

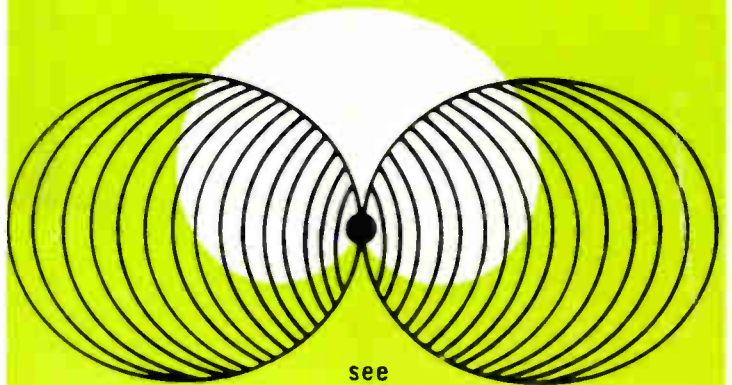
Audiofan

**THE MAGAZINE
FOR THE
HI-FI ENTHUSIAST**



SEPTEMBER 1966 Vol. 2 No. 9 FIFTY CENTS

**PROFILES OF AU
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GREATEST DECADE
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PROJECTS WHY S
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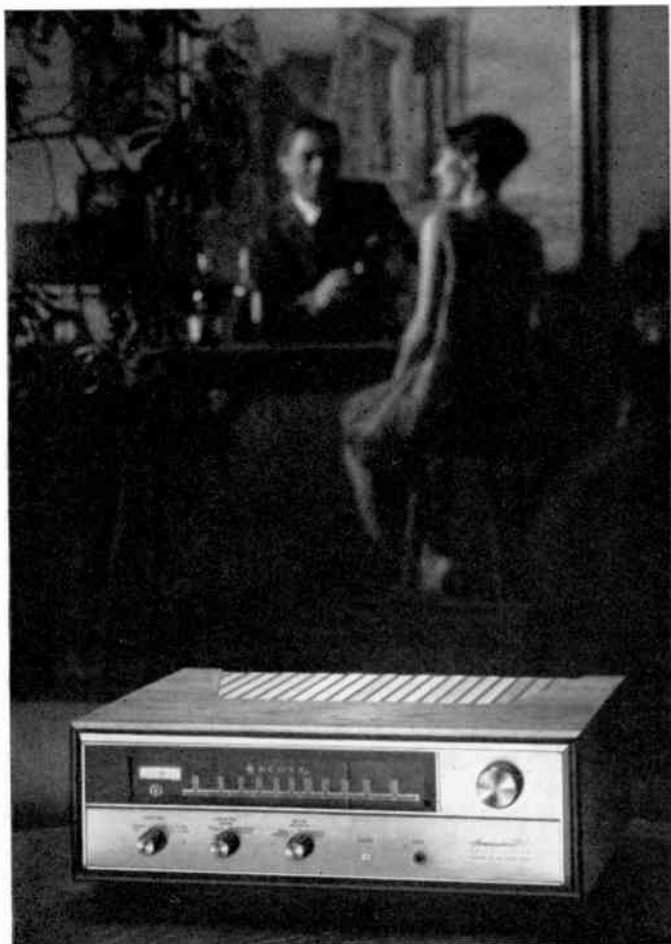
BARNETT BROS.

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SCOTT



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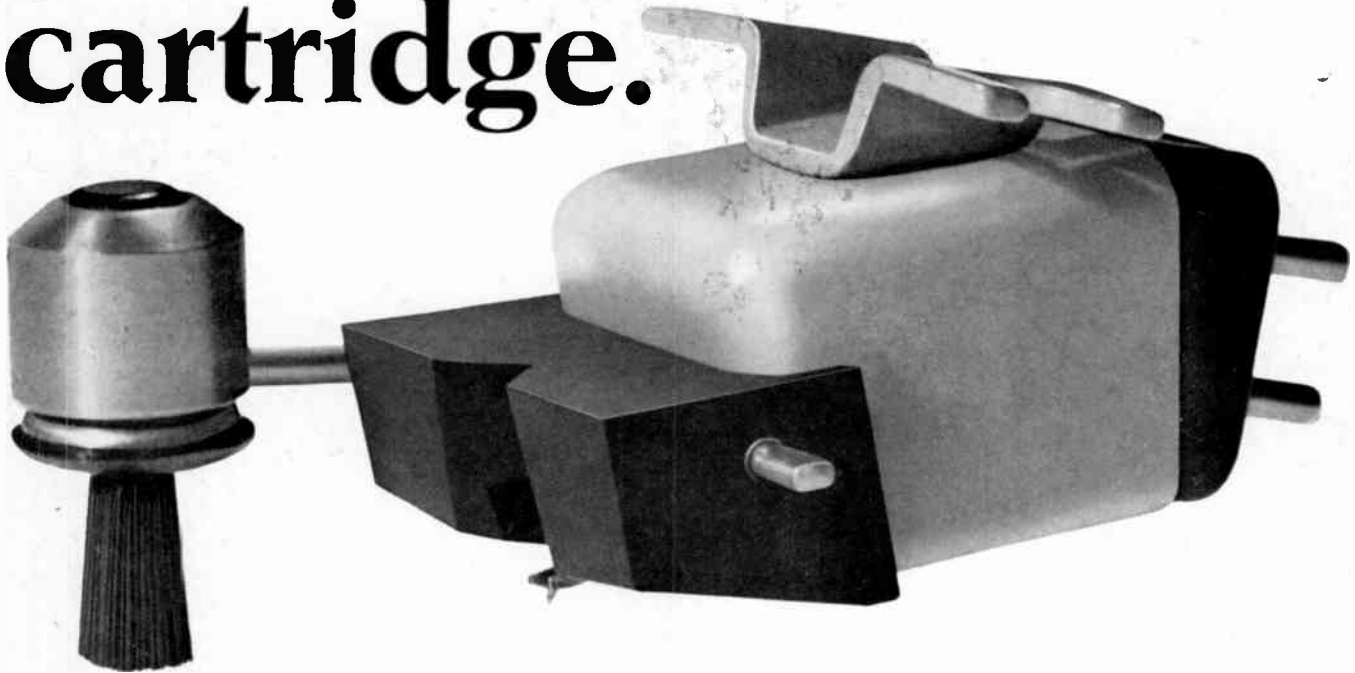


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Now, Pickering offers you total performance from all your records with the newly designed V-15/3 cartridge.

The exclusive Pickering V-15 Micro-Magnetic cartridge assures you of the finest in natural sound, while the famous patented V-Guard Floating Stylus provides the ultimate in record protection.


And now, there's a new dimension in the V-15 line. The extremely functional Dustamatic brush assembly for cleaning records *as* you play them, and an entirely new moving system with Dynamic Coupling of stylus to record groove for positive tracking.

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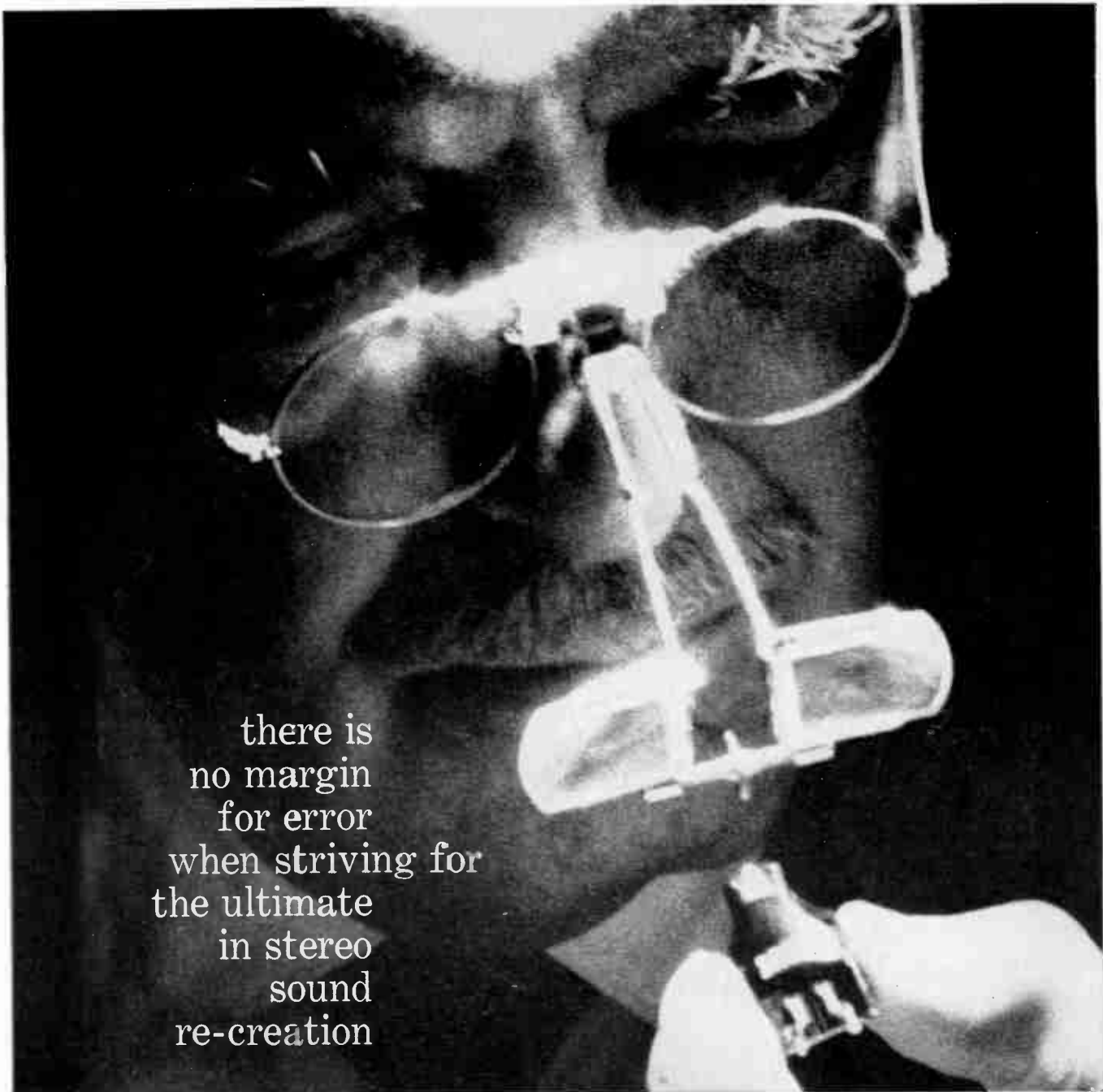
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 Extremely musical. Tracks at pressure to 6 gms., fits any changer. Only \$15.75.



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EDITORIAL

***bring
a
friend
with
a
'tin ear'***

Now's the season when an audiofan worth his salt awaits the opening of a high fidelity show in his area. And why not. In an almost carnival atmosphere you can browse amidst all those spanking new receivers, manual and automatic turntables, big speakers, small speakers, tape recorders, tuners, cartridges, video recorders . . . you name it.

You'll wander from exhibit to exhibit, examining various equipment, listening to demonstrations, talking to manufacturers and their representatives, many of whom are hi-fi personalities in their own right, comparing opinions with other audiofans. In sum, a gay, informative time is in the offing.

Don't forget to invite some friends to join you at the show. Most people have "tin ears," you know, as a result of not being exposed to high fidelity sound. After all, they've been nurtured by low-fi AM table radios and one-tube record players over the years, accustoming themselves to restricted frequency ranges. This experience takes its toll: distortion-free reproduction is not always preferred at first listen.

After some exposure to hi-fi music, however, these same "tin ears" definitely prefer the wide frequency range produced by high fidelity equipment. This was proved way back in the Forties by CBS.

So when your "tin eared" friends don't quickly share your intense enthusiasm with the high quality of sound produced by your system, don't despair. Bring them to the show, too.

Show kickoff time is September 28 in New York City, where over 5 dozen hi-fi manufacturers will display equipment in over 10 dozen exhibits spread over the floors of the New York Trade Show Building. Should you be visiting New York at this time to take of the city's varied entertainment, we'll be happy to chat with you at the show. Look for us.

THE EDITORS



Now instant movies in sound start at \$695.

The new Sony Videocorder deck (model CV-2000E) is both compact and versatile. It's also quite reasonably priced, \$695.

It's just like current Sony Videocorder models, but without the built-in TV monitor. Using a separate monitor or TV set, you can tape selected TV programs off-the-air. Add the optional Sony TV camera and you can tape "live" action in sight and sound. Play back your tape, and you'll see instant movies in sound.

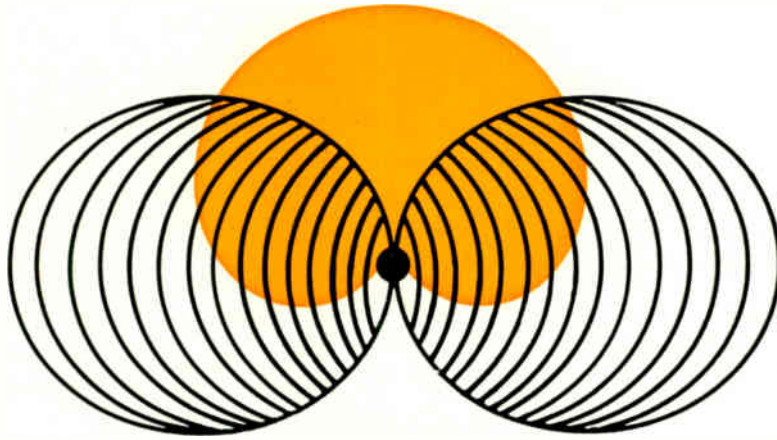
This new deck is small enough to fit on a bookshelf, as a part of your hi-fi component system. Light enough (only 44 lbs.) to take wherever you want it to perform. Adaptable enough to use with any TV monitor, small or large screen (the new Sony 8-inch and 22-inch receiver/monitors are perfect mates). It can be adapted to work with most home TV sets. Handsome too, in walnut-finish cabinet.

Looking for a Videocorder with its own built-in monitor? Then meet the rest of the Sony Videocorder family. TCV-2010 complete in its own carrying case, \$995. The TCV-2020, handsome oil-finish walnut cabinet and with built-in timer to automatically tape TV programs while you're away, \$150. For taping "live" action, there is the Video Camera Ensemble VCK-2000 (camera, elevator tripod, microphone) at \$350. For an unforgettable demonstration visit your Sony Videocorder dealer today. For free 16-page booklet write:

SONY® Corp. of America, 47-37 Van Dam St.,
Long Island City, N.Y. 11101

*diagonal measurement. The Videocorder is not to be used to record copyrighted material.

Pickup pattern of M-S microphone combination—cardioid and figure eight—generally used in Europe.



WHY STEREO COSTS MORE

by
Robert
Long

In some European countries, stereo costs no more than mono—in fact, mono records are no longer produced in some instances. Read how “Universal” records have taken over.



How often, in a record offer, do you see an attractive price blazing across the page, followed by the tiny notation: *add \$1 for stereo*? And how often have you wondered: Why should I?

For a few companies, that extra buck is a thing of the past. *Deutsche Grammophon Gesellschaft* and *European Philips* have dropped the distinction altogether, offering today only a “universal cut” record (with what had been the stereo numbering, you will notice). If they can get by so simply, why can't the American majors?

The “universal cut” is simply the result of dropping mono recordings altogether, leaving only stereo recordings, but more about this later. Most American stereo recordings carry a notice to the effect that they should be played only on stereo equipment. This practice has been given the nod by the RIAA for a number of reasons. One of them, surely, must be the vision of selling more stereophonic equipment to play the records on and then selling more stereo records to play on the . . . well, you get the picture.

But there are sounder reasons as well. If a stereo record is played with an old-fashioned pickup that has very low compliance in the vertical plane, as all mono pickups once did, it will tend to wear away the vertical component of the stereo information in the groove (and

we'll come back to that later). This effect will be most quickly noticed in the highs when the record is played stereo; but problems will develop on the other end, too. The low vertical compliance of the pickup will mean that it will have problems coping with large vertical excursions at bass frequencies. Rumble, poor tracking or distortion can be the result.

One experiment in this country sought to overcome the problem. Basing its scheme on the idea that the ear fails to hear bass direction, one company tried putting the bass information only in the horizontal plane on discs that would otherwise be described as stereo. Unfortunately, their method produced no imitators—perhaps because research on the subject has seemed to indicate that, contrary to popular belief among audiophiles, the ear *does* distinguish directionality at least as well in the bass frequencies (except in the very low frequency area) as in higher ranges.

And still the feeling persists that if we have compatibility in stereo broadcasting it must also be possible in recordings. Stereo program material is turned into mono for broadcast by a process known as matrixing. Theoretically, if right and left channels are added together, they should produce a sum signal that is perfect mono. If, instead of being added in-phase, they are added 180° out-of-phase they will be, in

effect, subtracted to produce a difference signal that can later be used to differentiate right from left in the receiver. That difference signal is carried on the 19kHz subcarrier and has no influence on the output of a mono receiver. A stereo receiver, however, adds the mono and the difference signals to recreate one of the original channels and subtracts them to create the other.

For the mathematically-minded, it would look like this. Given two channels, left (l) and right (r), the sum would be:

$$(l + r) \text{ (mono)}$$

And difference would be:

$$(l - r)$$

The stereo receiver would then add them to recreate the left channel:

$$(l + r) + (l - r) = 2l$$

And subtract them to recreate the right channel:

$$(l + r) - (l - r) = 2r$$

The fact that it is $2r$ rather than r is simply due to the two addition processes (one of which cancels out) to which the terms have arbitrarily been subjected.

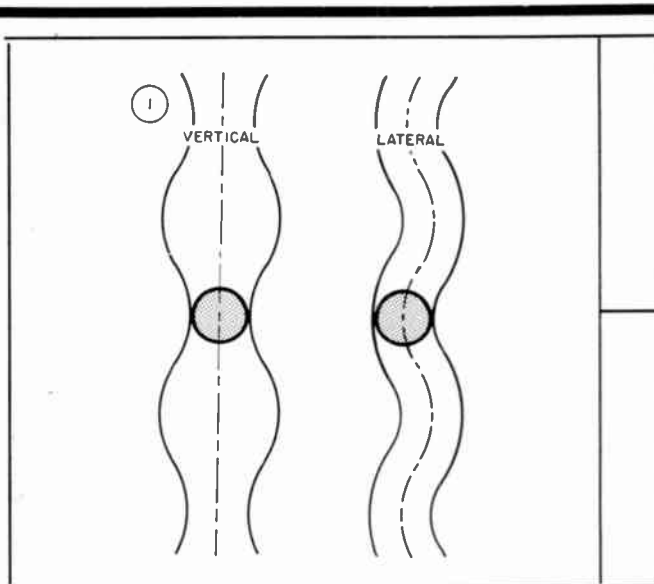
The idea of treating stereo as mono information plus differentiating information (otherwise known as mid-side or M-S stereo) has been common in Europe from the beginning, whereas the idea of treating stereo as two recordings, one for the left channel and one for the right channel, is distinctly American. When the advantages of the 45/45 stereo groove over the vertical/lateral groove became apparent, it was easy for Teldec (whose unit cut those first London stereo discs) to feed mono ($l + r$) to the horizontal element in their cutterhead and the difference signal to the vertical windings for a 45/45 resultant cut and a theoretically compatible disc.

But why was it only *theoretically* compatible? Since the European manufacturers have dropped the distinction, the problem would seem to lie with American techniques. Europeans have been in the habit of using the same 2-track tape to master either mono or stereo versions of the same disc. In this country, however, quality recording is frequently done on 3-track equipment on half-inch tape. From this master, in careful mixing sessions, two new masters are made up—one 2-track version for the stereo disc and one single-track mono version. This way, say American recording companies, optimum quality can be maintained in both mono and stereo.

Some champions of European recording methods, however, say that this is not the whole story. Successful stereo recordings often produce disappointing mono results. This, say the Europeans, is due to the slap-dash American attitude toward microphone phasing. European microphone-makers have standardized which pin on their connections will deliver plus voltages

under the influence of a transient wave-front and which will deliver negative voltages. And care is taken that they should be kept in-phase in this respect throughout the recording process, no matter how complex the connections.

Without this care, transient fronts can be out of phase between channels (or even within a given channel). The result is difficult to hear in stereo, admit the proponents of in-phase mixing, but become much more obvious in mono. This, they say, is why Americans must be so careful in mixing mono—to mask out-of-phase mixing.



STEREO DISCS



How two separate channels are derived from one groove has puzzled many audiofans over the years. As far as the naked eye can observe, there's no difference between mono and stereo record grooves. But we know that there is, of course.

It all depends upon the type of record grooves cut into a disc during the recording process. Edison, for example, used the vertical recording system to record sound on his cylinders. This meant that audio was transferred to grooves by an up and down motion of the recording stylus. Thus, it was a groove's changing depth that determined the sound picked up by a playback stylus.

Vertical recording gave way to lateral recording methods early in the life of record discs. (Lateral recording produced less distortion, Edison notwithstanding.) This meant that grooves were cut in a side-to-side motion, while groove depth remained the same throughout the entire spiral path of the record groove. This is

Be that as it may, the Europeans have now arrived at the point where they find only a small percentage of their market is still using mono pickups with sub-standard vertical compliance. (Mono pickups today are simply high-compliance stereo pickups with only one winding.) So they have dropped separate production for that small percentage.

Can we do the same? And will we do the same? American record manufacturers have for several years been looking to the day when we would live in the *Stereo Great Society*. This would suggest that they might treat stereo much

the way car manufacturers have treated automatic transmissions: make the more sophisticated system standard and charge extra for the simpler, old-fashioned one. And perhaps the notation, *add \$1 for mono*, on ads would help to bring about the S.G.S.—assuming that the extra buck *must* be added somewhere to cover the cost of the confusion occasioned by two types of recordings.

As long as manufacturers find it necessary to lean on the prestige of stereo, though, it looks like stereo fans will have to go on paying the premium price.

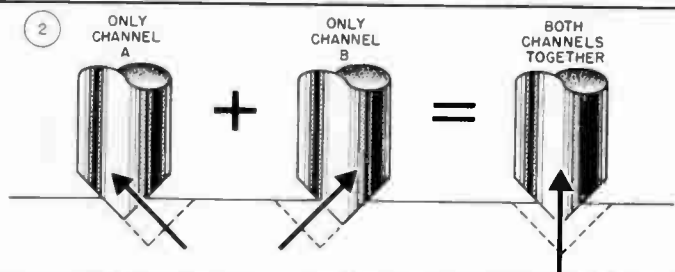
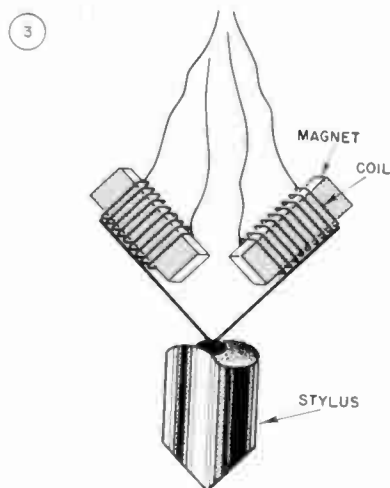


Fig. 1 illustrates how a vertical recording groove, used in Edison's era, looks. The round ball is a cross-section of the stylus riding in the groove. When the groove widens, the stylus rides lower in the groove and the diameter of the "ball" would enlarge because the stylus is shaped like a cone. You can see how a lateral recording is made at its right. The stylus follows the wiggles of the groove, but remains at the same height because groove width remains the same. (Grooves are actually cut in a spiral path, though they're shown in a straight line.) Fig. 2 shows how a stereo groove utilizes both vertical and lateral recording, though moved in a 45° plane. A combination of left and right groove forces established where the stylus will be positioned. Fig. 3 illustrates how a typical magnetic stereo pickup is constructed. If the stylus is moved, say, to the left, the left coil will move upwards and the right coil would move downwards.



/how DO you get 2 channels from 1 groove

the "mono" groove style used to this very day.

You might have expected that "stereo" grooves would evolve by using two separate lateral groove spirals on one disc, with a double-headed cartridge/styli assembly. And you'd be right. This is the way it started. But it never caught on.

It was in 1957 that the stereo disc age began. Lateral recording and vertical recording were combined in one groove, with a 90° relationship to each other. But instead of having vertical and horizontal axes, both are rotated 45°. Thus it's called a 45/45 system, with one record groove wall being the left channel and the other wall assuming the right channel role.

Here's where your mind can boggle. After all, how can a single stylus respond to a left groove wall in one way and to a right groove wall in another manner, remembering all the time that the stylus is *always* in contact with both walls at the same time?

The answer is easy. It doesn't! Two channels are recorded at the same time; not a left channel

and a right channel separately. It's the combination forces on the stylus that determine its position. Examining an illustration here, you can see why. If channel "A" alone was impressed as a record groove, it might be shaped in such a way as to cause a playback stylus to move diagonally upwards and to the left. On the other hand, if channel "B" alone were recorded, it might cause a playback stylus to move upwards and to the right. If both channels were fed into a 45/45 stereo cutter, the cutter would make a groove that *combines* both channels. The result would be a groove that would displace a playback stylus upwards, but in the center (the resultant of an equal left and right force). By "center" we, of course, mean the position it would take if the spiraling groove was not modulated.

A stereo cartridge's elements are arranged so that it responds to the diagonal forces upon the stylus, each element (there are two of them) picking off its share of the force transferred to it.



Author compares the quality of a tape recording he made of Toscanini years ago with recordings he makes today.

By Phil Geraci

TAPE'S GREATEST DECADE



It was the spring of 1954. In the recreation room of my home near Washington, D.C. a tape recorder whirred softly, its meter pointer bouncing to a musical rhythm. A thin cable snaked along the floorboards, linking the recorder with an FM tuner. I sat across the room, monitoring the program on a high fidelity system.

The orchestra played on. And then an amazing thing happened. The orchestra faltered, lost step, its members losing the all-important beat. Quickly the cacaphony was replaced by order as a studio technician hurriedly substituted a record for the live performance being broadcast.

It was a momentous occasion in music, for it signalled the end of one of the most fantastic conducting careers in musical history. Arturo Toscanini, "The Maestro," had left the podium for good. And I had it all, right there on a reel of tape.

Today when I listen to the recording made that Sunday afternoon more than a decade ago I am struck by how much that tape, advanced on what was then relatively advanced equipment for the home recordist, characterizes the Toscanini sound we all know—rather thin, somewhat shrill, lacking bass, with limited dynamic range. Most of Toscanini's commercial recordings made for RCA Victor predated many recording devices

in use today—condenser microphones, feedback cutters, etc.

What a difference in the quality of my Toscanini recording, and others made about that time, with recordings made today on quality components. Just the other day I was recording a Wagnerian program—some of the same music Toscanini performed as his finale—and was struck by the conductor's style, so similar to Toscanini's. When the recording was completed, I switched off the tuner and dug out my Toscanini performances, recorded that Sunday afternoon many years before. Using a spare tape player and a stereo amplifier, I rigged the outputs so I could switch between them during playback, for comparison.

It was an ear-opening experience. Whereas the Toscanini recording was dull, limited in highs and dynamics, lacking in bass and generally masked overall with a vague coating of electronic tarnish, the new recording was wide open, transparent, spacious, clear as a bell, full and sumptuous at the low end and smooth and crystal clear at the top. There was no overlying mask of non-music to dull the performance. It all came through, with some of the most fantastic dynamic range I have ever experienced. By *today's* standards it was a top-notch recording. Compared with my ten-years-old Toscanini tape, it was

like night and day.

Why are recordings today so much better than they were just ten years ago? For many reasons. The state-of-the-art has advanced enormously, not in giant leaps forward, but in little steps, steadily, across the years. Everything along the line has been improved—the tape itself, recorders, microphones, tuners, power amplifiers and preamplifiers, loudspeaker systems and headphones. When you add the fantastic sonic effects of stereo to all this progress, you reach a level of recorded perfection of which the Maestro could not possibly have used to advantage. Had he heard modern stereo, I think he would have been pleased.

Let's look at some of the changes which have taken place. First, let's look at tape. Ten years ago, tape was manufactured to what were then considered exacting standards in such matters as coating thickness, oxide dispersion, slitting precision and other technical properties which affect the way the tape records and the ease with which it slides past the heads and onto the takeup reel.

But remember that the wide-gap heads of 1955 would not have been able to utilize the extended high-frequency response of a quality tape had it been available then. Highs up to around 7 or 8 kHz were about all the home recordist could expect

TAPE'S GREATEST DECADE- (continued from preceding page)

from some recorders. Even on the best equipment available, a recordist usually was satisfied if he could reach 10,000 Hertz smoothly. Today's tapes can go far beyond that, with ease.

One of the things which has improved the quality of recording tape has been the application of more precise tolerances during manufacture. This means that tapes today are better than tapes of ten years ago in such matters as width, so tapes will pass through the guides and past the heads without binding, which would cause a fluctuation in speed and a slight lowering of musical pitch; in thickness of the oxide layer, to maintain a constant magnetizeable base so unwanted changes in output won't occur; in

thickness of the base material, so the tape will lie flat across the heads; and in evenness of the oxide, both in terms of the mix as well as its application, to keep within tolerable limits such things as bias level requirements, noise and distortion.

If one word could sum up the advances which have made tape manufacture today better than ten years ago, that word would be "precision"; today, everything is being done more precisely. Result: tapes are better.

There may really be a secret or two stuck away in the formulas that tape scientists have used to arrive at today's product. For example, an old bugaboo used to be tape breakage and stretch. Some of the older machines were

tight as drums, and if any little thing went wrong, such as a jagged edge from an improperly slitted tape catching on a tape guide, the tape would break. Had this happened to me in the middle of Toscanini's last broadcast, I would have been most unhappy.

The common solution seemed to be to spread the oxide on a base material which would not break so readily — a polyester which under some conditions might stretch out many times its original length before it would break. But a tape which has stretched, being longer, will play back at a lower pitch. Put a stretchable polyester-base material on one of the old meat handlers, and before long your symphonies are an octave lower in pitch.

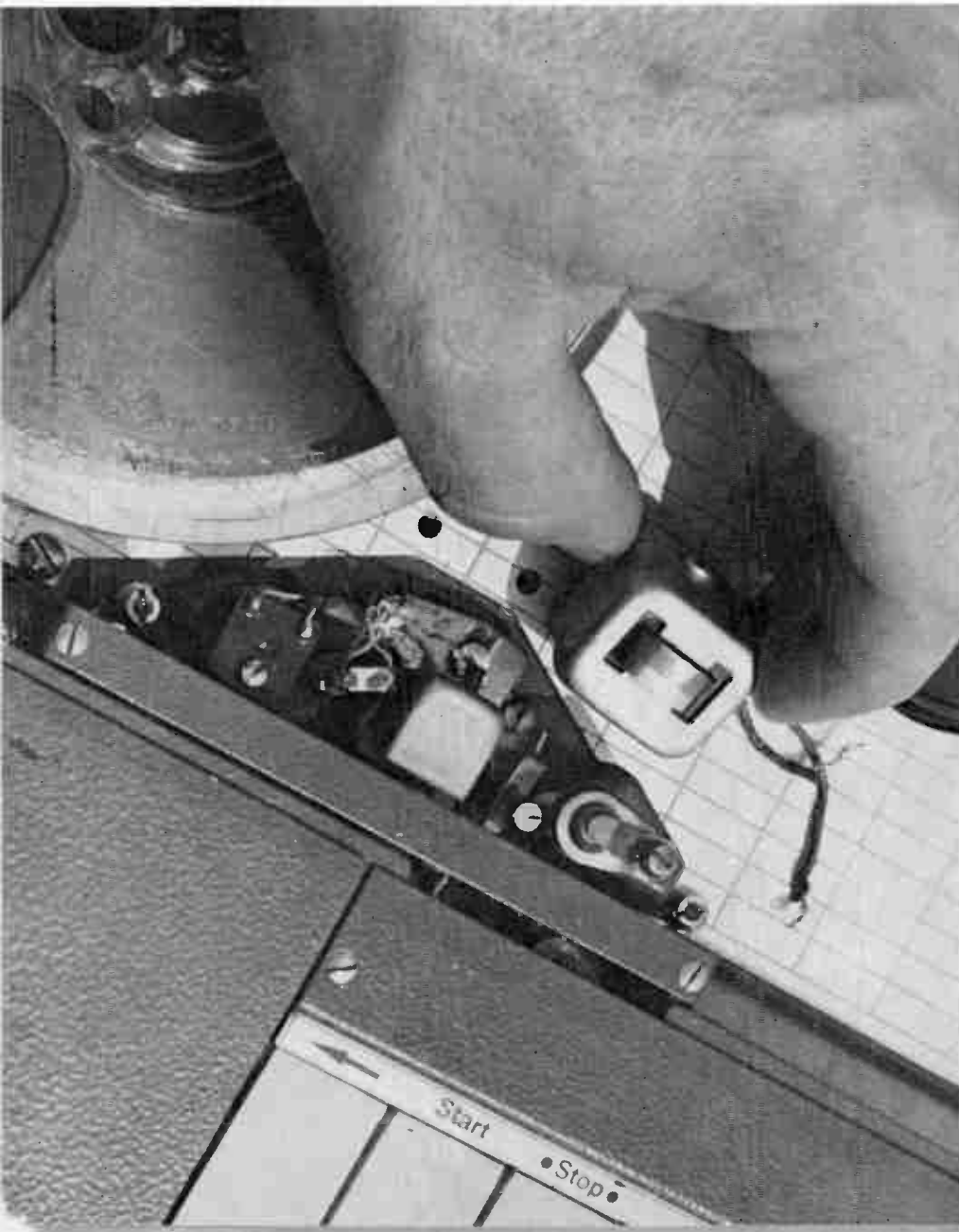
Today, where strength is vital but not as vital as a lack of stretch, there are tapes (Kodak's Durol Triacetate, for example), which will take more pull than older tapes but will break before it stretches. For gentle tape handlers there are still the polyesters, in one as well as one-half mil thicknesses, for longer recording sessions.

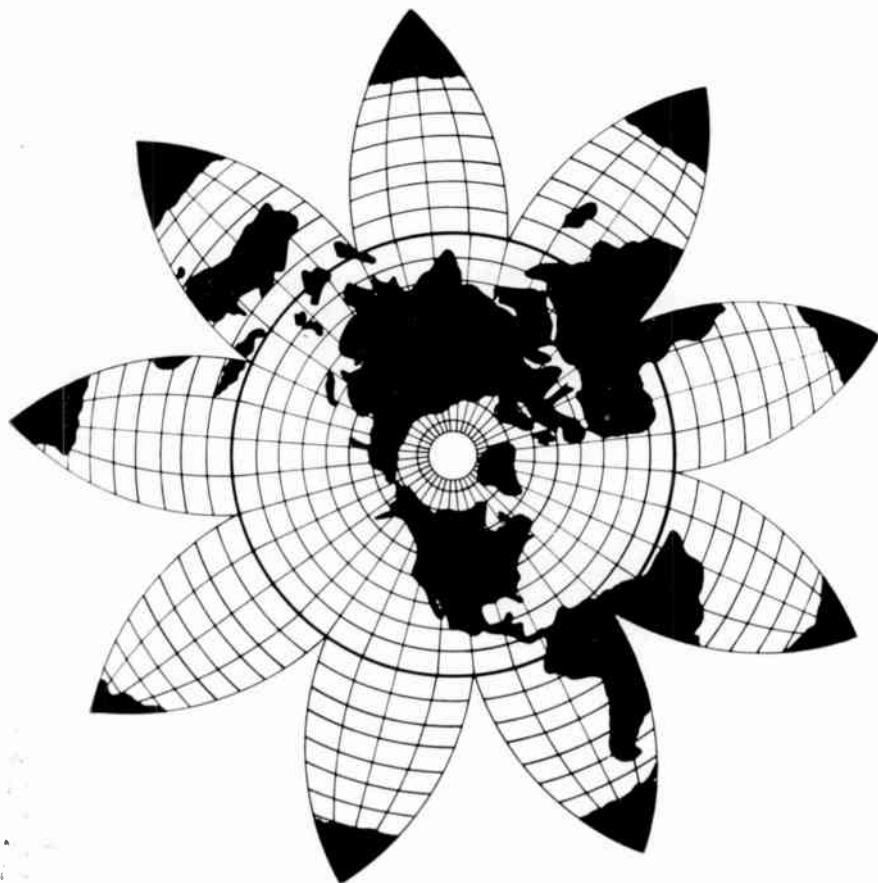
Extended recording time is very important. When I recorded Toscanini I had to stop every half hour and flip the reel of tape. Today, on a recorder operating at $3\frac{3}{4}$ inches per second (where sound quality about equals that of my ten-years-old machine at $7\frac{1}{2}$ ips) I could record as long as two hours before having to flip the tape. If sound quality is not as important as longevity, I could drop down to $15/16$ ips and record up to *sixteen hours* on a single reel of $\frac{1}{2}$ mil tape, recorded monophonically on both sides. That would be *eight hours* in stereo.

The most amazing part of it is that my recording at $15/16$ ips would not be too dreadful, sonic-

(Continued on page 28)


Much larger, wide-gap head from earlier tape recorder (Pentron) used to record Toscanini, compared with much smaller, narrow-gap head in Uher 4000 Report.





PLUG
IN
THE
WORLD
WITH
**SHORT
WAVE**

By Byron G. Wels

 We've probably all seen the cartoon that shows a neighbor visiting a hi-fi enthusiast and admiring his rig with the words, "Gee, I bet you can get Europe on that thing!" The point is that you not only *can* get Europe, you *should* get Europe! (And Moscow, and Rome, and Belgium, etc.)

I know what you must be thinking . . . short wave is full of squawks, squeals, and static. Not necessarily so. Short wave used to be full of this interference, and while some atmospherics still intrude on some stations from time to time, many other stations are crystal clear. Let's face it . . . No radio transmission—not even a local FM program—is going to be as pure as a tape played right in your down home. (*We'll challenge you here. We've heard live FM broadcasts that cannot be matched by tape.—Ed.*) However, increased bandwidths, crystal lattice filters, improved circuit design, and other innovations make a short wave tuner a desirable addition to every hi-fi installation.

You might wonder what programs you can tune in, especially since you can't look in the local newspapers for broadcast schedules. Fear not. If you write to the various programming magazines (written in English, thank you) in the foreign countries you are curious about, they will supply you with program guides for short wave that is beamed to this country. You can tune in, check the band conditions, and you will be able to enjoy such treats as opera, broadcast directly from LaScala in Milan, the BBC Symphony Orchestra directly from London, a Kabuki performance from Tokyo. Why the world is suddenly your oyster!

In buying a short wave converter, you will have to make a few small compromises. For example, you *can't* buy a short wave converter. Don't let this stop you however. You can easily convert a short wave receiver to converter operation. Most of these units are equipped with a jack that comes right off the volume control, so you simply patch the receiver into your "Auxiliary" input on your amplifier, and you're all set. By all means, bypass the feeble amplifier and speaker in the receiver, for if you are accustomed to hi-fi, you won't like what comes through.

As far as price is concerned, it's not prohibitive. While you can shell out a few hundred for such a receiver without half trying, you can also get a very adequate unit for well under a hundred dollars. Be careful if you are new to this game, however. There are two types of short wave receivers. One is called an amateur radio type, and the other is general coverage. Get the general coverage receiver. With it you can get hams, aircraft, police and fire calls as well as overseas programs. If you buy the amateur receiver, don't expect more than hams.

Another major factor to consider is the antenna. While you might get away with a folded dipole for your FM receiver (though you should use an outdoor FM antenna for good stereo reception), it just won't do for short

(Please turn page)

ENGLISH TRANSMISSIONS (weekdays only)

(GMT Greenwich Mean Time)
 The programmes in this section are broadcast in the following time-transmissions:

1. 07.45-08.00 GMT	AUSTRALIA, NEW ZEALAND AND THE PACIFIC AREA	Days — on 31 and 40 min
2. 14.14-14.30 GMT	SOUTH AFRICA	Days — on 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31 and 40 min
3. 19.00-19.15 GMT	AFRICA AND EUROPE	Days — on 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31 and 40 min
4. 19.45-20.00 GMT	EUROPE AND NORTH AMERICA	Days — on 21, 22 and 40 min
5. 20.00-20.15 GMT	NORTH AMERICA	Days — on 21, 22 and 40 min

English transmissions and program notes from a Netherlands program guide booklet makes short wave receiving life easy.

NOVEMBER 1964

1 SUNDAY

The "Happy Station" Show
 Produced and presented by Edward Startz

2 MONDAY

News and Spotlight Concert Hall
 This time we don't feature a symphony orchestra, but the Radio Philharmonic String Quartet, with Henk Bijvanck (piano). They will play the scherzo, andante and finale from Bijvanck's own Piano Quintet.
Views of a British Correspondent by H. George Franks
Musical Interlude
 Jos Cleber and his Cosmopolitan Orchestra in: "Waltzing to the Stars"
Topical Talk

3 TUESDAY

News and Spotlight His and Hers
 Dody and Jerry Cowan invite you

to send in the titles of your favourite tunes and songs, and if we have them in our record library, they will play them on the air in this show. In addition you will hear Tips for the Home-maker, a nice recipe and some gossip in general!
Dutch by Radio
 Starting today we begin a new course for those listeners who have expressed the wish to learn Dutch the easy way! You will again meet Joost Kral and John van der Steen, our two hosts on these programmes, and they will present the text of the course, which once again has been compiled by Mr. John Nissen, of the Applied Linguistics Foundation in the Hague. Listen carefully, and if you have a tape-recorder, please keep it handy, so that you will be able to repeat the lesson as many times as you wish! If you don't have one, you can listen to a repeat of this lesson on Sunday next! For times and frequencies see our box on this page! And now... happy listening!

UNITED STATES OF AMERICA (Atlantic Coast)

49.79 meters over 6.025 Mc/s and 48.50 meters over 6.185 Mc/s
IMPORTANT: In order to facilitate consultation of this schedule all times have been converted to E.S.T. (i.e. G.M.T.—5 hours)

	E.S.T.
Editorial and Press Roundup	(Daily) 21.00
AFRICA TODAY (A weekly commentary)	(Mondays) 21.25
ANY QUESTIONS (Answers to Listeners' Questions)	(Mondays) 21.35
PORTRAITS OF PORTUGAL	(Tuesdays) 21.15
6—Sa da Bandeira and the South	
13—Dances from North and South	
20—The Settlements	
27—Folksongs in Dance-Tempo	
ART AND CULTURE (Cameos of famous artists)	(7th & 21st) 21.15
7—Antonio d'Oliveira	
21—Augusto Gil	
LISBON AT NIGHT (Entertainment direct from a nightspot)	(14th & 28th) 21.15
PORTUGAL OVERSEAS	(Wednesdays) 21.35
FEATURE PROGRAMMES	(Thursdays) 21.15
1—Historical Cameos: Sebastian, King and Dreamer	
8—The Good Earth: Fruit Crops and Export	
15—Welfare Policy in Angola	
22—Frei Luis de Sousa by Almeida Garrett	
29—Painting and Sculpture—Nuno Goncalves	
WINDOW ON EUROPE (A talk commenting on current affairs)	(2nd, 16th & 30th) 21.15
PORTUGAL AND ITS HISTORY (Short talks on the highlights)	(9th & 23rd) 21.15
THIS WEEK IN LISBON (Featuring the week's anniversary)	(Saturdays) 21.15
3—Birth of Vieira Lusitano (1699)	
10—Foundation of the Caixa Sindical (1936)	
17—Death of Martins Corvelho (1898)	
24—The Start of the Ivens Expedition (1886)	
VISITOR'S BOOK (Information for prospective visitors)	(4th & 18th) 21.15
4—Estrela Mountains	
18—Coach Museum	
RADIO PORTUGAL DX CLUB	(11th & 25th) 21.15

A program guide excerpt from a Portugal program is shown at left. Below is a program note extracted from a British short wave booklet which anyone interested can obtain (see text). A few plays every month are included in the short wave broadcasts, as well as music festivals, soccer games, debates, etc.

wave. The rule is: The longer and the higher, the better. The rule can be bent, if not broken. Your author lives in the heart of Manhattan, and the landlord is unsympathetic about antennas on the roof. This required the stringing of a wire around the room molding, and the results, while not superlative, are certainly adequate. We regularly pull in the better foreign broadcasts, and have been able to tape them for replaying here.

It's an interesting point to note that music is not the only fare you'll be served. While music is the prime purpose of getting the short wave tuner, you will find that Radio Moscow provides generous portions of propaganda. You'll also be amused by the very arid sense of humor of some of the British commentators. You can hear satellites as they pass overhead, and it's a simple matter to listen in on the aircraft and police frequencies as well. And don't entirely ignore that portion of the radio spectrum devoted to amateur radio either. Some of the most famous people in the world are amateurs, and you can hear them speaking with their friends. Such people as Barry Goldwater, Art Godfrey, the Sheik of Kuwait, Cliff Arquette, all are radio amateurs, and can be heard.

The best way to get started is to shop for a communications receiver right now. Plug it into your amplifier, connect a good antenna, and give ear to the world.

Here are some addresses that you can write to for program guides, and you'll hear announcements about others as you listen:

- London Calling
 Waterlow & Sons Ltd.
 Twyford Abbey Road
 Park Royal, N.W. 10
 London, England
- British Broadcasting Co.
 35 Marylebone High St.
 London, W1, England
- Radio Portugal
 Rua S. Marcal, 1-A
 Lisboa (Lisbon), Portugal
- Radio Nederland
 International Service
 P.O. Box 222
 Hilversum, The Netherlands

The Music Festivals


FOR several years now, the General Overseas Service has broadcast in October and November, from the Radio Festival, a series that looks back over the many music festivals held in Britain during the summer. This year there will be twelve half-hour programmes of special recordings from some of the principal festivals, each programme is introduced by Arthur Jacobs, the well-known broadcaster and writer on music. The series begins with the Edinburgh Festival, where British music and musicians take their place side by side with works and performers from many other countries. Listeners can hear Beethoven's Sonatas in A major, played by one of Britain's leading pianists, Mervyn Peckham, with the Swedish pianist, David Wilde, and Benjamin Britten, who is also the piano accompanist.

in a performance of Schubert's song cycle, "Mensch und Tier". The singers are Peter Pears (soprano), Heather Harper (contralto), Norma Panofka (contralto) and John Shirley-Quirk (bass). 19th From: Handel's opera, Alcina is a recreation of music of Shakespeare's time has been chosen, 1756. A concert from the Chesham Festival includes three Sonatas by Beethoven, played by Ralph Kirkpatrick (harpsichord) and Humphrey Searle's Song of the Sea, sung by the BBC Chorus, conducted by Alan G. Meale, 1948. From the Festival of the City of London there is a concert given in the Church of the Holy Sepulchre without Newgate, with the Gloria and Sanctus from Hindemith's Mass, 1961, and Alexander Guler's Five Poems and an Epitaph of William Blake, 1941. November of 1964, esp. Weds. 20.45 and Thurs. 12.30

PROFILE OF AN AUDIOFAN

IHF photo contest entrants
show diverse hi-fi setups

MORE PROFILES
ON NEXT PAGE

 Last month, AUDIOFAN Magazine featured the first prize winner in the IHF-sponsored hi-fi system photo contest. The winner of the second prize, Peter A. Earnshaw, Hollywood, California, while not displaying anywhere near as elaborate a system as the big winner, did nevertheless display great ingenuity.

His entire system is mounted in

a Chinese chest. Close the chest's cover and you'd never know a fine hi-fi stereo system was ensconced in it. The handsome installation cost him only \$5, aside from the cost of the cabinet and hi-fi equipment. And this was for ½ inch plywood covered with velvet to serve as a platform to support components.

Hidden inside the 44" long x 22" deep chest is an H. H. Scott

model 260 integrated amplifier, an H. H. Scott model 312 FM multiplex tuner, a Sony model TC-263D tape transport with three magnetic heads and a Sony model SRA-3 record preamp, and an A-R manual turntable. Other equipment includes two Rotron "whisper fans" and a pair of JBL model 77 bookshelf speakers. (The latter is located outside the cabinet, of course.)



Second prize winner in 1966 IHF photo contest incorporated stereo hi-fi components in a handsome Chinese chest (left) which, when closed, hides components from view.

Some audiofans like to hide their hi-fi equipment. Clashes with the furniture, they say. Others prefer to expose components for all to see. Both types naturally show great pride in their hi-fi stereo systems. Here are some of both installation types which were entered in the photo contest.

hide 'em type



Dr. Lester Blender of Prairie Village, Kansas has his hi-fi equipment installed in a beautiful cabinet which, when closed, conceals all his equipment. Music reproduced by hi-fi stereo equipment has become an important part of Dr. Blender's life, we are told, since giving up his dental practise when hit by multiple sclerosis.

Equipment used here includes two Marantz mono preamps, two Marantz mono 40 Watt power amplifiers, a Fisher FM-AM tuner, Thorens TD-124 manual turntable with an SME tone arm and an elliptical Ortofon cartridge, an Ampex 122 tape recorder and James B. Lansing speaker systems (8 model D130, 2 model 375, 2 model 075 speakers).



Dentist conceals his elaborate stereo high fidelity system in a long floor-standing cabinet. There's plenty of storage space for magnetic tape, as you can see.



SHARE YOUR HI-FI INSTALLATION . . .

AUDIOFAN MAGAZINE will pay \$10 for photos or hi-fi component arrangements it uses. Simple snapshots will do, together with a few words on how you found the best spot in the room. This isn't a contest. It doesn't matter whether your hi-fi stereo system is big or small, elaborate, or simple. So let's hear from you.

Send material to
AUDIOFAN MAGAZINE
25 West 45th Street
New York, N.Y. 10036

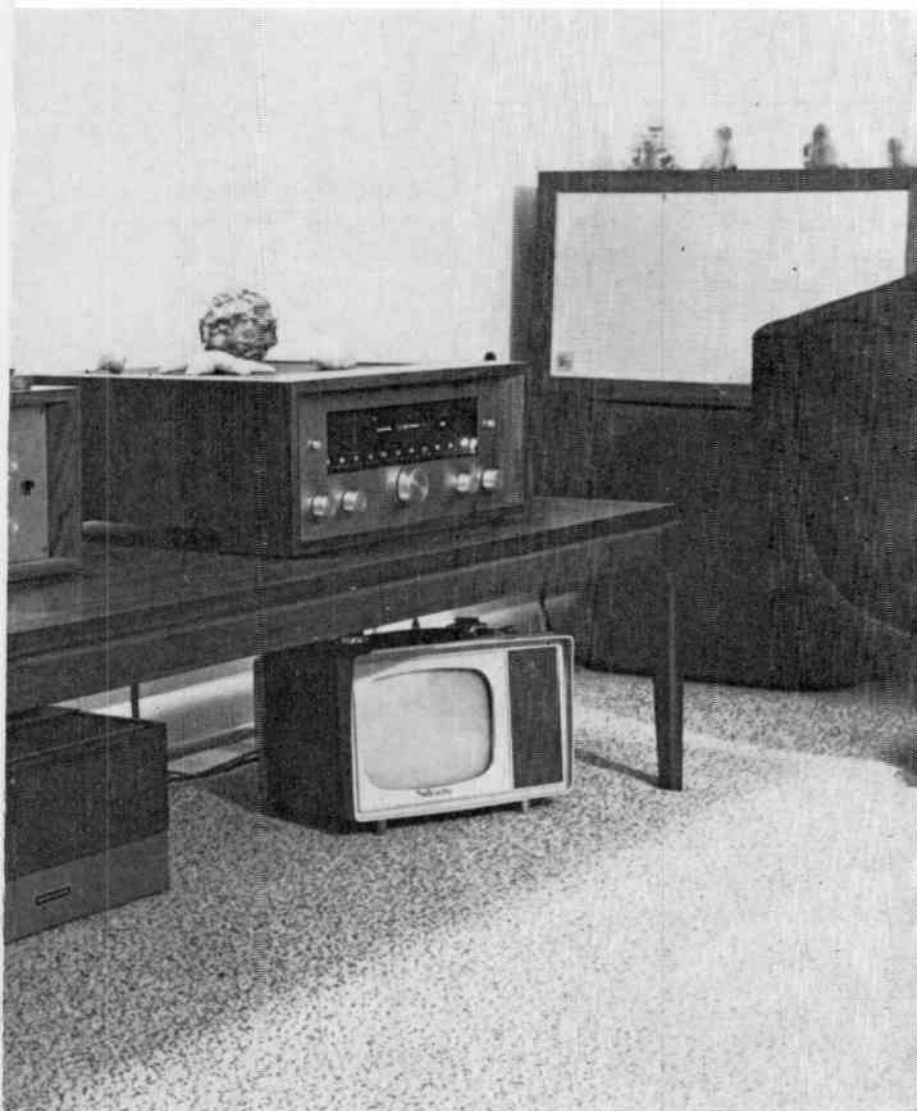
An old buffet serves duty as a hi-fi component cabinet; a stereo tape recorder sits atop it.

show
'em
some
knobs



Here's a 35-year old Jacobean style buffet doing grand service as a hi-fi cabinet. The front panel of John Davis' system shows a McIntosh C20 preamplifier and an MR67 FM tuner. On top of the buffet rests a Tandberg 65 tape transport. But the

Skokie, Illinois resident doesn't show all. He conceals one McIntosh MC30 power amplifier behind each end compartment. A Jensen CCI headphone control center is mounted underneath the cabinet, while a pair of ADC 303 Brentwood speaker systems are in next room, on the wall.



Hi-fier places fine hi-fi stereo components right in the open, where everybody can see them. Note the little fan below the table, used to keep power output tubes running cool. Around the bend (right) of the modern-furnished home you can see a manual turntable and part of a record collection.



give 'em the full salvo



Landover, Maryland's John Lehman isn't hi-fi equipment shy. He displays all his hi-fi stereo equipment front-center as you can see here. Included in the system are the following components Marantz 7 stereo preamp, Marantz 8B stereo power amplifier, Marantz 10B FM multiplex tuner, A-R manual turntable with Shure V-15 cartridge, two A-R speaker systems. Equipment is enclosed in attractive cases.



tape-on speaker wiring system



It's exceedingly difficult to make speaker wiring "neat." Chances are that it's the one unsightly part of most hi-fi stereo systems.

Conventional lamp wire presents many decor problems to the hi-fier. For example, securing it to walls results in chipped paint and plaster. Then, there are many areas where nails can't be used—on stone, metal, and tile—without causing considerable damage.

There is a way out, however. It's a tape-on system, called "Scotchflex" by its manufacturer, the 3M Co. The system is the result of a clever idea: take a self-adhesive flat cable that sticks to any surface, and incorporate four wires along its length, two for each speaker channel. Add plugs and receptacles which also feature self-adhesive backs and that's

it. Oh, yes, you'll require a screwdriver to secure receptacles to the wall, since they will be subject to lots of tugging and other pressures from speaker plugs.

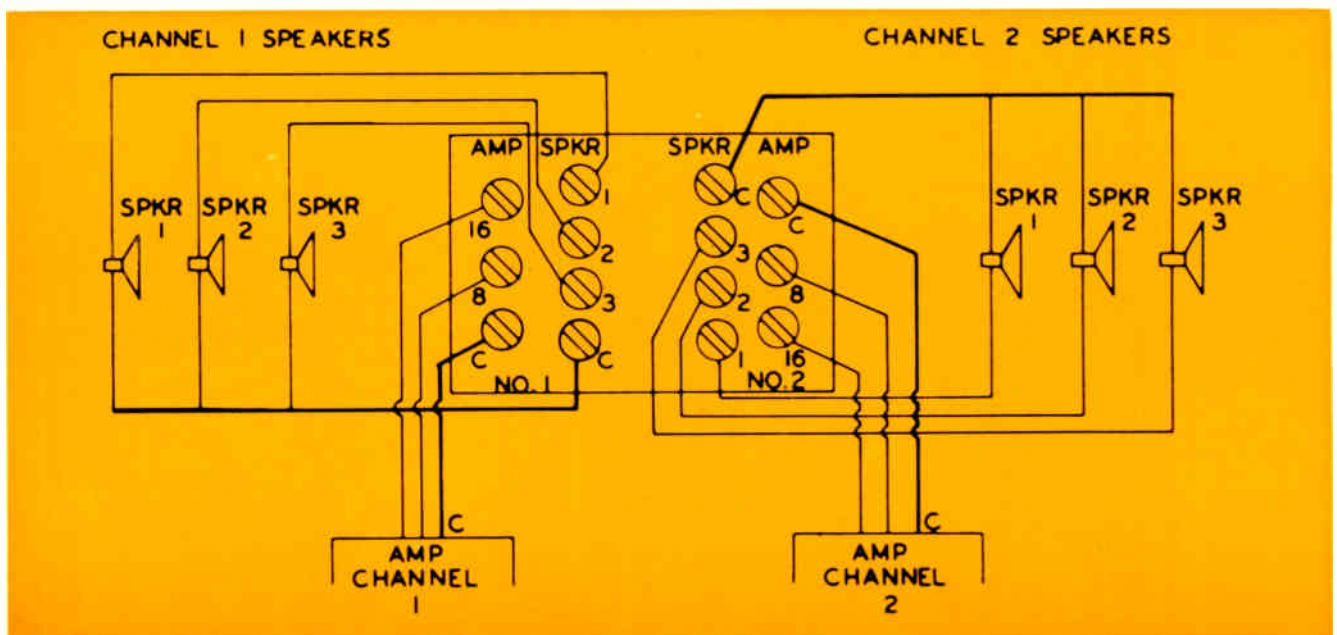
Installation steps are very simple, as you can imagine. All you need do is to first determine the location of your speakers and stereo amplifier, then stick the receptacles in a convenient location. Lay the flat cable in the receptacle, which comes apart in two sections. Pressing the receptacle cover over the half which has some of the cable run across it, and tightening it with a screw, makes it cut into the cable to form electrical connections. So there's no soldering, etc., necessary.

Why doesn't everyone use this simple, neat system, you ask? There's a valid reason (and it's not that it's considerably more ex-

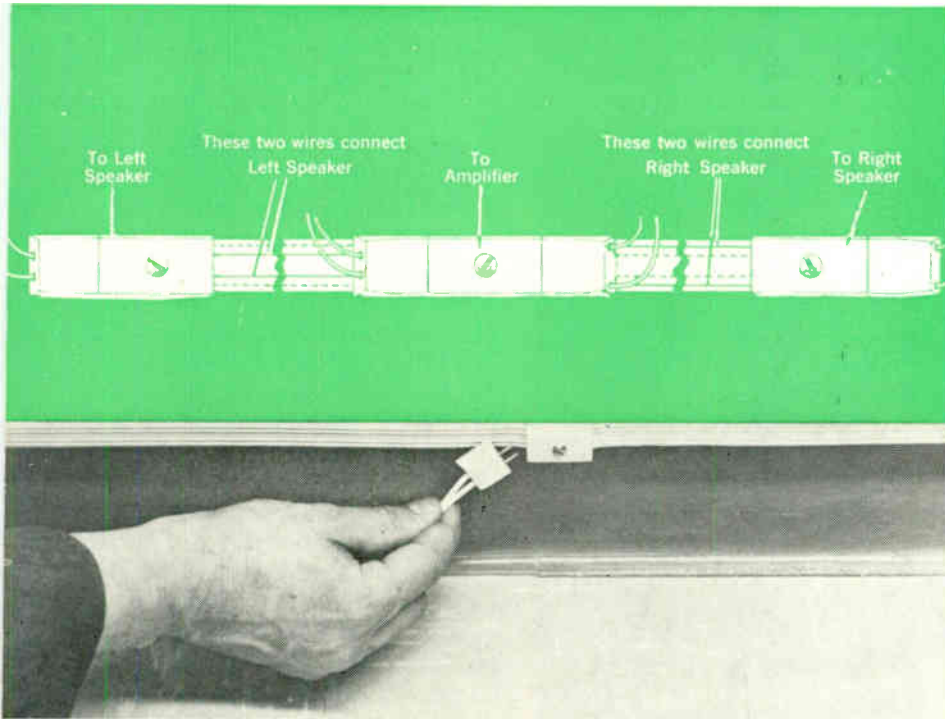
pensive than common lamp wire, which it is). Fact is that the wire incorporated into the flat cable is a mere #22 gauge. Wire with a larger diameter—at least #18; preferably #16 or larger—is best to keep wire resistance low. This is especially true for long runs, where resistance of speaker wire could be appreciable and, therefore, affect damping factor.

This doesn't mean that this fast, easy way cannot be used by hi-fiers. If an amplifier is located very close to speakers, you probably won't experience any difficulties. Too, you might have less expensive speaker systems than the premium ones in the main listening area. These are often used as extension speakers around a home and in the backyard. In this case, higher resistance may not be noticeable.

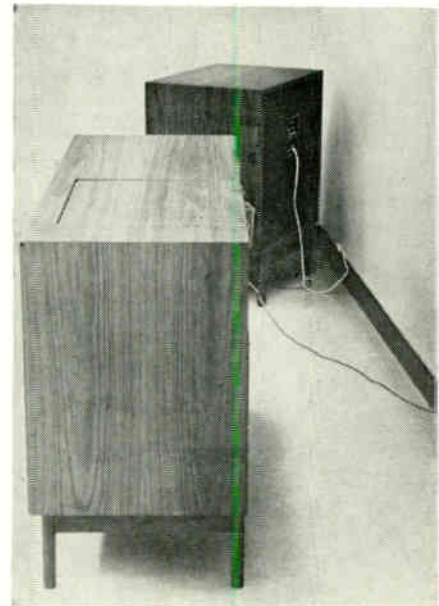
stereo speaker selector switch



CONSTRUCTION PROJECTS



Stereo wiring system, in the form of a flat, cable with adhesive backing, makes neat installation simple. A group of plugs and jacks provides convenient plug-in means for extension speakers.

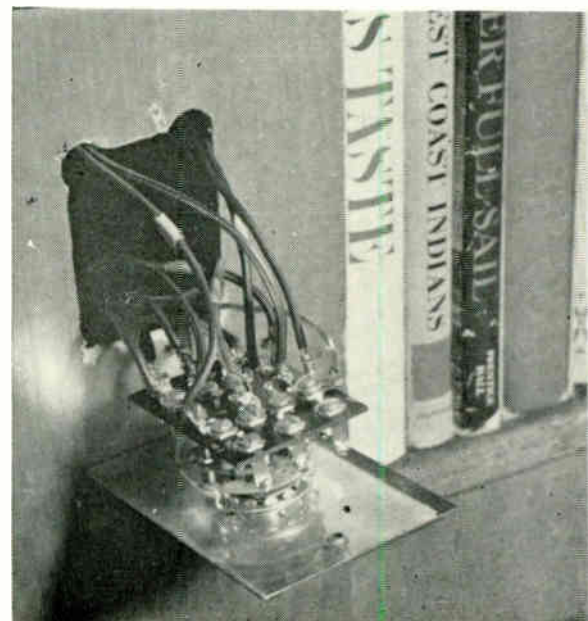


Circuit diagram for multiple stereo switch is shown at left. At right you can see the switch, with its attractive escutcheon plate and knob mounted in a wall. At the extreme right, the back of the switch is shown completely wired, just before wall-mounting is done with two screws.



If you've ever found yourself a bit frustrated in trying to devise some switching device to control and select from among a few stereo speakers in your setup, here's some salve for that ulcer. Switchcraft's 7-way stereo speaker selector switch allows you to choose from any one, two or three pairs of stereo speakers, or any combination of three, including all of them, from a remote location.

The smart looking switch fits into a standard electrical outlet junction box. Its brushed brass or brushed stainless steel wall plate with ivory control knob and black escutcheon with white lettering makes for a neat addition to a hi-fi stereo system.



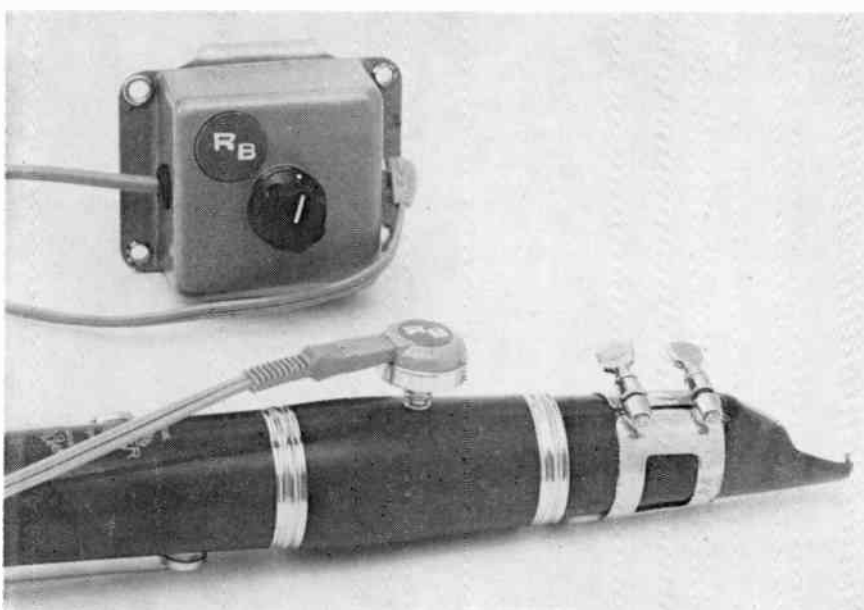


BEATLEPHONES HAVE ARRIVED! New \$24.95 stereo headsets by Koss Electronics incorporate full color pictures of The Beatles in each ear, to the delight of youngsters. The headphones can be used as an inducement to Beatle followers to practice electronic guitar, organ, and piano. This should give some distressed parents some aural relief, when their charges listen to their favorite recording stars (and you can be sure they're not Frank Sinatra, Doris Day, or others of their type) on records, tape or radio.

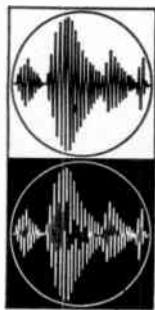
**WHAT'S
NEW
IN THE
WEDDING
OF MUSIC
AND
ELECTRONICS**



PICKUP SOFTENS OR INTENSIFIES ELECTRIC GUITAR MUSIC. A 5 inch silectron steel diaphragm which sits beneath the feet of a guitar's adjustable bridge is said to make possible music as soft as a kitten's purr or as loud as a screaming jet. A conventional magnetic pickup generates its signal by inducing an electric current caused by the cycling action of steel guitar strings as they vibrate directly over an electromagnet. In contrast, gut, nylon or steel strings can be used with the new diaphragm. The plucked strings vibrate the bridge, which, resting on the steel, causes it to generate a signal electro-mechanically. The magnetic signal is fed into an audio amplifier.



ELECTRONIC PICKUP FOR WOODWINDS. A new electronic pickup device for woodwind instruments is shown here attached to a clarinet. The sensitive microphone mounts on a woodwind instrument just past the mouthpiece. It's activated by the vibrating air column inside the instrument. An individual volume control gives the user, in effect, a mixer control, enabling an entire woodwind section to be blended. The non-resonant unit, which can be detached from the instrument, can be used to achieve unusual sound effects with the use of electronic echo or reverberation equipment. The unit is called an R. B. Electronic Pickup.



the technical quality of records and tapes

Reviews are concerned with reproduction qualities of recordings
not musical performance

SINATRA

FRANK SINATRA's recording career spans a lot of years. It started back in 1939 when he was the featured vocalist on a Brunswick label, singing "From The Bottom Of My Heart" and "Melancholy Mood" while with the Harry James Orchestra. So there are plenty of 78's around with the F. S. vocal imprint on them, including 42 records made with Tommy Dorsey up until 1942. The whole point is, you can follow the advances of the recording art with Sinatra; 78's, LP's and 45's, and stereo LP's.

Right from the start he had good musical backing. He continued to have top orchestras and arrangers behind him through the years: Axel Stordahl at Columbia; Nelson Riddle, Gordon Jenkins and Billy May at Capitol; followed by the same names on his own label, Reprise, with the addition of some orchestra leaders who border on the jazz side, such as Count Basie, Neil Hefti, Sy Oliver, Johnny Mandel, Morris Stoloff for show music scores such as "Guys and Dolls." Each orchestra leader or arranger produces a different "sound". So following Sinatra's recordings through the years gives you an interesting cross-section of instruments and various orchestral tones.

And let us not forget the Sinatra voice. It's deeper now than it once was, darker hued than before. Sinatra likes it this way (he privately expressed that he thought his voice was a bit too high-pitched years ago); so does the public.

His latest Reprise record, *Strangers In The Night*, is doing

well at the cash register, we hear. It's a pleasant record (Sinatra doesn't make bad ones). But the audio quality is not quite a bell ringer. Happily, all of the songs in the LP are blessed with the talented arrangements of Nelson Riddle, a favorite of Sinatra's, except for the title song, *Strangers In The Night*. Not that the latter arrangement is poor—it's the best of a fairly good group. But it's disconcerting to hear one arrangement, which has become a hit song, and then slip into an altogether different style, with unfamiliar renderings.

The audio quality of the record lacks the clarity of some of the better recordings around. This disappoints.

For example, the deep drum beats on *Strangers* aren't clean enough, the violins don't have the sheen that marks a fine recording effort; the bells don't have the transparent air about them that spells good high frequency response. The voice is excellent, however. But it, too, lacks something in an audio sense. It's recorded, to be sure. You'll never imagine Mr. Sinatra is singing in your living room.

There's a nice variety of instruments supporting Sinatra on all the other numbers, including an electronic organ and baritone saxophone. Sometimes they're recorded well and sometimes they're recorded very, very badly.

But instrumental sounds aside, the stereophonic effect is unpleasant (and for an extra dollar, yet). Here's where a blend control would have come in handy—there's a hole in the audio middle.

(Continued on page 30)

New from Acoustech The Add-A-Kit Amplifier



An excitingly different way
to build a solid state
amplifying system

First — Build the Acoustech XI



In less than four hours, a stereo power amplifier kit with 35 watts, equivalent RMS power per channel at less than 1/4% IM — PC boards, pre-wired and tested — all parts in bags mounted on KitKloth in order of use — works well with any good preamplifier, tube or transistor, only \$129.50.

Second — Add the preamp module



anytime you want, the preamplifier fits right into the same chassis — inaudible hum and noise — amazing transient response — all the features you need — only \$89.50, complete with gold anodized panel.

World-famous, "State of the Art" Acoustech amplifying system can now be yours at moderate cost. See your dealer, or mail coupon below for full details.

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Div. of Koss/Rek-O-Kut
Dept. AF69, 139 Main Street
Cambridge, Mass. 02142
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Please send free booklet "Why Solid State Amplifiers Can Sound Better" and full information on Acoustech solid state kits to

Name _____

Address _____

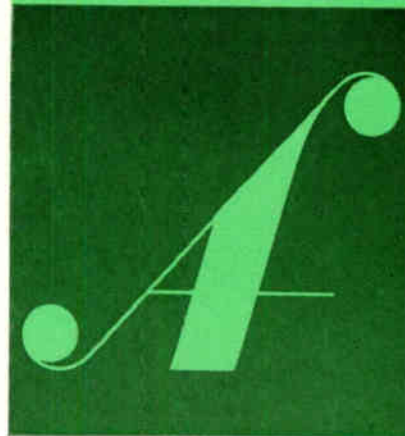
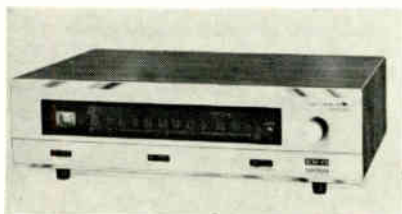
City _____ Zone _____ State _____

WHAT'S GOING ON

amplifiers/tuners/receivers

CM LABORATORIES The 70 watt solid-state Model 35D stereo power amplifier is designed for a hi-fi purist, as are most units of its kind. The power rating is given at RMS, not music power, which would give a much higher rating. The manufacturer says that actual production units measure better than 45 watts RMS per channel, from 20 to 20,000 Hz, into 8 ohm loads. A total of 350 watts is available for peak power. The damping factor exceeds 500 over the 20 to 20,000 Hz frequency range. Total Harmonic distortion of under 0.25% and Intermodulation Distortion of under 0.25% at power levels between 0.35 and 35 watts mark this unit as a particularly "clean" type. The 35D is short-circuit and open-circuit proof. Protection is automatic; no fuses or lamps are used. The 25 pound stereo amplifier has a solid-state lineup of 22 transistors, 5 rectifier diodes and 2 Zener reference diodes. It measures 6 $\frac{1}{8}$ " H x 10 $\frac{1}{8}$ " W x 12 $\frac{1}{4}$ " D. Finish is blue and gray baked enamel. Priced at \$285.00.

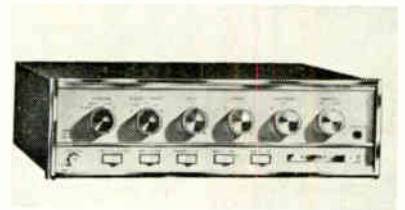
EICO Eico's new "Cortina" series includes the Model 3200 solid-state FM multiplex tuner, which is available either in kit form (\$89.95) or factory wired (\$119.95). Kit-building enthusiasts will be interested to know that the RF, IF and multiplex circuitry are



supplied completely assembled and pre-aligned. Among the new tuner's specs are a 2.4 microvolts for 30 dB quieting IHF sensitivity, 40 db channel separation at 1,000 Hz, Signal-to-noise ratio, 60 dB; Capture ratio, 4.5 Audio Frequency response, 2 to 15 KHz \pm 1 dB. Switching between FM stereo and FM mono is automatic (unit has a defeat switch, too). Front panel controls and indicators include a D'Arsonval tuning meter, AFC on-off rocker switch, and a stereo indicator light.

SHERWOOD The new model S-9900a stereo amplifier and control center is designed for installations where stereo throughout a home is desired, says the manufacturer. Front panel rocker switches offer centralized control of two separate sets of stereo speakers which may be played independently or together. A single monophonic center channel speaker may be included in each set, too. The amplifier section of the integrated amplifier can provide 140 Watts Total of Music Power at 4 rms. Continuous power for each channel at 8 ohms is 40 Watts at 0.6% distortion. Frequency response at

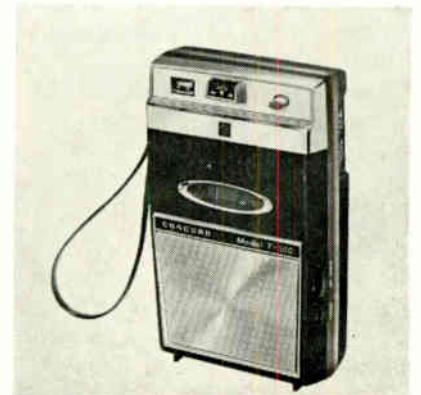
40 Watts is 20 to 20,000Hz \pm 1 dB. The control amplifier has stereo input facilities for tuner, phono, tape heads, tape monitoring and auxiliary signal sources. Front panel rocker switches control tape monitor circuitry, loudness compensation, a high frequency filter and the two sets of stereo speakers. The 22 pound unit contains 24 silicon transistors and 14" x 4" x 10 $\frac{1}{2}$ ". Without a case 4 silicon diodes. Dimensions are the S-9900a is priced at \$229.50.



With a walnut-grained leatherette case, it's \$237.00.

tape recorders

CONCORD Concord adds a new portable, tape cartridge recorder to their line. The compact (3" x 5" x 8"), light weight (3 lbs.), battery-powered Model F-100 uses a standard C-60 tape cartridge which snaps into place. It



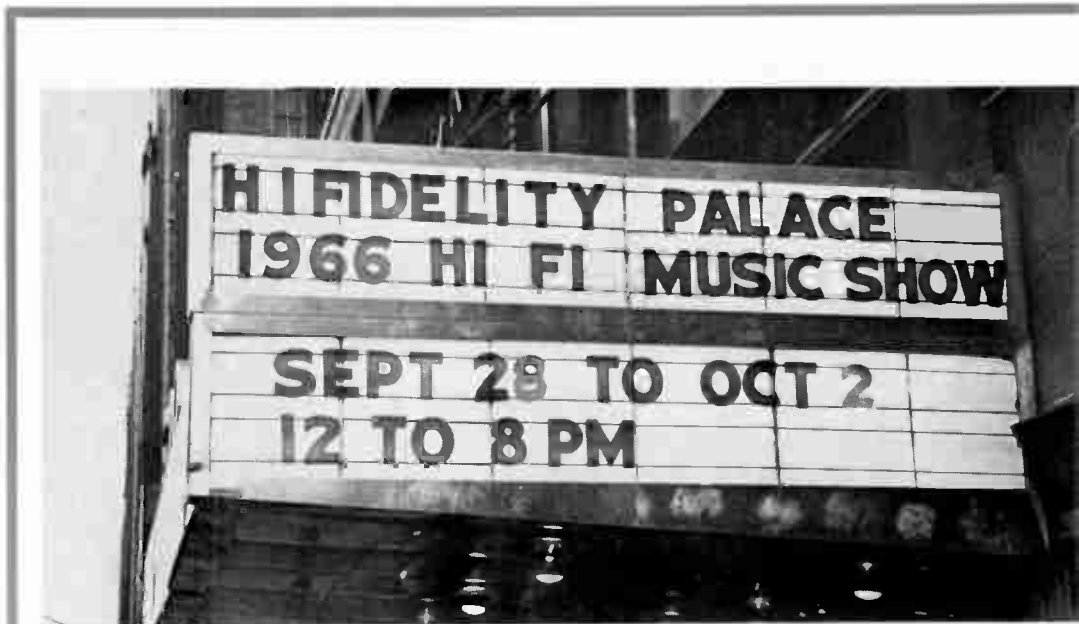
records or plays for a full hour at 1 $\frac{1}{2}$ ips (two hours on double-play

cartridges), and stops automatically. Controls include fast forward, fast rewind, and separate controls for playback and recordings. A meter indicates record level and battery condition. Accessories included with the F-100 include a remote control microphone, mike stand and pouch, recording patch cord, playback patch cord, one C-60 magnetic tape cartridge, and a carrying strap. Among the optional accessories are an AC adapter, foot control for dictation, and an earphone. Priced under \$100.

turntables

BENJAMIN The Miracord Model 5011 automatic turntable bears a close family resemblance to other Miracord models. But there are numerous differences to justify its higher price, \$149.50. It has a newly designed tone arm with a vernier control to adjust its counterweight, and a gram-calibrated knob to set stylus force. An anti-skating system which uses a sensing mechanism to counter any tendency for the tone arm to skate is incorporated beneath the tone arm bearing, says the manufacturer. Other features include a built-in cueing device, illuminated speed indicator (there are four speeds: 78, 45, 33-1/3, and 16-2/3), and hysteresis motor. Operation is manual or automatic.

RFS INDUSTRIES Here's an English import that's called the "Crown Princess." It's a 4-speed automatic turntable with a \$52.50 price tag. The model RCD-6 incorporates a built-in stylus brush, 11-inch turntable, 4-pole motor, a built-in 45 rpm centerpiece, removable spindle and 10 record intermix at the same speed.



If you live in the New York Metropolitan area, the BIG news this month is the forthcoming New York Component High Fidelity Music Show to be held at the New York Trade Show Building, September 28 through October 2.

Of special interest to audio buffs are the seminars presented every year. And if you plan to attend the show with a hi-fi beginner, he will find considerable value in the Novice Symposiums, which will introduce him to high fidelity components the right way.

The audio seminars, which are FREE to anyone attending the Show, cover phono cartridges, manual and automatic changers, tape recording, special effects of tape recording, stereo and the listener. The first seminar, TAPE RECORDING, will begin on

opening day, Wednesday, September 28, 7:30 to 8:30 P.M. The second seminar, on PHONO CARTRIDGES AND TURN-TABLES, will be held Thursday, September 29, 7:00 to 8:00 P.M. The TAPE AND SPECIAL TAPE EFFECTS seminar will follow on Friday, September 30, 7:00 to 8:00 P.M. The final audio seminar, on Saturday, October 1, 7:00 to 8:00 P.M. will be on STEREO AND THE LISTENER. Each seminar will be conducted by highly regarded audio experts.

Novice sessions will be held Thursday, September 29, 8:00 to 9:00 P.M. Friday, September 30, 8:00 to 9:00 P.M.; Saturday, October 1, 3:00 to 4:00 P.M.; and Sunday, October 2, 2:30 to 3:30 P.M. Each session will conclude with an audience participation Question and Answer session.

NOW FREE!

STEREO INFORMATION

FM Station Directory

The directory lists 1571 FM stations in the United States and Canada. All the stations broadcasting in stereo are listed.

Test Reports

Test reports full of facts. The test reports were made by independent laboratories. Tests cover tuners, preamps, power amp/preamps. Read the facts from test experts.

Big 36-Page Catalog

You get a 36 page catalog. It tells you about tuners, power amplifiers, preamplifiers, pre-amp/power amplifier combination and tuner preamps.

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NAME
STREET
CITY
STATE ZIP

inquiring reporter

PLACE: 1966 LOS ANGELES AND SAN FRANCISCO HI-FI SHOWS.

QUESTION: DO YOU PREFER COMPONENTS OR PACKAGED EQUIPMENT?



ART MORRELL

AUDIO ENGINEER, 20 YEARS HI-FI INTEREST: I'M A COMPONENT MAN. THAT WAY I'VE A BETTER CHANCE OF GETTING THE SYSTEM I WANT. THE OTHER WAY I'M GETTING WHAT SOMEBODY THINKS IS QUALITY.

I WAS SHOPPING AROUND. I'M SURE I COULD DO BETTER FOR MORE MONEY. BUT I HAVE RECENTLY GOT A GOOD TAPE DECK AND NOW, I SUPPOSE, I'LL HAVE TO UPDATE ALL MY EQUIPMENT. BUT NOT IN A PIECE OF FURNITURE. WHEN YOU BUY A CONSOLE YOU'RE SADDLED WITH IT. THE GREAT ADVANTAGE OF COMPONENTS IS THE PHYSICAL PLACEMENT OF THEM.



L. N. CATHEY

UTILITY PRODUCTS SPECIALIST, NO REAL INTEREST IN HI-FI: YOU SEE, I'VE A PORTABLE MONO RECORD PLAYER AND THAT'S REALLY ALL I WANT. AND I'LL STICK WITH IT UNTIL IT WEARS OUT. I DON'T SEE ANYTHING HERE TO MAKE ME CHANGE MY MIND. I DON'T THINK I CAN HEAR THE DIFFERENCE ANYWAY, EXCEPT PERHAPS BETWEEN A REALLY GOOD ONE AND A REALLY BAD ONE. IT'S ALTOGETHER TOO MUCH TROUBLE PICKING COMPONENTS.



RICHARD LIEBMAN and STEPHEN

ACCOUNTANT, 2 YEARS HI-FI INTEREST: I'M AN IMPULSIVE COMPONENTS BUYER. I HAVE A POOR AMPLIFIER. I'M GETTING MORE AND MORE INTERESTED, THOUGH, AND I WANT TO UPDATE THE AMPLIFIER. AND I WOULD LIKE TO ADD A TAPE DECK SO THAT I MIGHT TAPE STEREO OFF THE AIR. AS I BECOME BETTER ACQUAINTED WITH HI-FI I EXPECT THERE WILL BE OTHER IMPROVEMENTS I WILL WANT TO MAKE. RIGHT HERE I'M GETTING TO KNOW EQUIPMENT I NEVER KNEW EXISTED.



A. J. HAROLD

ENGINEER, 20 YEARS HI-FI INTEREST: YES, I HAVE A COMPONENT SYSTEM. YOU GET BETTER QUALITY, AND YOU CAN CHANGE THINGS AROUND WITHOUT DIFFICULTY. IN THIS WAY I'VE BEEN ABLE TO BUILD UP A SYSTEM GRADUALLY. I'M INTERESTED IN GETTING A NEW CARTRIDGE, MAYBE THE ELLIPTICAL STYLUS ONE. I FEEL IT WILL PUT MORE INTO MY SYSTEM. NO, I'M NOT LOOKING AT FULLY INTEGRATED UNITS. WHEN YOU GET RIGHT DOWN TO IT IT'S SOMEBODY ELSE'S TASTE VERSUS YOUR OWN, ISN'T IT?



HERBERT URMAN

TECHNICAL ILLUSTRATOR, 10 YEARS HI-FI INTEREST: COMPONENTS ARE BEST FOR ME. I HAVE TAPE AND FM. THE COST OF THE EQUIPMENT ENTERED INTO IT WHEN

Come to the New York High Fidelity Music Show with your wife.



Go home with a sound idea.

The sound idea that's right for your home... just one of hundreds of decorating ideas presented at this year's brightly new High Fidelity Music Show.

Your wife will enjoy the many model rooms designed by America's leading decorators. Each of them shows how today's high fidelity components can do more than fit into a room; they can actually enhance it. (Making it a lot easier for you to sell your wife on the system you want.)

You can look at any of over 100 rooms filled with the latest in high fidelity components from virtually all of the leading manufacturers. This year they include video tape recorders and automobile stereo high fidelity systems. Plus the latest in tuners, amplifiers, speakers, turntables, record changers, tape recorders, cartridges and headphones. On the second floor attend seminars given by experts. Get all your technical and non-technical questions answered. Consult show program for seminar hours.

Don't forget to bring your wife. It'll keep her out of the department stores.

NEW YORK HIGH FIDELITY MUSIC SHOW

September 28th thru
October 2nd 1966

New York Trade Show Building,
35th Street and 8th Avenue.





the great new

MIRACORD 50H

is now being shown
by selected hi fi
dealers throughout
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At \$149.50, less cartridge and base, it is probably the most expensive automatic turntable available today.

But you'll understand why when you see its advanced features. We think it's the handsomest, quietest, gentlest automatic ever produced, and the easiest to operate.

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CHECK-UPS
THAT KEEP
YOUR
SYSTEM
TIP-TOP**



HOLD ON TO HIGH FIDELITY

do it right the first time

When you're installing a high fidelity stereo system, it pays to take some installation and location considerations into account. It's very easy to buy components and plop them down into what appears to be the most convenient location, and string wiring.

It seems that most hi-fiers can't wait to hear the system play in their homes (and who can blame us?), but this compulsive attitude could lead to later regrets if the hookup is made permanent.

For example, if bookshelf speakers are hung on a wall with picture hangers, you may later discover that the position doesn't produce the best sound; maybe you get a "dead spot" at your favorite lounge chair's position. Changing speaker positions often leaves you with some unsightly holes and chipped paint. Better to experiment by having some friends hold the speakers in an experimental position, or situate them atop a ladder.

Perhaps you placed a turntable in what appears to be the best position only to discover later that there are a few creaky planks in the floor board that send vibrations to the turntable which, in turn, causes the stylus to jump grooves. Now you'll have to correct the problem in some way or relocate your turntable. And this frequently means changing the position of an amplifier because a cartridge, which is a high impedance device, can't operate well at much of a distance from its input circuit.

Another difficulty that sometimes arises is due to placing an amplifier in a confined location. Tubes throw off a lot of heat and various parts can deteriorate as a result of it. And don't think just because you have a transistor amplifier that you're completely safe from heat problems. The ambient temperature of some enclosed areas becomes inordinately high during the summer and could affect power transistors.

If you're having an outdoor antenna installed, get a good one to be sure you pull in distant FM stations and to avoid stereo FM reception problems. Installation costs come high, so spend a bit more for the antenna in the first place, which will not up the cost of professional labor, and you might be saving money in the long run, improve the fidelity of your reception, and increase your pull-in power by 10% or more stations.

**YOUR BEST TAPE
BUY!**



ROBINS
INDUSTRIES CORP.
FLUSHING, N. Y., 11356.



MAN--YOU GOTTA HEAR THIS NEW
action!
SPEAKER

UNIVERSITY'S NEW UR-4 COMPACT 2-SPEAKER SYSTEM



This is it! The action speaker! University's new UR-4 2 speaker system! Full of go! Full of action! Full of big lively sound! It doesn't miss a thing! Delicate highs — rich, full bass, the *action speaker* handles them all without distortion! This mighty midget (only one cubic foot) goes anywhere! In a book case! A headboard! On the wall! On the floor! And you get all that lively University Sound for less than \$60.00! Man, you gotta hear this one to believe it! Go to the shop where the action is — your University dealer and listen to the *action speaker*.

SPECIFICATIONS Frequency Response: 30 Hz to beyond audibility ■ Power Handling Capacity: 30 watts IPM ■ Music Power ■ Impedance: 8 ohms ■ Crossover Network: High pass coupling network, 6 db/octave electrical design ■ Crossover Frequency: 2000 Hz ■ Speaker Complement: 1—3" ultra-linear response, high-compliance woofer, edge resonance damped 1—2½" direct radiator rigid-diaphragm, closed back, cone tweeter ■ Enclosure Design: University's exclusive RRL* design for extended low frequency response ■ Finish: Oiled Walnut on all four sides ■ Dimensions: 19" x 10½" x 9" (H x W x D) ■ Shipping Weight: 14 lbs. ■
*Radiation Resistance Loading



LISTEN—UNIVERSITY SOUNDS BETTER
UNIVERSITY SOUND
A DIVISION OF LTV LING ALTEC, INC.
9500 W. Reno Oklahoma City, Oklahoma 73101

Tape's Greatest Decade *from page 12*

ally. Better heads and better tapes help to offset one of the chief flaws of slow-speed recording — lack of highs — while larger capstan flywheels and more precise transport mechanisms minimize the other big problem, speed constancy.

What has happened to recorders since Toscanini? Many things. For one, they have grown smaller. During the mid-fifties I used to lug around a suitcase-size recorder which weighed nearly 50 lbs., plus another 30 lbs. of microphones, mixers and assorted recording gear. And wherever I recorded, I could never forget that I was forever tied to the AC line. In fact, one of the heaviest items in my accessory case was a several-hundred-foot hank of heavy, black AC umbilical, my only means of freedom.

Today I can record anywhere. My favorite recorder weighs about 5 lbs. I hang it around my neck from a leather strap. I carry the

microphone in my hand, and turn the recorder on and off from a switch on the side of the mike. I don't care if the electricity in the entire eastern half of the country goes off, I can still record up to six hours from the rechargeable batteries packed inside my recorder.

Freedom. That's what the recorder revolution has brought. The transistor has been largely responsible for it, chiefly because it doesn't need a bulky B-plus power supply to establish high distortion-reducing potentials. A transistor works quite well from a flashlight battery.

Big gains in head design and circuitry were made during a relatively short period about eight years ago, when most recorder manufacturers went to narrow gaps, sought harder metals and refined methods of straightening and polishing the gap, and touched up their electronics to reduce distortion all down the line. Since

then, gains have been more gradual. As electronics generally have improved, so have recorders.

The big jump in recent years has been to stereo. Today, recorders which will record mono and play stereo cost the same, or less, than mono-only machines of a decade ago. More and more competitively-priced machines will both play and record in stereo.

There is still another area of tape recording in which progress in recent years has been significant. This is microphones, and while amateurs don't use them for recording off the air or dubbing from discs, the fact is that more and more "home" recordists are recording their material "live." Better mikes do a better job.

The *best* mikes are still expensive. Most professional recordists rate the condenser mike at the top of the heap. Many cost several hundred dollars each—more than some recorders. But wonderful breakthroughs have been made here, too, with some condenser mikes costing under \$100.

Exciting news for most home recordists is in the field of inexpensive dynamics—the \$10 to \$50 microphone range. Here, big things have been happening. Frequency response has been widened, especially downward, while better methods of coupling the diaphragm to its mount acoustically have greatly smoothed the output, resulting in a higher *usable* response. Low impedance models permit hi-fiers to use long leads; directional types enable recordists to achieve more professional results. In the home recording field, where the notorious villain of poor recording has been the "cheap" omnidirectional microphone packed with the recorder, this is great news, indeed.

No single aspect of recording can be singled out as having contributed the most. Everything has helped—tapes, recorders, microphones, monitoring equipment, even the cases equipment is packed in are more durable and attractive. And prices remain close to 1955 levels.

For the recordist seeking new sonic adventures, 1966 is truly an exciting year to be alive.



World-Wide Products of Distinction

The Remarkable **REVOX**

The tape recorder acclaimed throughout the world. Is there another tape recorder anywhere that matches it? Decide for yourself:

The remarkable ReVox boasts features found only in the most expensive, professional tape recorders. Each of the two reels, for example, has its own Pabst motor. Direct coupling eliminates wow and flutter; no belts to break or slip. Tension adjustment control allows use of any reel up to 10½ inches (the only recorder in its price class that takes a 10½-inch reel.) All operating modes switched electrically.

OUTSTANDING FEATURES

- Records up to 4800 feet of LP tape • Complete 4-track stereo recorder • 10½" reels • For horizontal or vertical mounting • Cathode follower outputs • Oversize solenoid brakes assure quick, positive breaking even with extremely fast rewinding speeds • Automatic stop at end of tape • Two VU meters

The only one of its kind with these features at \$500.



JUST OFF PRESS! New book tells you how to get the most out of your tape recorder. **YOUR TAPE RECORDER** by Tall and Clifford only \$1

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Available in Canada



Compare these new Sherwood S-8800 features and specs! ALL-SILICON reliability. Noise-threshold-gated automatic FM Stereo/mono switching, FM stereo light, zero-center tuning meter, FM interchannel hush adjustment, Front-panel mono/stereo switch and stereo headphone jack, Rocker-action switches for tape monitor, noise filter, main and remote speakers disconnect. Music power 140 watts (4 ohms) @ 0.6% harm distortion. IM distortion 0.1% @ 10 watts or less. Power bandwidth 12-35,000 cps. Phono sens. 1.8 mv. Hum and noise (phono) -70 db. FM sens. (IHF) 1.6 μ v for 30 db quieting. FM signal-to-noise: 70 db. Capture ratio: 2.2 db. Drift \pm .01%. 42 Silicon transistors plus 14 Silicon diodes and rectifiers. Size: 16 $\frac{1}{2}$ x 4 $\frac{1}{2}$ x 14 in. deep.

Now, look at the *NEW* Sherwood specs!

Model	V-Vacuum Tube S-ALL- SILICON T-Germanium Transistor	Power (IHF)	FM Sensitivity	Price	Dollars Per Watt
		2 channels 4 ohms Watts			
Sherwood S-8800	S	140	1.6	\$ 359.50	\$ 2.57
Altec 711A	S	100	2.2	378.00	3.78
Bogen RT8000	T	70	2.3	319.95	4.57
Dyna FM-3, PAS-3 & S-70	V	90	4.0	404.85	4.49
Fisher 700T	T	120	1.8	499.50	4.16
Fisher 440T	T	70	2.0	329.50	4.70
Harman-Kardon SR-900B	T	100	1.85	449.00	4.49
McIntosh 1500	V&T	85	2.5	499.00	5.87
Marantz 8B, 7T, & 10B	V&T	75*	2.0	1340.00	17.87
Scott 348	V&T	120	1.9	479.95	4.00
Scott 342	T	65	2.5	299.95	4.61

References "T" or "V&T" (above) may include some silicon transistors.
Figures above are manufacturers' published specifications
except (*) which are published test findings.



3-YEAR WARRANTY

S-8800 140-watt FM ALL-SILICON Receiver
\$359.50 for custom mounting
\$368.50 in walnut leatherette case
\$387.50 in hand-rubbed walnut cabinet

Sherwood

Up- grade your sound !

Whatever your receiver or amplifier is capable of doing, EMI loudspeakers have a unique way of making it sound better.

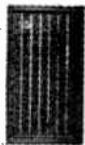
Perhaps it's the ease with which EMI loudspeakers project sound. So smooth and natural, it seems to float on the air in all its concert hall glory. Filling the room.

Or perhaps, it's the deep bass, the incomparable realistic midrange and the full, silky highs.

Or it could be the subtle detailing of their transient perfect response that catches you unawares.

So, for better sound from your receiver or amplifier, come on up to EMI loudspeakers.

There's an EMI loudspeaker to meet any requirement and budget. From \$49.95* to \$395.00*



*Slightly higher in South and West

EMI / SCOPE

Scope Electronics Corporation
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New York, New York 10016
Also available in Canada.

ASK THE AUDIOFAN ANSWER MAN

Bass speaker of infinite baffle?

FROM: D. R., NEW YORK, N.Y.:

I have noticed that many large speaker systems use the infinite baffle principle. Is it more suitable to such systems than the bass reflex principle? And if the bass reflex approach should be better, will dimensions of the port be changed when there is more than one bass speaker in the enclosure?

ANSWER:

You will find both speaker systems in wide use today. There are also some large system speaker manufacturers who employ horn enclosures. If a second bass speaker is added to a bass reflex system, in answer to the second part of your question, the port dimensions would have to be changed accordingly because the resonance frequency would be altered.

Input jack shortage

FROM: E.J.S., BRONX, N.Y.:

My FM/AM stereo receiver has the following pairs of jacks on the back: Tape head, Auxiliary, Magnetic. Record, Play. Assume that I have a connected record player with magnetic cartridge, a TV set, and a tape

recorder in record and play jacks. This leaves all jacks utilized except tape head and crystal. I wish to connect a reverberation amplifier to the system and, according to the instructions, this amplifier must be also connected to the pairs of RECORD/PLAY jacks where the tape recorder is already connected. I also wish to connect another record player with a magnetic cartridge to the system, which is already being used. The problem, therefore, seems to be how to connect two stereo sound sources into the same one pair of jacks on the amplifier. Is there a device on the market which will enable me to solve this problem?

ANSWER:

You can connect two stereo sources into the same one pair of jacks on an amplifier in a few ways, depending upon what your plans are. If you require a duplicate input jack in order to play a second source without pulling one plug out to insert another one, you could use a dual-input/single plug output device made by Switchcraft, to name one manufacturer of such a device. You might also consider constructing a small pre-amplifier to accommodate an additional set of inputs, obtain more gain if needed, or provide equalization not incorporated into your present preamp (such as stereo microphone inputs). Construction plans for such a device were published in the July issue of AUDIOFAN.

the technical quality of records and tapes

(Continued from page 21)

What's more, most of the music comes from the left speaker system, with Sinatra singing left-center and some whispering audio coming from the right speaker. The latter channel comes to life every once in a while with a very deep trombone thrust or deep brass playing in unison.

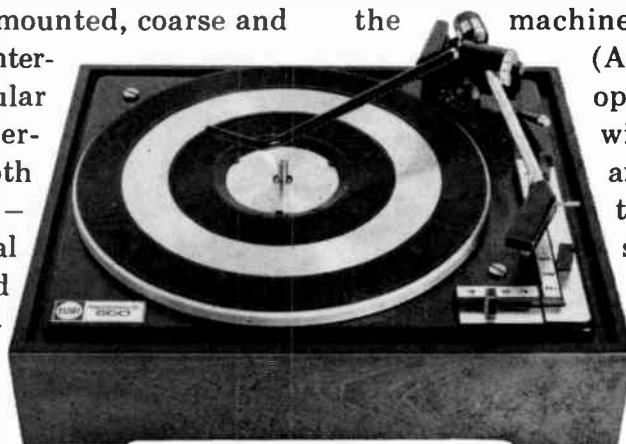
The musicians are a swinging group, as a whole. The organ pipes up here and there, irritatingly at times because it produces a harsh tone in spots. One selection has bongos accompanying Sinatra. These were fine and give a system's transient response a nifty workout. There are lots of

drum brush work, plenty of cymbals struck by drum sticks, drum rolls, some strings, even a Shep Fieldsish sax section on one number.

All and all, the sound isn't too bad. It's disappointing, however, because Sinatra's known to be a perfectionist and, in the past, has had better recording quality behind him. But there's no one to blame but himself. He's his own boss. But give me *Songs For Swingin' Lovers*, also backed by Nelson Riddle, anytime. It's an oldie that puts the new recording, with ostensibly better recording equipment available to produce it, to shame.

This new BSR McDonald 500 Automatic Turntable will change your mind about how much a precision crafted British instrument should cost.

Up to now, you would have had to pay at least \$74.50 to get the features that you get with BSR McDonald 500... for only \$49.50*! Quality features like Resiliently mounted, coarse and fine vernier, adjustable counterweight Low mass tubular aluminum pickup arm perfectly counterbalanced both horizontally and vertically – less susceptible to external shock The arm supported on virtually frictionless pre-loaded horizontal ball bearings assuring sensitive and accurate tracking Micrometer stylus pressure adjustment that permits 1/8 gram settings from 0 to 6 grams Lightweight cartridge shell with fingerlift, accommodating most standard mono or stereo cartridges Cueing and pause control, allowing you to select



THE BSR McDONALD 500
AUTOMATIC TURNTABLE – \$49.50

the exact band on the record – without fear of damage to the record or the cartridge Automatic lock, securing the pickup arm whenever the machine is in the “off” position.

(Another BSR exclusive development prevents jamming – without having to reset the arm!) Easy operating controls for manual or automatic selection of 7”, 10” or 12” records at 16, 33, 45 or 78 RPM Interchangeable center spindles for manual or automatic play Dynamically balanced, resiliently mounted, 4-pole motor shielded from hum

Heavy duty, constant speed design assures minimum wow and flutter. Stop in at your audio dealer today and ask to see the BSR McDonald 500—the \$49.50 Automatic Turntable with \$74.50 features.

*Suggested Retail Price





- One thing that FM tuner and receivers are missing is an automatic station selector. Auto radios have it—you can set a pushbutton for your favorite station and simply depress it to tune in the broadcast, without running the gauntlet of all the stations across the dial. Impossible to do with FM, you say? Well, Clairtone has incorporated 5 automatic FM selector keys in one of their FM stereo units. And Panasonic recently introduced an AM portable with "Memory Tuning." The Matsushita Electric product also offers pre-selection of five most favored broadcast stations, claiming instant and precise selection through use of a new element called a "capistor," which is a "hyper-abrupt" junction type variable capacitor. How about this convenience feature for '67 Mr. Hi-Fi Manufacturer?
- Muntz is producing 4-track stereo tape cartridge "singles." The cartridge is priced at \$1.19 and contains as much as 16 minutes of tape time. Thus, tape cartridge fans have the equivalent of a record disc's single 45 RPM hit, rather than a whole album. The manufacturer also recently opened a seven day, 9 A.M. to 9 P.M. retail outlet in California.
- Integrated circuit applications in consumer home entertainment products continue to expand. RCA, for example, has introduced four such circuits for use in FM sound systems. A single "chip" performs functions of the sound IF amplifier, AM and noise limiter, FM detector, and audio preamplifier. Each chip is no larger than the letter "o" on a typewriter. We can expect high fidelity components equipment to design these devices into circuits in the near future. The only question is, when you reduce the size of circuits, how do you diminish the overall size of a receiver when you still require tuning knobs and dials of substantial size. One manufacturer advanced this idea as an answer to the question: Use a pushbutton station control, where only the station's number selected will appear in an opening. No doubt, we'll have "push-pull, click-click" type controls one day.
- An interesting innovation in the sound quality of electronic organs has been announced by the Allen Organ Company. A "breath accenter" has been added, which contributes the natural sounds of human breath to the tone of many of the instruments played on an electronic organ. A company spokesman points out that "if you listen closely to the sounds of musicians who play wind instruments, you will hear sibilant sounds. These cannot be eliminated," continued the company representative. "They are present when musicians play cornets, trumpets, clarinets and other wind instruments, just as they are present when we talk." He concluded by noting, "These sounds add a greater dimension of realism and naturalness to electronic organs."
- It's not impossible for tape cartridges to achieve high fidelity and satisfactory operating versatility. Broadcast continuous-loop tape cartridges and equipment do it, so why can't consumer types also do it? Money is why. One broadcast unit, KRS' model SB-1, for example, goes from \$650 to \$895, depending on the model. However, it has high forward speed, reverse speed and cueing functions. Toggle switches permit selective track erasure of programs or cues. Play time is up to 30 minutes at 7½ ips; start and stop time is only 50 milliseconds. The cartridge's tape uses only two tracks—one for audio and one for cueing signals. And there's space for four magnetic heads. A frequency response of 30 to 15,000 Hz ± 2 dB is claimed, with wow and flutter of 0.18%. So you see, it can be done!
- If you want some interesting insights to that great man, Arturo Toscanini, NBC Radio Network has a series on Wednesday's where people who worked with the maestro discuss various facets of the legendary orchestra leader. The program is entitled, "Toscanini—The Man Behind The Legend."

Dear Audioman:

You're one of the "in" people, dear reader, when it comes to high fidelity equipment. If you doubt this for a moment, just think of the many friends, relatives, even casual acquaintances who regularly seek your advice on what kind of hi-fi components they should buy.

Exercising the power of an advisor requires judicious use of the "in" language. Otherwise communication with neophytes becomes, at best, unbearable. For example, throwing your friends into the ice cold water of hi-fi system jargon when they're planning to switch from their \$79.95 hi-fi/6 speaker portable phono to a components system only tends to confuse them, rather than assist them. This could even lead to an "I'd rather fight than switch" attitude. And you might lose a potential hi-fi aficionado with whom you could discuss your audio interests, attend high fidelity shows, etc.

The best approach here is to use the language of your specialty sparingly. Naturally, if the person who is seeking hi-fi advice from you is knowledgeable about radio, don't use any language reins.

We feel most strongly that our place of business is the ideal place to introduce beginners into the world of true high fidelity equipment. They'll observe other tyros breaking into the field of interest seeking advice from dealer salesmen. By taking along a friend under your wing to our shop, you not only help him, but you strengthen the cause of high fidelity enthusiasts in general—which is to obtain the most realistic sound reproduction possible.

Soundest regards

BARNETT BROS.

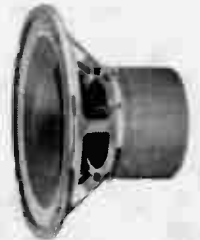
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Philadelphia, Pa. 19107
WAlnut 5-9780

At last amplifier manufacturers
are breaking the 20 to 20,000 cps
response barrier.

IT'S ABOUT TIME.
After all, we've been making
speakers that go well beyond
those limits for years!

Ey. Let's start at the bottom (as much as
an octave below most other woofers).
Our thirty-inch diameter woofer repro-
duces 15 cps fundamental bass at full vol-
ume without doubling. Nothing less than a
live performance can compete with the
sound you hear—and feel—from this giant
speaker. **Model 30W \$250.00**

Over a decade of
engineering refinement
has made this E-V
twelve-inch cone speaker
unexcelled in mid-bass
performance (and it's
also an uncommon value
as a full-range speaker
from 30 to 15,000 cps).
Model SP12 \$65.00



It takes this sophisticated
team of compression driver
and patented diffraction
horn to fully satisfy the
rigorous demands of the
treble range. There's no
smoother combination
than E-V T25A and 8HD.
Model T25A \$51.00
Model 8HD \$21.00

Ruler flat from 3,500 to
23,000 cps! But extended
range is just one of the bene-
fits of the T350 VHF driver.
Its exclusive throat and horn
design spreads undistorted
highs to every corner of your
listening area. Delightful!

Model T350 \$66.00



These unusual component speakers have
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porary cabinetry. It's waiting to be chal-
lenged by the most powerful, widest-range
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you hear is what high fidelity is all about!

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