-speakers, headphones, attenuated headphones. Jack socket for two pairs of phones. Impedance to amplifier 8 ohms resistive. Suitable for headphones 8-600 ohms. Size: $3\frac{1}{8} \times 1\frac{3}{4} \times 8$ in. Price: to be announced.

Cleen Stereo Headphones ★

Monitoring quality with good transient response. Recommended for use with Cleen stereo headphone unit. Impedance: 40 ohms. Sensitivity: 104 dB for 1 mW at 1 KHz. Weight: 16 oz. Supplied with 10ft lead and jack plug ($\frac{1}{4}$ in stereo). Sound exclusion approximately 40 dB. Price: £10 10s.

KOSS

Distributors: Tape Music Distributors Ltd.,
11 Redvers Road, London, N22.
Tel: 01-888 0152.

SP3X ★

Stereo headphones. Response 10 Hz-15 KHz. Impedance: 4-16 ohms. Moving coil. Sponge foam earpads. Distortion less than 1% at maximum audio output. 8ft 4-way lead. Weight: 15 oz. Colour: dark brown with beige ear and head cushions. Price: £9 10s.

PRO-4A ★

Professional quality stereo headphones. Response 30 Hz-20 KHz. Impedance 4-50 ohms. Moving coil. Fluid-filled ear cushions. Boom mic attachment. Distortion less than 1% at maximum audio output. 8ft 4-way lead. Weight: 19 oz. Ear cushions removable for washing. Colour: grey-bronze with black ear cushions and headband. Price: £23.

KO-727B ★

Sensitive stereo headphones. Will accept up to 60W (music) per channel. Suitable for 4, 8 or 16 ohms output. Removable foam-filled ear cushions. Eight-foot coiled cord for added convenience. Distortion <1% at maximum output. Fully adjustable earpieces. Price: £16 10s.



Koss ESP-9

EC-20

Extension cord fitted with stereo jackplug and socket. Adds 20ft to the length of normal stereophonic lead. Price: £2 17s 6d.

ESP-6 ★

Professional electrostatic headphones. Claimed to be a new concept, incorporating self-energised diaphragms and eliminating the moving cone driver element. Impedance: 4-16 ohms. FR: 27 Hz-19 KHz ± 5 dB; 35 Hz-10 KHz $\pm 2\frac{1}{2}$ dB. Complete with fitted portable carrying case and individually measured response curve. Price: £45.

ESP-9 ★

Electrostatic headphones. FR: 15 Hz-15 KHz ± 2 dB (a total of 10 octaves, approximately 4 octaves more than standard phones). Individual machine-run calibration curve supplied with each set of phones. Designed to work from 4-16 ohm amplifier outputs. No external power supply needed, except when used for precise low-level signal measurement. For this purpose an AC line can be selected by a front panel switch on the E-9 energiser unit supplied with the phones. Fluid filled ear cushions for high ambient noise isolation. Weight: 19 oz. Price: £69.

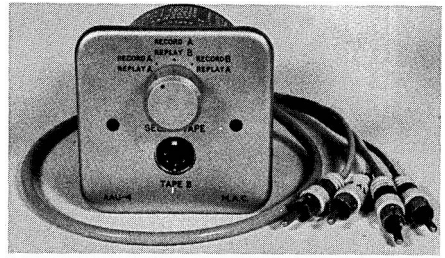
K-6 ★

Stereophones. Impedance: 4 ohms. FR: 10 Hz-15 KHz. Sensitivity: 1V at 400 Hz. Maximum

★ Indicates entry is illustrated



Koss K-6



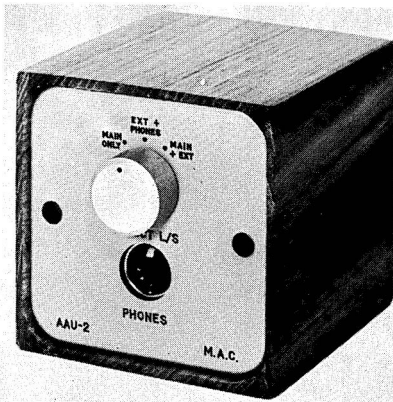
M.A.C. Adaptor Units



Koss T10 Chairside Station



Nikko HW3S



M.A.C. AAU-Hi-Fi unit



Nikko HW4ST

input: 10W per channel. Distortion: less than 1%. Foam filled vinyl ear cushions. Weight: 15 oz. Price: £12 10s.

T-1

Matching unit comprising neat moulded case containing matching transformers for monitoring 600-10,000 ohm outputs. Jacks for two sets of Koss stereophones. Price: £4 10s.

T-5

Remote control listening station. The T-5 box can be placed in the most convenient spot and separate gain controls for each channel enable balance and volume to be set precisely at the listening position. Switch to cut off speakers and jacks for stereophones. Size: $5\frac{3}{8} \times 3\frac{1}{8} \times 2\frac{5}{8}$ in. Weight: 14 oz. Price: £4 10s.

T-10 ★

Chairside listening station. Connecting box for plugging in Koss stereophones. Includes speaker on-off switch. Wires directly to amplifier output. Provision for two sets of phones. Separate independent volume control for each pair of phones. Impedance: 4-16 ohms. Finish: walnut. Price: £13 10s.

LAFAYETTE

Barnet Factors Ltd., 147 Church Street, London, W2. Tel: 01-723 5328.

Lafayette F-767

Stereo headphones. FR: 30 Hz-15 KHz. Sensitivity: 1-2 mW. Impedance: 8 ohms. Air cushioned headband. Soft foam rubber ear cushions. Two $2\frac{1}{2}$ in transducers. Price: £4 17s 6d.

M.A.C. LTD

Ripley, Surrey.

AAU-TV

Provides a ready means of connecting various items of Hi-Fi equipment to a Television Receiver with complete safety. Built-in Isolating Transformer, tapped 3-8-15 ohms, for matching external speaker. Switchable output attenuator for matching input of amplifier or tape recorder. Switching circuit enables the TV speaker to be switched on or off as required. Unit housed in a solid teak case. Phone jack fitted to suit low impedance headphones. Price: £8.

AAU-2 ★

Audio adaptor unit with three-way switch and socket for headphones. Screw connections for a stereo pair of main speakers and a stereo pair of extension speakers. Switch positions give: main speakers only, extension speakers and phones, main and extension speakers. Colour-coded four-way connecting cable. Finish: panel and knob jaguar silver, teak case. Prices: (chassis version) £4 7s; (cabinet version) £5 12s.



Nikko HW45V

AAU-HP

Audio adaptor unit for connecting up to four stereo headphones to a stereo amplifier. Individual gain controls with balancing resistive networks incorporated. Fitted with 3ft connecting cable with 3-pole jack plug. Solid teak case. Size $3\frac{1}{2} \times 3\frac{1}{4} \times 3\frac{1}{2}$ in. Finish: jaguar silver. Price: £8.

NIKKO

Nikko Electric Mfg. Co. Ltd., Distributors: Howland-West Ltd., 2 Park End, South Hill Park, London, NW3. Tel: 01-794 6666 and 6033.

HW3S ★

Stereo headphones. Single speaker. Impedance: 8 ohms. FR: 20 Hz-18 KHz. Max input: 0.3W. Price: £4 15s.

HW4ST ★

Stereo headphones. Twin speaker, $1\frac{1}{2}$ in tweeter and $3\frac{3}{8}$ in woofer coaxially mounted. Fitted with individual tweeter controls on each earpiece. Impedance: 8 ohms. FR: 20 Hz-20 KHz. Max input: 0.25W. Price: £8 15s.

HW45V ★

Stereo headphones. Single speaker fitted with individual volume control on each earpiece. Impedance: 8 ohms. FR: 20 Hz-19 KHz. Max input: 0.3W. Price: £7 19s.

HW8S

Stereo headphone with bass and tweeter units in each earpiece. FR: 20 Hz-20 KHz. Impedance: 8 ohms. Sensitivity: 110 dB at 1 KHz with 1 mV

★ Indicates entry is illustrated

applied signal. Coiled lead fitted with stereo plug. Price: £12 10s.

PHILIPS ELECTRICAL LTD

Century House, Shaftesbury Avenue, London, WC2.

Tel: 01-437 7777. Cables: Phillamps, London.

EL3775/85

Mono headphones. FR: 300-3,000 Hz. Sensitivity: 30 mV at 1 KHz. Impedance: 1,000 ohms. Price: £3 12s 6d.

EL3775/38

Stereo version of EL3775/85. Price: £5 15s.

LBB9900

Stereo hi-fi headphones. Impedance: 600 ohms. Padded earpieces. Price: £8 10s.

PIONEER

Distributors: Shriro (U.K.) Ltd., Electronics Division, Lynwood House, 24-32 Kilburn High Road, London, NW6. Tel: 01-624 9102.

SE-30 ★

Moving coil stereo headphones. Matching impedance 4-16 ohms. FR: 20 Hz-20 KHz. HC 0.5W per earpiece. Acoustically designed casing to improve bass response. Soft circum-aural earpads. Easily cleaned. Adjustable headband. Wired for stereo with 8ft cable. Weight: 13½ oz. Price: £12 12s.

SE-2P ★

Moving coil stereo headphones. Matching impedance: 4-16 ohms. FR: 24 Hz-16 KHz. HC 0.5W per channel. Adjustable earpieces of soft padding. Removable soft headband (zip) for cleaning. 6ft 4in cord with jack plug. Price: £6 15s 5d.

JB21

Junction box to enable stereo amplifiers without headphone jack to be used with any stereo headphones using standard plug. Switch provides: headphones only; speakers only; headphones and speakers. (Correct loading applied to amplifier in 'phones position.) Price: £1 19s 9d.

JB22

Junction cord. Two jack sockets terminating in jack plug. Enables two sets of stereo headphones to be connected to stereo amplifier or JB21. Price: £1 15s 5d.

SANSUI

Distributors: Brush Clevite Co. Ltd., Thornhill, Southampton, SO9 1QX.

Tel: Southampton 45166.

Distributors for Scotland, North and Midlands: Audio Distributors Ltd., Oldington Trading Estate, Stourbury Road, Kidderminster, Worcs. Tel: Kidderminster 3293.



Pioneer SE30



Pioneer SE2P



Sennheiser HD.110

SS2

High-quality stereo headphones. Moving coil. Impedance: 8 ohms. Max power input: 500 mW. FR: 20 Hz-18 KHz. Distortion: -1% at 1 mW input. Price: £7 14s 6d.



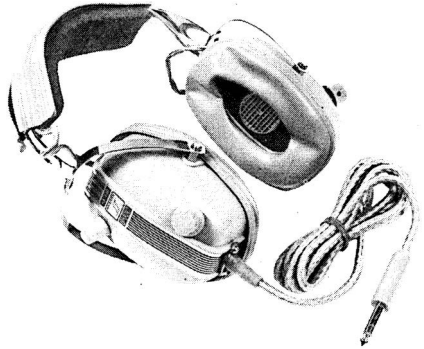
SENNHEISER ELECTRONICS

Distributors: Audio Engineering Ltd., 33 Endell Street, London, WC2H 9BA. Tel: 01-836 9373.

HD.110 ★

Stereo headphones wired for mono and stereo. Robust design. Removable washable ear cushions. Easily replaceable cable. FR: 20 Hz-20 KHz. Impedance: 200 ohms ±15% per earpiece. Output: 1 mW per capsule produces 98 dB (16 µbar) at 1 KHz. Maximum output: 120 dB (200 µbar) for 1% distortion. Weight: 9 oz. Price: £26.

Sharpe HA10 Mk II



HD.414

Stereo headphones. Wired for mono or stereo. Lightweight robust design. Removable washable sponge ear pads. FR: 20 Hz-20 KHz. Impedance: 2,000 ohm per capsule. Weight: 7½ oz. Price: £11 15s.

SHARP

Sharp Electronics (U.K.) Ltd., 48 Derby Street, Manchester M8 8HN. Tel: 061-832 6115.

HP100

Stereo headphones. Fully adjustable slide fittings. Double headband. Padded comfortable earpieces. FR: 30 Hz-18 KHz. Complete with lead and jack plug. Price: £5 17s 6d.

Sharpe HA660 PRO

HP200

Stereo headphones. Fully adjustable slide fittings. Single headband. Padded comfortable earpieces. FR: 30 Hz-17 KHz. Complete with lead and jack plug. Price: £4 5s.



SHARPE INSTRUMENTS

Distributor: Carston Electronics Ltd., 71 Oakley Road, Chinnor, Oxon. Tel: Kingston Blount 3561.

HA-9

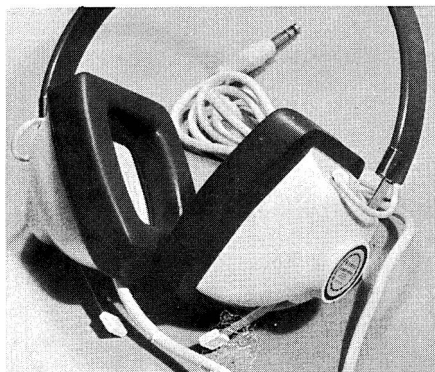
Stereo. FR: 15 Hz-20 KHz. Impedance: 8 ohms/side. Max input 2W. Max output 130 dB s.p.l. Distortion <1%. Attenuation of ambient noise 40 dB at 1 KHz. Price: £13.

HA-10 Mk II ★

Stereo. Deluxe liquid-filled ear cushions. FR: 15 Hz-30 KHz. Impedance: 8 ohms/side. Max input 2W. Distortion 0.86% at 1 KHz. Attenuation of ambient noise 40 dB. Sensitivity 115 dB ref. 0.002 dyne cm² at -5V input. Suitable for broadcast and recording studios. Price: £23 5s.

Teleton SH301P

★ Indicates entry is illustrated



Trio HS-2



Woollett SEC3 Headphone Blender

HA-660 ★

Stereo. Fuse protected. For research and other uses requiring truest possible reproduction. FR: 15 Hz-35 KHz. Impedance: 8 ohms/side. Max output 110 dB s.p.l. Attenuation of ambient noise 40 dB. Sensitivity 4.3V RMS input for rated output. Price: £31.

TELETON

Teleton Electro (Distributors) Co. Ltd., Teleton House, Robjohns Road, Widford, Chelmsford, Essex. Tel: Chelmsford 62442. Telex: 99338.

SH 301P ★

Dynamic stereo headphones. HC: $\frac{1}{2}$ W. Impedance: 8 ohms (each channel). FR: 20 Hz-21 KHz. Weight: 13 $\frac{1}{2}$ oz. Cord: 5 $\frac{1}{2}$ ft with jack plug. Price: £3 10s.

TOSHIBA

Distributors: Hanimex (U.K.) Ltd., Hanimex House, 15-24 Great Dover Street, London, SE1. Tel: 01-407 8161.

HR80

Stereo headphones. Incorporate Toshiba cross-field network. FR: 20 Hz-20 KHz. Impedance: 4-50 ohms (matching). Input power: 15 mW. Weight: 12.8 oz. Cord: 6 $\frac{1}{2}$ ft. Detachable washable ear covers. Finish: black, grey and chrome. Price: £6 16s 4d.

TRIO

Distributors: B. H. Morris & Co (Radio) Ltd., 84-88 Nelson Street, Tower Hamlets, London, E1 2DY. Tel: 01-790 4824.

HS-1

Stereo headphones. Input impedance: 8 ohms, matching 4-16 ohms. Max power input: 0.5W. FR: 20 Hz-19 KHz. Distortion: <0.8%. Sensitivity: 118 dB at 1 mW input. 10ft four-core cable. Weight: 11 oz (including cable). Price: £8 7s 6d.

HS-2 ★

Stereo headphones. Input impedance: 8 ohms, matching 4-16 ohms. Max power input: 0.5W. FR: 20 Hz-19 KHz. Distortion: <0.8%. Sensitivity: 111 dB at 1 mW input. 6 $\frac{1}{2}$ ft four-core cable. Weight: 11 oz (including cable). Price: £6 15s.

TTC

Distributors: E. R. Factors Ltd., 378 Harrow Road, Paddington, London, W9. Tel: 01-286 9530.

G-1111

Dynamic stereo headphones. FR: 25 Hz-15 KHz. Adjustable ear pads and headband. Impedance: 8 ohms. Max input 0.5W. Finish: mid-grey plastic with black trim. Price: £3 6s

UHER

Distributors: Bosch Ltd., Rhodes Way, Radlett Road, Watford, Herts, WD2 4LB. Tel: Watford 44233.

W671/K50

Stereo magnetic headphones. Price: £9 19s 6d.

L. G. WOOLLETT & CO LTD

21 Anerley Station Road, London, SE20. Tel: 01-778 9003.

Headphone Equaliser Blender ★

Stereo. Provides variable attenuation and adjustable treble lift. Switch positions for; headphones only, headphones and speakers, or speakers only. Variable negative blend cancels out crosstalk and permits compatible stereo records to be played as full stereo. Two input and two output blocks for easy connection into speaker feeds. Fitted two yards cable for inputs and speaker feeds. Size: 6 × 5 $\frac{1}{2}$ × 2 $\frac{1}{2}$ in. Price: £12 16s.

NOW A SOUND FROM KOSS ELECTROSTATIC STEREOPHONES THAT IS BETTER THAN SPEAKERS

only through electrostatics can so bright and crisp a sound be possible. Electrostatic elements in Koss model ESP-6 reproduce sound a full 3 octaves beyond the limits of ordinary voice coil and cone-type driver elements.



 **KOSS**

"ELECTRICAL SPECIFICATION"

Source impedance: 4 to 16 Ohms
Frequency response range, typical:
27-19,000 Hz \pm 5 db
35-10,000 Hz \pm 2-1/2 db
An individual machine-run response
curve is provided with each headset.
Isolation from external noise: 40 db
Total Harmonic Distortion:
Less than 1/5% at 110 db SPL

"PHYSICAL SPECIFICATIONS"

Accessories provided: Model T-3
speaker/headphone/transfer switch
and three circuit jack assembly
P/N 15-165 with 24 inch cables and
lugs for connection to amplifier
output terminal strips.
Carrying case P/N 11-1100 with foam
fillers for protection of ESP-6.
Includes compartment for accessory.
Cord: 4 conductor, 3 feet coiled;
10 feet extended.
Cushions: fluid filled.
Plug: standard tip, ring and sleeve
phone-plug.

Distributed by Tape-Music Distributors Ltd.,
11 Redvers Road, London N.22.
Tel. 01-888 0152/3

Send for full specification and price list on
these and 6 other headsets in the current
Koss range.

**SO PLAIN TO SEE....
THE SIGN OF QUALITY AND
TECHNICAL ADVANCEMENT**



NIVICO

VICTOR COMPANY OF JAPAN, LIMITED



integrated Sound Effect Amplifiers

A super tone control system incorporated in MCA 104 with built in S.E.A., which gives more bandwidth—less distortion.

32 watts output and many special features.

Tuner Amplifier 5010, 5001, 5040 with S.E.A. 30, 40, 50 WATTS output respectively.

★ Interstation automatic muting.

★ Automatic mono/stereo switching—the 5010 FM.

Multi-plex circuit boasts the world's most advanced switching system.

Model TD 694 U

3 speed solid state stereo tape deck incorporates automatic stop, sound-on-sound. Sound-with-sound. Reclining stand. Sliding volume control.

For further information write or telephone the U.K. Distributors.

DENHAM & MORLEY

(OVERSEAS) LTD., 453 CALEDONIAN RD, LONDON, N.1. TEL: 607 6568

Decimal Currency Conversion Tables

£sd	£p	
1d	$\frac{1}{2}$ p	+0.2d
2d	1p	+0.4d
3d	1p	-0.6d
4d	$1\frac{1}{2}$ p	-0.4d
5d	2p	-0.2d
6d	= 2½p	
7d	3p	+0.2d
8d	$3\frac{1}{2}$ p	+0.4d
9d	4p	+0.6d
10d	4p	-0.4d
11d	$4\frac{1}{2}$ p	-0.2d
1s	= 5p	

The Decimal Currency Board have produced the Shopper's Conversion Table. This gives an approximate decimal equivalent to the nearest $\frac{1}{2}$ p for £sd penny amounts. From the Table (right) you will see that only 1d to 1s are covered. To apply it to any amount simply convert the shillings exactly (1s=5p) and then convert the odd pence by reference to the Table. Only 6d ($2\frac{1}{2}$ p) and 1s (5p) are exactly equivalent. All other equivalents are rounded but no greater than 0.6d. Five are rounded up and five down, thus over a range of purchases neither shop nor customer will gain or lose.

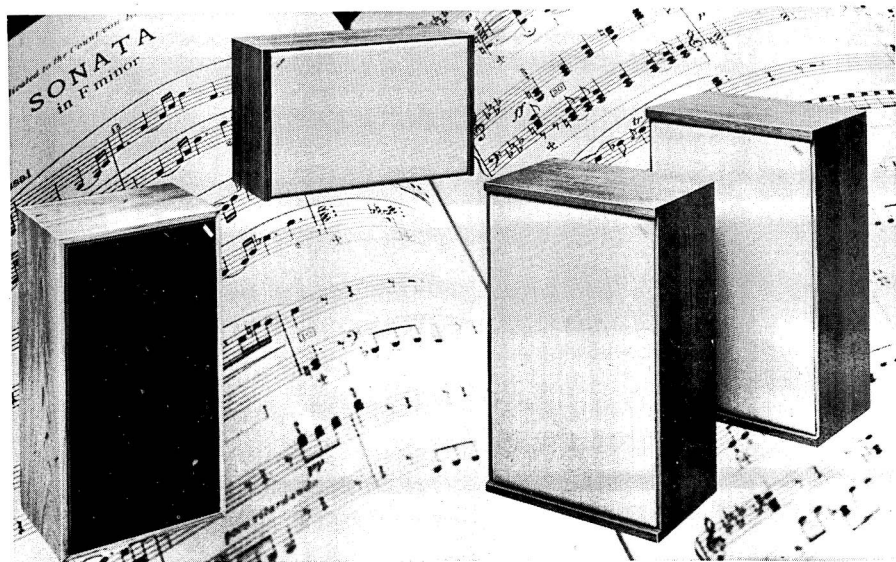
The table (below) from wages and salaries booklet prepared by D.E.P. gives exact decimal equivalents of sterling amounts up to £1.

Below/From wages and salaries Booklet prepared by Department of Employment and Productivity.

Above/Shoppers Conversion Table.

	0s	1s	2s	3s	4s	5s	6s	7s	8s	9s
0d	—	.0500	.1000	.1500	.2000	.2500	.3000	.3500	.4000	.4500
$\frac{1}{2}$ d	-.0021	-.0521	-.1021	-.1521	-.2021	-.2521	-.3021	-.3521	-.4021	-.4521
1d	-.0042	-.0542	-.1042	-.1542	-.2042	-.2542	-.3042	-.3542	-.4042	-.4542
$1\frac{1}{2}$ d	-.0063	-.0563	-.1063	-.1563	-.2063	-.2563	-.3063	-.3563	-.4063	-.4563
2d	-.0083	-.0583	-.1083	-.1583	-.2083	-.2583	-.3083	-.3583	-.4083	-.4583
$2\frac{1}{2}$ d	-.0104	-.0604	-.1104	-.1604	-.2104	-.2604	-.3104	-.3604	-.4104	-.4604
3d	-.0125	-.0625	-.1125	-.1625	-.2125	-.2625	-.3125	-.3625	-.4125	-.4625
$3\frac{1}{2}$ d	-.0146	-.0646	-.1146	-.1646	-.2146	-.2646	-.3146	-.3646	-.4146	-.4646
4d	-.0167	-.0667	-.1167	-.1667	-.2167	-.2667	-.3167	-.3667	-.4167	-.4667
$4\frac{1}{2}$ d	-.0188	-.0688	-.1188	-.1688	-.2188	-.2688	-.3188	-.3688	-.4188	-.4688
5d	-.0208	-.0708	-.1208	-.1708	-.2208	-.2708	-.3208	-.3708	-.4208	-.4708
$5\frac{1}{2}$ d	-.0229	-.0729	-.1229	-.1729	-.2229	-.2729	-.3229	-.3729	-.4229	-.4729
6d	-.0250	-.0750	-.1250	-.1750	-.2250	-.2750	-.3250	-.3750	-.4250	-.4750
$6\frac{1}{2}$ d	-.0271	-.0771	-.1271	-.1771	-.2271	-.2771	-.3271	-.3771	-.4271	-.4771
7d	-.0292	-.0792	-.1292	-.1792	-.2292	-.2792	-.3292	-.3792	-.4313	-.4792
$7\frac{1}{2}$ d	-.0313	-.0813	-.1313	-.1813	-.2313	-.2813	-.3313	-.3813	-.4333	-.4813
8d	-.0333	-.0833	-.1333	-.1833	-.2333	-.2833	-.3333	-.3833	-.4354	-.4833
$8\frac{1}{2}$ d	-.0354	-.0854	-.1354	-.1854	-.2354	-.2854	-.3354	-.3854	-.4354	-.4854
9d	-.0375	-.0875	-.1375	-.1875	-.2375	-.2875	-.3375	-.3875	-.4375	-.4875
$9\frac{1}{2}$ d	-.0396	-.0896	-.1396	-.1896	-.2396	-.2896	-.3396	-.3896	-.4396	-.4896
10d	-.0417	-.0917	-.1417	-.1917	-.2417	-.2917	-.3417	-.3917	-.4417	-.4917
$10\frac{1}{2}$ d	-.0438	-.0938	-.1438	-.1938	-.2438	-.2938	-.3438	-.3938	-.4438	-.4938
11d	-.0458	-.0958	-.1458	-.1958	-.2458	-.2958	-.3458	-.3958	-.4458	-.4958
$11\frac{1}{2}$ d	-.0479	-.0979	-.1479	-.1979	-.2479	-.2979	-.3479	-.3979	-.4479	-.4979

	10s	11s	12s	13s	14s	15s	16s	17s	18s	19s
0d	-.5000	-.5500	-.6000	-.6500	-.7000	-.7500	-.8000	-.8500	-.9000	-.9500
$\frac{1}{2}$ d	-.5021	-.5521	-.6021	-.6521	-.7021	-.7521	-.8021	-.8521	-.9021	-.9521
1d	-.5042	-.5542	-.6042	-.6542	-.7042	-.7542	-.8042	-.8542	-.9042	-.9542
$1\frac{1}{2}$ d	-.5063	-.5563	-.6063	-.6563	-.7063	-.7563	-.8063	-.8563	-.9063	-.9563
2d	-.5083	-.5583	-.6083	-.6583	-.7083	-.7583	-.8083	-.8583	-.9083	-.9583
$2\frac{1}{2}$ d	-.5104	-.5604	-.6104	-.6604	-.7104	-.7604	-.8104	-.8604	-.9104	-.9604
3d	-.5125	-.5625	-.6125	-.6625	-.7125	-.7625	-.8125	-.8625	-.9125	-.9625
$3\frac{1}{2}$ d	-.5146	-.5646	-.6146	-.6646	-.7146	-.7646	-.8146	-.8646	-.9146	-.9646
4d	-.5167	-.5667	-.6167	-.6667	-.7167	-.7667	-.8167	-.8667	-.9167	-.9667
$4\frac{1}{2}$ d	-.5188	-.5688	-.6188	-.6688	-.7188	-.7688	-.8188	-.8688	-.9188	-.9688
5d	-.5208	-.5708	-.6208	-.6708	-.7208	-.7708	-.8208	-.8708	-.9208	-.9708
$5\frac{1}{2}$ d	-.5229	-.5729	-.6229	-.6729	-.7229	-.7729	-.8229	-.8729	-.9229	-.9729
6d	-.5250	-.5750	-.6250	-.6750	-.7250	-.7750	-.8250	-.8750	-.9250	-.9750
$6\frac{1}{2}$ d	-.5271	-.5771	-.6271	-.6771	-.7271	-.7771	-.8271	-.8771	-.9271	-.9771
7d	-.5292	-.5792	-.6292	-.6792	-.7292	-.7792	-.8292	-.8792	-.9292	-.9792
$7\frac{1}{2}$ d	-.5313	-.5813	-.6313	-.6813	-.7313	-.7813	-.8313	-.8813	-.9313	-.9813
8d	-.5333	-.5833	-.6333	-.6833	-.7333	-.7833	-.8333	-.8833	-.9333	-.9833
$8\frac{1}{2}$ d	-.5354	-.5854	-.6354	-.6854	-.7354	-.7854	-.8354	-.8854	-.9354	-.9854
9d	-.5375	-.5875	-.6375	-.6875	-.7375	-.7875	-.8375	-.8875	-.9375	-.9875
$9\frac{1}{2}$ d	-.5396	-.5896	-.6396	-.6896	-.7396	-.7896	-.8396	-.8896	-.9396	-.9896
10d	-.5417	-.5917	-.6417	-.6917	-.7417	-.7917	-.8417	-.8917	-.9417	-.9917
$10\frac{1}{2}$ d	-.5438	-.5938	-.6438	-.6938	-.7438	-.7938	-.8438	-.8938	-.9438	-.9938
11d	-.5458	-.5958	-.6458	-.6958	-.7458	-.7958	-.8458	-.8958	-.9458	-.9958
$11\frac{1}{2}$ d	-.5479	-.5979	-.6479	-.6979	-.7479	-.7979	-.8479	-.8979	-.9479	-.9979



Imhofs Speakers

model	IM.100	IM.200	JUNIOR MK. II
type	<i>above top</i> Infinite baffle	<i>above right</i> Infinite baffle	<i>above left</i> Infinite baffle
units	13" x 8" bass 1½" treble 1 kHz	13" x 9" bass 1½" treble 1 kHz	13" x 8" bass 3" treble 5 kHz
crossover			
frequency range	50 Hz–20 kHz	40 Hz–20 kHz	50 Hz–20kHz
impedance	8 ohms	8 ohms	8 ohms
power handling	15 watts RMS	25 watts RMS	10 watts RMS
size	11¾" w x 19" h x 7½" d	15½" w x 24½" h x 10½" d	12½" w x 24" h x 9¾" d
finish	teak, walnut or painted white	teak, walnut or painted white	teak

It's a number of years since Imhofs produced their own hi-fi loudspeakers (remember the famous Reflexion models?) and it has taken a long time to find a successor worthy of carrying our name. With so many different speakers on the market, our designers and engineers were set the task of producing models that offered better than average quality at lower than average prices and

yet still had that extra something you would expect from Imhofs. The result is the IM range of speakers which are available in a variety of finishes and have interchangeable 'decor' front grilles so you can have a model to harmonise with your home.

We have now also introduced the new improved Imhof Junior Mk. II speaker

which we think is fantastic value and is sold complete with DIN two-pin connector and a 36-ft. extension lead.

While technical specifications are given above, we would really like you to call in and see them and judge for yourself just how good they are and then we feel sure you will agree that they really are value for money.

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L. L., LINEAR
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- 3** *A minimum of six months service guarantee providing for free labour in addition to the manufacturers component guarantee. This will also be available to the purchaser if he moves house and takes the equipment into the service area of another member who is an agent for the make concerned.*

Member dealers are also pledged to:—

- 4** *Maintain facilities for the demonstration and comparison of all Hi-Fi equipment stocked, and fully qualified staff who will offer sound and honest advice.*
- 5** *Provide a consultancy service which will be free to you at all times once you have purchased your equipment through that HFDA member.*

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Directory of Hi Fi Dealers

IMPORTANT NOTE

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AUDIO HOUSE LTD

5 Ashbourne Parade, Temple Fortune, NW11

R. BARDEN LTD

21 Dalston Lane, E8

BERRY'S RADIO LTD

25 High Holborn, WC1

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15 Kingsway, WC2
5 Turnpike Parade, N15
857 High Road, Finchley, N12
4 High Street, Walthamstow, E17
169 Fore Street, Edmonton, N18
61 Seven Sisters Road, N7

DAYSTROM LTD

233 Tottenham Court Road, W1

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81 Portland Road, South Norwood

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123 Alexandra Road, Hornsey, N8

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7 The Broadway, Wood Green, N22

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86-88 Pentonville Road, N1
172 Caledonian Road, N1

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HAMPSTEAD HIGH FIDELITY

91 Heath Street, Hampstead, NW3

H. C. HARRIDGE LTD

8 Moore Street, W1

HAVEN HI-FI (EALING) LTD

196-8 South Ealing Road, W5

THOMAS HEINITZ

35 Moscow Road, W2

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303-309 Edgware Road, W2
354-356 Edgware Road, W2

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3-4 Station Parade, Sheen Lane, East Sheen, SW14

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LARGS OF HOLBORN

76-77 High Holborn, WC1

LASKY'S RADIO

42-45 Tottenham Court Road, W1
118 Edgware Road, W2
152-3 Fleet Street, EC4
109 Fleet Street, EC4

LEE ELECTRONICS

400 Edgware Road, W2

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82 High Holborn, WC1
242-244 Pentonville Road, N1
228 Bishopsgate, EC2
360 Kilburn High Road, NW6
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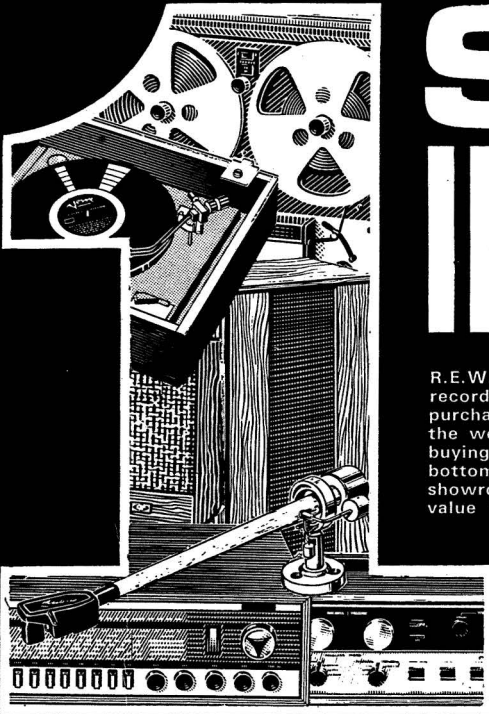
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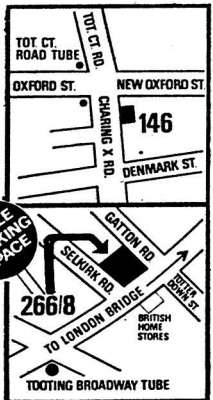
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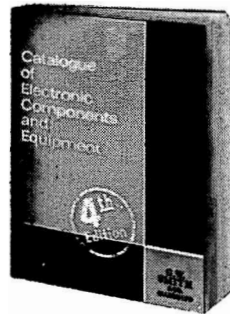
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