

# Audio

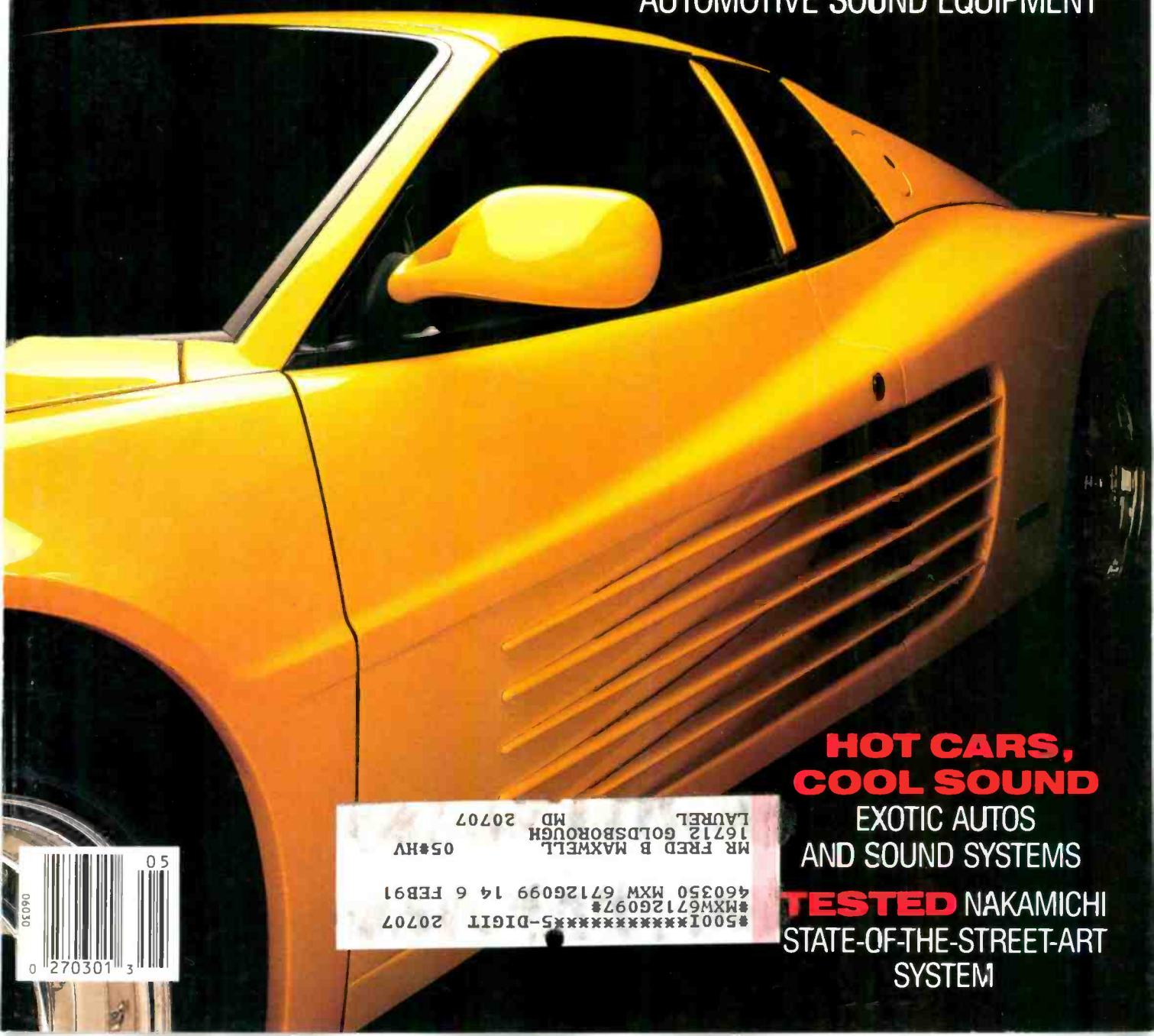
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# Audio

MAY 1990

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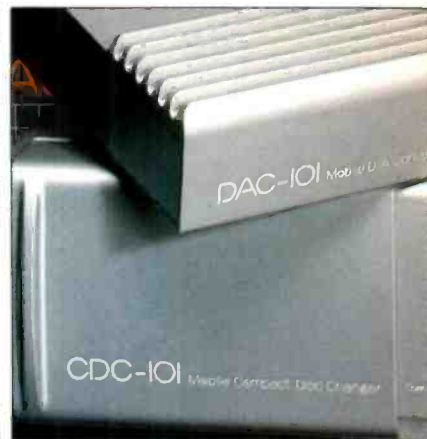
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The Cover Subject: 1987 Ferrari Testarossa,  
courtesy of Barry Smith, Ultrasmith Systems  
The Cover Photographer: Bill Ashe

Audio Publishing, Editorial, and Advertising Offices,  
1633 Broadway, New York, N.Y. 10019.

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**AUDIO**, May 1990, Volume 74, Number 5.  
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## Wunderlich Was Wunderschön

Dear Editor:

Edward Tatnall Canby's review of *The Mozart Tenor* CD ("Classical Recordings," October 1989) brings to mind Fritz Wunderlich. It is difficult to imagine how anyone could even approach what he did with Mozart's music for tenors. Despite Wunderlich's untimely death, we are fortunate to have his recorded legacy.

Carlos E. Baugá  
San Juan, P.R.

## Absolute Disparity

Dear Editor:

In Edward Long's review of a new book about absolute polarity, *The Wood Effect* (August 1989), the statement was made that this is "a very important aspect of sound reproduction." I'm afraid that many of your readers will buy the book and be quite disappointed when they find that the effect is not eminently audible under most conditions.

Generally, the polarity of loudspeaker wiring hookups (sometimes called "absolute phase") is difficult or impossible to hear, especially if the speakers have low levels of second-harmonic distortion. For this reason, most audio researchers who have investigated polarity have described it using such phrases as "of negligible importance" or "of no significance." However, we are faced with another of those examples of a group of audiophiles who claim a certain effect is strongly audible, disputing the view of most professionals in the field.

In order to find the truth among the counterclaims, I suggest that all interested parties think about the possibility of mass self-delusion here. For some strange reason, audio science is particularly prone to self-delusion, especially when the power of suggestion is present. It can cause listeners to "hear" things that aren't there or to exaggerate real things. This is why many audio researchers insist on double-blind tests to eliminate that factor.

The tests don't have to be done with double-pole, double-throw switches, which some people claim have audible effects; just have a disinterested person unhook the wires and hook them up again with reversed polarity. The listening comparisons don't have to be

done fast—do them at the listener's leisure, without a lot of other people present who might make for a tense situation. Toss a coin about 30 times to generate a suggested test sequence and to see how some truly random results would have looked, for comparison to later test results. Only the disinterested person who is changing the wiring hookups knows which polarity is which, until after the test. Thus, there can be no self-delusion. It's remarkable how "audible" phenomena often vanish dramatically when the double-blind test is invoked.

By the way, the burden of proof is only on the people who claim that some new phenomenon is important, not on the doubters. This is because a new feature—such as special wiring hookups—will always entail additional costs in dollars, time, and potential reliability problems.

In case the effect *does* turn out to be strongly audible, the speakers should be checked for unusually high second-harmonic distortion (an asymmetrical response characteristic), which would be an extraneous factor that could artificially make it audible. If it is a true effect in a high-fidelity system, it should not require a specific kind of distortion to be made audible.

Although it might be a reasonable idea to establish a standard for absolute polarity—as suggested in the reviewed book—careful experiments have so far shown that it is not audibly important and, in many cases, it is completely inaudible.

Dan Shanefield  
Piscataway, N.J.

## Ortofan

Dear Editor:

In 1990, the audio horizon must look rather forbidding for companies that sell products associated with vinyl media. So when I recently experienced a problem with my Ortofon OM-20 cartridge, I made a call to Ortofon's service department, just to see if repair was an option. I feared the worst and felt that it might be just the event that would mothball my vinyl collection permanently.

I explained to the service man that the right channel had dropped about 10 dB following a relocation of the turntable to a different part of the room, but

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*Stereo Review*  
Julian Hirsch



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In this age of dying vinyl, I feared the worst when my cartridge began giving trouble. What I got from its importer was the best.

that there was no change in the frequency response—if I turned the balance to the 3 o'clock position, everything was fine. He seemed to know what was wrong and told me to send the cartridge in.

Prudence required that I find out what I'd be spending for the repair.

"How much can I expect this to cost? It's been out of warranty for almost a year . . ." I began. To my surprise, the technician told me not to worry and just to send it in, saying they would take care of it.

One week later, UPS arrived with a carton from Ortofon. Inside was not my

resuscitated cartridge but a factory-fresh, brand-new OM-20! A new cartridge, seven-day turnaround, no questions asked: I couldn't have gotten better service. *Audio's* readers should know that Ortofon is firmly behind its customers in this alleged "age of dying vinyl." I won't be trusting my records to anyone else.

Scott Johnson  
Maplewood, N.J.

### House Rules

Dear Editor:

When are you going to let us in on the fun? The way I see it, you are publishing a magazine aimed at the most devoted group of people in the world: Audiophiles. So when do we have our say in the dream system for under \$5,000 or the best amp under 100 watts? What I'm asking is that you give us more of a chance to be involved in your magazine. Give us a poll, a new one every month. It would be to *Audio* what the crossword is to *TV Guide*. Come on, folks, this is a democracy. It's to be ruled by the masses. I'll even give you a head start: My pick for the best all-around speaker under \$10,000 is the VMPS Super Tower III, with a retail price of \$4,795 per pair.

Rich M. Elwood  
Kalamazoo, Mich.

*Editor's Note:* Wrong basic assumption—magazines are not democratic. They are run by petty tyrants called editors.—E.P.

### Pop and The Primitive

Dear Editor:

Your exchange of letters from John B. Ona (August 1989), Erik Tracy (February 1990), and Jon Jerome (also February) needs a scholarly citation to wrap up the matter of rock and pop's musical worth. Allow me to quote the musicologist Alfred Einstein (not to be confused with his cousin, the physicist Albert)—specifically, from his book *A Short History of Music* (Vintage Books, 1954), page 4: "A characteristic of the conception of primitive music is monotony, the endless repetition of the same short melody . . ."

My comment: If the shoe fits, we should know what to do with it.

Charles H. Chandler  
Malden, Mass.



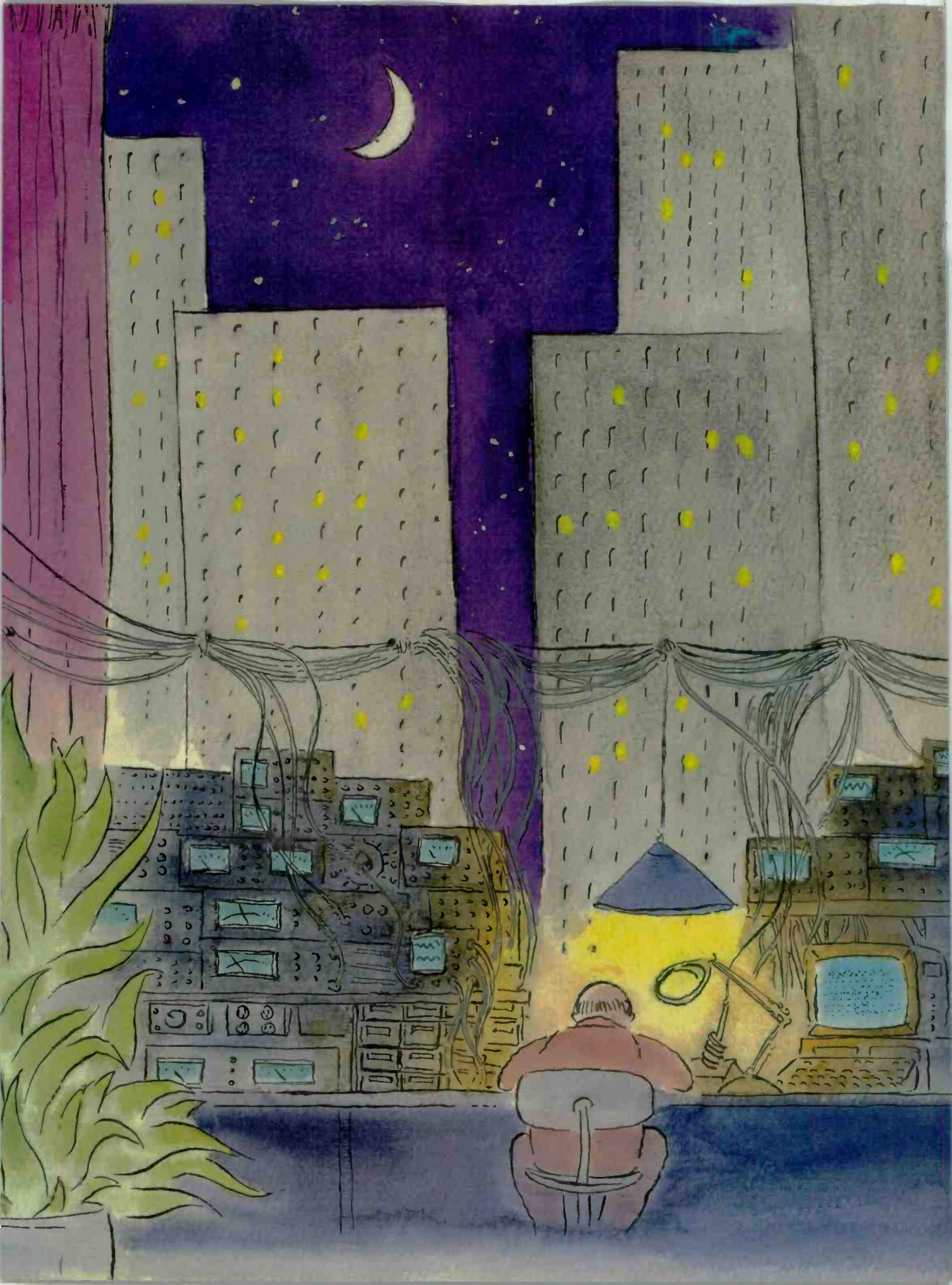
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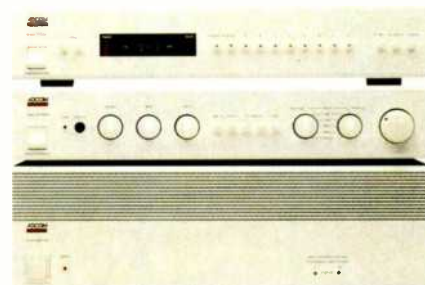
## Specifications

**Output Impedance**  
Main/Bypass Out: 100 ohms  
Tape Out: 475 ohms  
**Output Level (Rated)**  
Main/Bypass Out: 2.0 V  
**Output Level (Maximum)**  
Main/Bypass Out: 10.0 V  
**Frequency Response ( $\pm 0.5$  dB)**  
High Level: 5 Hz - 85 kHz  
Phono: 5 Hz - 60 kHz  
**THD + Noise (@ Rated Output, 20 Hz - 20 kHz)**  
High Level: 0.003 %  
Phono: 0.02 %  
**IMD (SMPTE, @ Rated Output)**  
High Level: 0.004 %  
Phono: 0.006 %  
**Signal-to-Noise (@ Rated Output, "A" Weighted)**  
High Level:  $\geq 100$  dB  
Phono:  $\geq 90$  dB  
**Input Impedance**  
High Level: 22 kohms  
Phono: 47 kohms/100pF  
**Input Sensitivity (@ Rated Output)**  
High Level: 200 mV  
Phono: 2.3 mV  
**RIAA Accuracy (20 Hz - 20 kHz):  $\pm 0.1$  dB**  
**Tape Output THD + Noise (@ 2.0 V Output, 20 Hz - 20 kHz): 0.003 %**  
**Tape Output IMD (SMPTE) @ 2.0 V: 0.002 %**  
**Tone Controls**  
Bass (20 Hz):  $\pm 10$  dB  
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## Extra Amplifier Output Terminals

*Q. My receiver can drive two pairs of loudspeakers. Why does my receiver have these provisions? It does not have a surround decoder. Can I drive two pairs of loudspeakers at one time to achieve the matrix effect?—Yoon Yung Kim, Pittsburgh, Pa.*

A. Your receiver has two sets of loudspeaker output connections so you can use two pairs of loudspeakers, one in each of two listening locations. Associated with these terminals is a switch that allows you to select either pair of speakers or to operate both pairs simultaneously. It is this latter application which you would use to simulate surround sound.

I have no information about your equipment, so I have no way of knowing for certain whether or not it can support matrix operation. In order for your system to do so, both common speaker terminals must be internally wired to ground. If these terminals are not taken to ground, connecting matrix speakers could damage the output stages of the equipment.

Assuming your receiver can support this system, connect your main loudspeakers to the "A" set of output terminals and connect the second pair of loudspeakers in series. The speakers' remaining two free terminals are then connected between the left and right "hot" terminals of the "B" set of speaker outputs; the "B" ground terminals are not used. This arrangement makes it possible to switch out the matrix pair of speakers at any time.

It is probably a good idea for the speakers which are designed to act as the matrix pair to be acoustically more efficient than the main loudspeakers. Should it happen that the output from the matrix, or rear, speakers is too great, a series rheostat can be placed in the circuit between the left "hot" terminal and the series speakers. The value of this rheostat should be between 50 and 100 ohms, with a rating of 25 to 50 watts. Adjust the rheostat for proper balance between the main and the matrix speakers.


In this arrangement, the rear speakers will reproduce only the difference signal between the two stereo channels. You can expect to hear the rear speakers reproducing a great deal of ambience (if there's much in the re-

coding), and occasional soloists that have been recorded out of phase.

## Oversampling and 14-Bit CD Decoding

*Q. I understand that the CD format requires 16-bit decoding to fully render the information on the disc. My player seems to achieve 16-bit decoding via a 14-bit chip and oversampling. How is this done? What is lost with 14-bit decoding?—Robert C. Bisese, Pittsburgh, Pa.*

A. From a theoretical standpoint, 16 bits are required to decode a CD which was recorded with 16-bit samples. From a practical standpoint, however, the last two bits are seldom used. Thus, if they are unused, the dynamic range and S/N ratio will be reduced by 12 dB. It is likely that not even these dynamics are actually found in the program material of most recordings.

Getting the S/N ratio back to 16-bit levels (raising it from a nominal 84 dB to 96 dB) requires oversampling. This does not relate to the number of bits employed per sample, but to the sampling rate. On a Compact Disc, there are 44,100 samples per second, each 16 bits long, for each of the two stereo channels. A player without oversampling would therefore read those samples at the rate of 44.1 kHz, examining each sample once. In a player with four-times oversampling, each 16-bit sample is read four times, at a rate of 176.4 kHz. This does not contribute any new information, but it does allow the use of digital filters to remove the original 44.1-kHz sampling rate; the new, 176.4-kHz rate is high enough to be removed by an analog filter whose slope is gentle enough to prevent the phase effects attributed to the steep, "brick-wall" filters needed when oversampling is not used. (Because the filter is not as sharp, "ringing" is also avoided, so better sonic quality is likely.) Also, a technique called "noise shaping" then spreads the noise over a wider band of frequencies, most of which will be removed by the analog filter. 

**If you have a problem or question about audio, write to Mr. Joseph Giovanelli at AUDIO Magazine, 1633 Broadway, New York, N.Y. 10019. All letters are answered. Please enclose a stamped, self-addressed envelope.**



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# TAPE GUIDE

HERMAN BURSTEIN

## Is Dolby B NR Good Enough?

*Q. My present cassette deck has only Dolby B noise reduction. I am considering the purchase of a deck that has both Dolby B and Dolby C noise reduction. Would Dolby C NR provide a sufficiently significant improvement to merit spending a substantial sum? My present deck has a signal-to-noise ratio of 64 dB with Dolby B NR.*—George H. Pearson, Jackson Heights, N.Y.

A. An S/N of 64 dB is very good for a cassette deck. Dolby C NR can improve that S/N about 8 dB, typically. Whether this improvement is worthwhile in terms of dollars depends on whether you are conscious of noise with Dolby B NR. If you play music at moderate or low level, noise may well be unnoticeable when S/N is in the mid-60s, as in your case. At loud levels, though, Dolby C NR may provide a desirable improvement, particularly during quiet moments. Dolby C NR provides an additional benefit: In recording, the treble boost drops off beyond 10 kHz, which provides protection against tape saturation.

## A Trio of Questions

*Q. In some testing I did with an open-reel tape deck, the low-end response was better at 7½ ips than at 15 ips. Why? Also, please correct me if I'm wrong in the following statement: "All other things being equal, the high-frequency response limit of a tape deck is a function of head-gap length." Lastly, how can consumer audio decks claim signal-to-noise ratios of 60, 70, or even 80 dB? Where I work, we have professional decks costing nearly \$175,000 each, and they have S/N of only about 50 dB at 1 kHz.*—Joseph M. Roberts, Wilbraham, Mass.

A. Recording is a wavelength effect. For a given frequency, the higher the tape speed, the longer the recorded wavelength. If there is something about the playback head (such as contour effect) that causes difficulties in handling long wavelengths, low-frequency response will be poorer at the higher speed.

As for your statement, it is not quite correct. It should be: "All other things being equal, the high-frequency response limit of a tape deck in playback is a function of head-gap width" (or

"head-gap length," if you prefer the less well-known technical term). The narrower the gap, the higher the upper limit. (In recording, a wider gap is needed so that the magnetic field produced by the head will fully penetrate the tape.)

A high-quality consumer cassette deck can achieve unweighted S/N ratios of nearly 55 dB, referred to the 315-Hz recording level that produces 3% harmonic distortion on the tape. (This figure will vary a bit, depending on tape type, brand, and quality.) Weighting for human hearing characteristics—i.e., de-emphasizing the low and high ends of the audio spectrum—can improve apparent S/N by about 4 to 6 dB. Dolby C or dbx NR can improve S/N by another 15 to 30 dB.

## Sonic Smear

*Q. Since adding a dbx noise-reduction unit to my system, I have encountered a very perplexing problem when recording at 3¾ ips with the NR unit engaged. During quiet passages of music, and most notably on piano, I have noticed a "sonic smear" after each note. It is comparable to playing a phono disc with a very worn stylus. With the dbx NR unit disengaged, the sound quality at 3¾ ips is admirable. At 7½ ips, with the NR unit engaged, the problem doesn't occur. The heads of my deck have been cleaned and demagnetized; the deck was recently checked out and given a clean bill of health. I have tried varying the record level, but this hasn't helped. I use high-quality cassettes.*—Bob Villa, Winnipeg, Man., Canada

A. Frankly, I am stumped by your question, but I can venture a guess. At the slower speed, wow and flutter is greater than at 7½ ips. The music may sound fine to you but not equally so to the dbx NR unit, which may respond to the level and pitch changes produced by wow and flutter. Hence, the NR unit may be triggered into an inappropriate activity which you describe as sonic smear. Reader comments will be very welcome.

If you have a problem or question on tape recording, write to Mr. Herman Burstein at AUDIO, 1633 Broadway, New York, N.Y. 10019. All letters are answered. Please enclose a stamped, self-addressed envelope.

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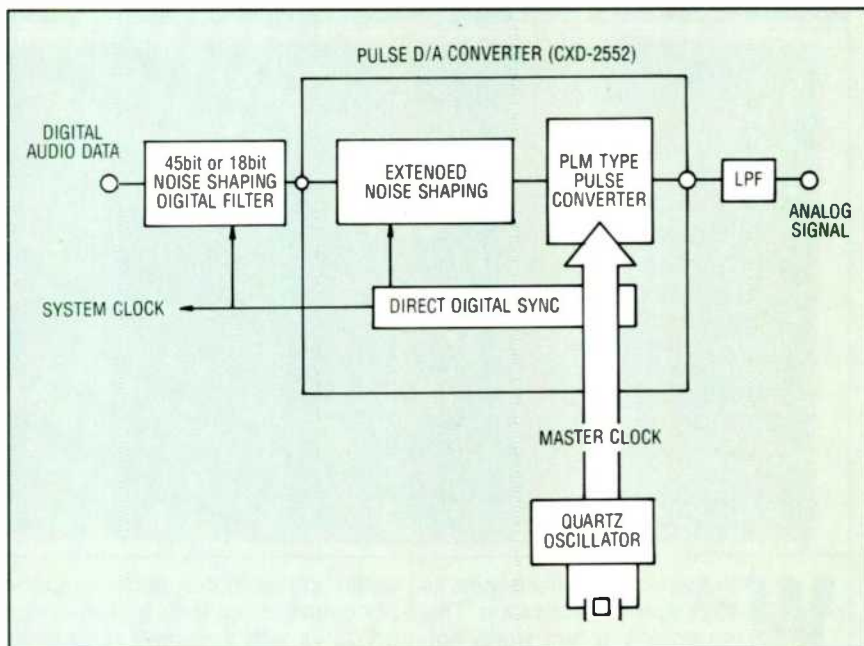
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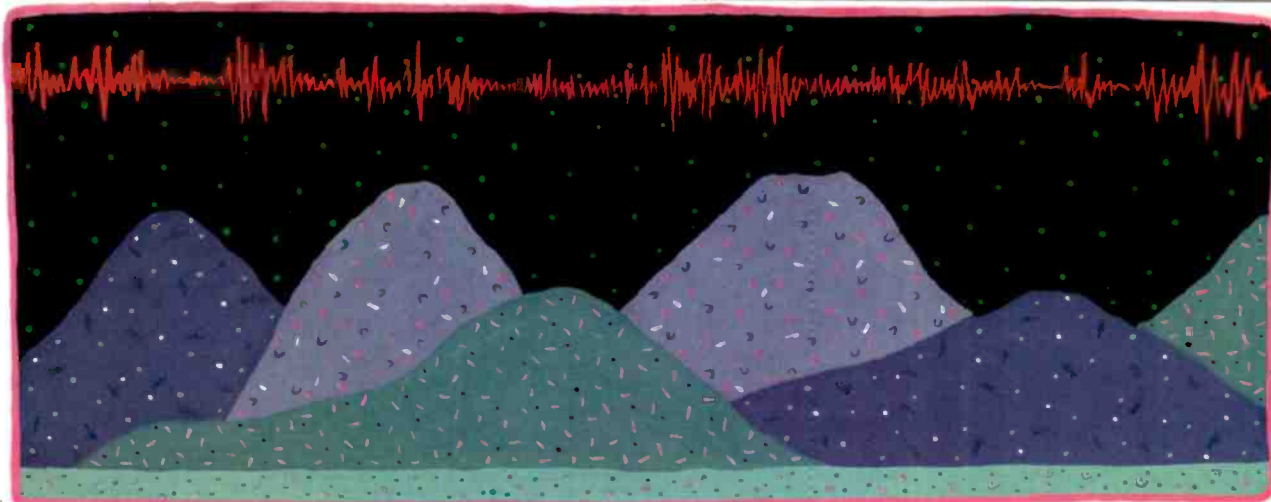
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BERT WHYTE

## DECADE OF DIGITS



**W**ith this issue, Audio begins its 43rd year of publication. This is certainly a fact worth noting, but it also marks the beginning of the decade of the '90s. With respect to the field of audio, it will most likely be considered as the "digital decade."

Most anniversaries are burdened with the emotional baggage of nostalgia, along with over-optimistic, rosy-tinted views of the future and the "brave new world." Nevertheless, some pertinent comments on the audio scene would seem to be appropriate.

The first issue of this magazine roughly coincided with the postwar emergence of audio technology that provided electromechanical reproduction and recording with a much higher degree of fidelity to music. Thus did hi-fi sound have its genesis, and with its devoted hobbyists diligently pursuing ever-higher levels of fidelity, it has evolved into our current mega-dollar industry.

Viewed from today's perspective, one has to remember the early days of hi-fi rather wistfully. It was a kinder, gentler time, when enthusiasm for new developments ran high, and the hi-fi nuts shared their experiences and discoveries with each other, in a bond of camaraderie.

In stark contrast, many of today's most rabid audiophiles are engaged in a vicious, never-ending game of one-upmanship. Perhaps it is a reflection of the times, but I must say that I am appalled by the unbridled effusions of purple prose and sheer fantasy about

audio phenomena and component performance put forth by self-appointed gurus with extremely questionable credentials.

In an era of incredible scientific advances, the need for an open mind is obvious. Especially with respect to audio, one cannot be hidebound or dogmatic. While much of the foundation of audio is solidly based on proven scientific measurements, there certainly are many aspects of audio that ultimately require subjective evaluation. Unfortunately, the freewheeling nature of subjective analysis promotes an anything-goes attitude, resulting in some of the most absurd and preposterous statements about audio component performance. Subjective observations must be tempered by the immutable laws of physics, which are routinely ignored by many of the gurus who write the audio fantasies.

During the hype for the recent Grammy Awards, there were sidebar radio stories to the effect that the vinyl LP had only a 3% share of the record market, with pre-recorded analog cassettes the dominant music format, and the digital Compact Disc enjoying phenomenal sales and growth. It has been pointed out that it took only five years for the CD to outstrip the LP in both dollar and unit sales, a process which required 17 years for the analog audio cassette to equal. Now there are over 75 CD processing plants throughout the world and the Schwann catalog lists more than 40,000 CD titles! In the United States, LPs have all but disap-

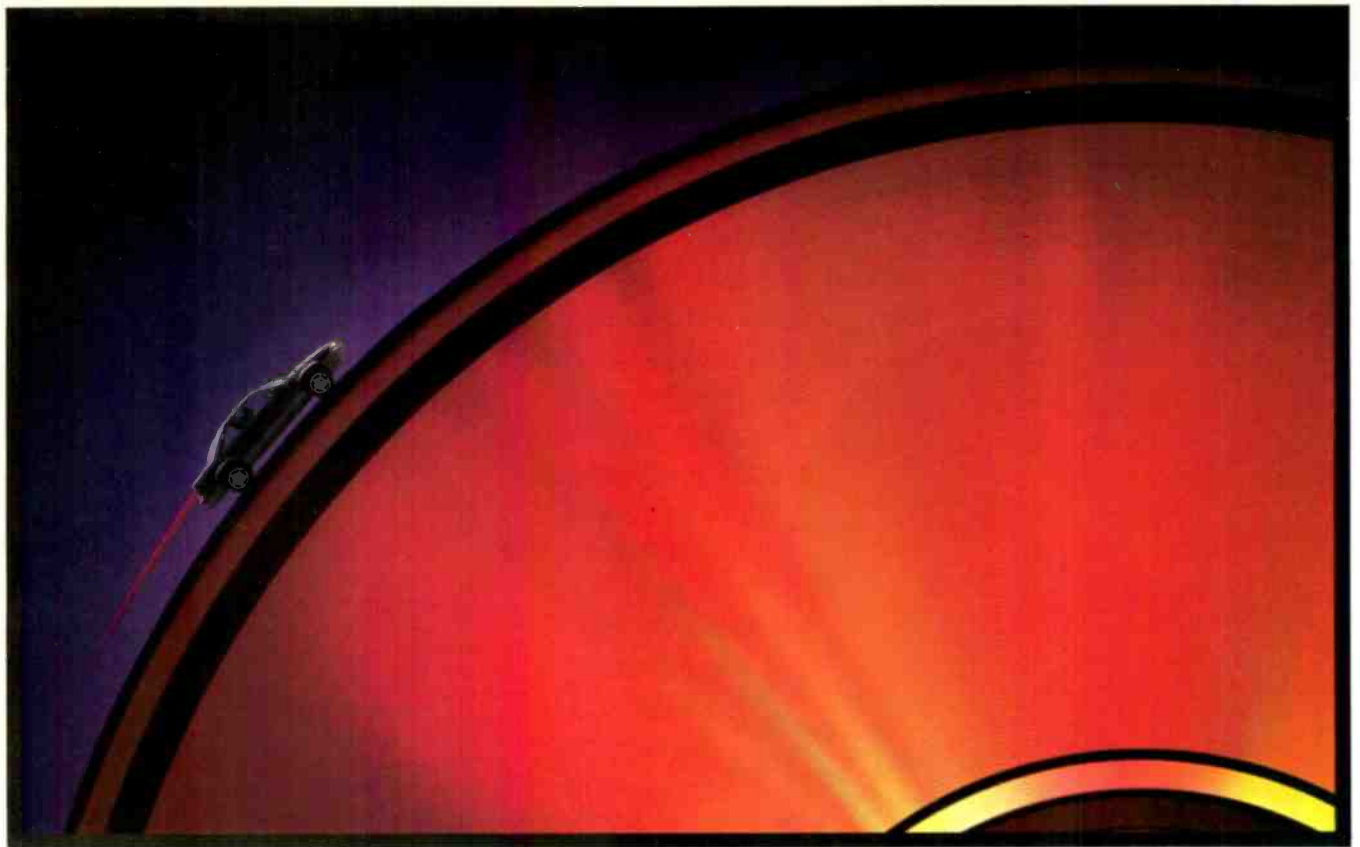
peared from the shelves of major record retailers.

Of course, the diehard digiphobes who steadfastly believe that analog LPs sound superior to CDs are fighting a rearguard action. To any observer of the current audio scene, it is apparent that it is precisely the same audiophiles who are addicted to the fantasy school of audio performance and phenomena who remain hard-core devotees of analog LPs. They feel that loyalty to the LP confers on them a certain cachet, an aura of a deeper involvement and intellectual appreciation of music, and superior aural acuity.

Be that as it may, please note that I am not maligning the LP. Until quite recently, I owned thousands of them. I must point out, however, that I have been fortunate enough to enjoy the superior sound of open-reel tapes since 1950, with the LP acting as a musical adjunct and reference source. To paraphrase Voltaire—I don't agree with the LP advocates, but I will defend to the death their right to play and enjoy them. Whatever their convictions, there is little the LP advocates or anyone else can do to stem the tide of digital progress.

As I write this, the bill to permit the importation of R-DAT recorders equipped with Serial Copy Management System (SCMS) circuitry has been introduced in the U.S. Congress. The bill is expected to pass within a reasonable time, and then R-DAT units will become widely available, with some pre-recorded R-DAT cassettes

Illustration: Anat Klebanov



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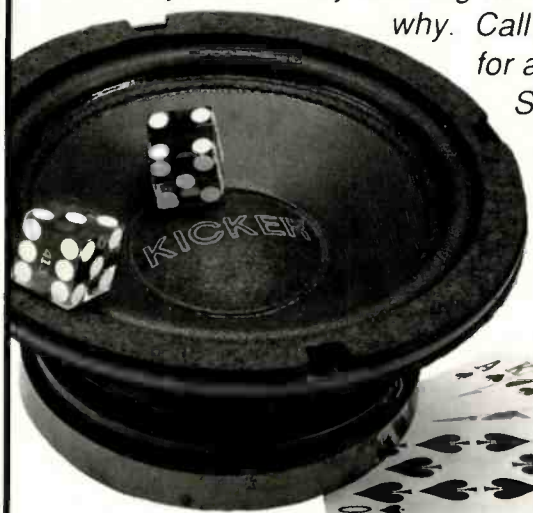
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It took the CD only five years to outstrip the LP in dollar and unit sales, a process which took the analog cassette 17 years.

available for playback. I still maintain that R-DAT will not be a dominant format and that the CD will remain—and flourish—as the preferred medium for music playback.

Sony's Walkman cassette-player series has been a huge sales success, and there appears to be a certain public fascination with miniaturization. Possibly by the 1990 SCES you will see an incredibly tiny hand-held Sony digital recorder. The cassette is the size of a postage stamp, yet houses special, very thin metalized tape, moving at a very slow linear speed for two hours of recording! The recorder is so small that until Sony made special IC chips for it, heat build-up from all the internal components was quite a problem!

As for the recordable CD, you probably saw the review of the Thomson CD recorder in the March 1990 *Audio*. This machine or some variation thereof will be forthcoming within the next two or three years, but here again I have reservations about its utility for the average audiophile.

As early as the 1990 SCES in Chicago, fiber-optic interconnect cables with A/D and D/A converters for use between audio components—preamplifier to amplifier—will be commonly available. Within two years, preamplifiers with A/D converters will be similarly available, equipped with coaxial and fiber-optic digital outputs. A number of power amplifiers will appear with built-in D/A converters which, for the most part, will accept fiber-optic inputs. Meridian pioneered powered loudspeakers with built-in D/A converters and fiber-optic inputs. By the 1992 SCES, quite a few other loudspeakers will be available with digital input facilities.

Digital signal processors have been available for some time, but more elaborate units, like the Sony TA-E1000, offer such things as digital reverberation and delay, A/D converters, digital equalization, and Dolby Pro Logic for surround sound. Other digital processors with A/D converters will be available by the 1991 WCES in Las Vegas.

In video technology, digital circuitry will play a major role. Sony is going to give a big push to the laser videodisc, with new combi laser videodisc players capable of playing back regular CDs and laser videodiscs with digital soundtracks. This emphasis is due to

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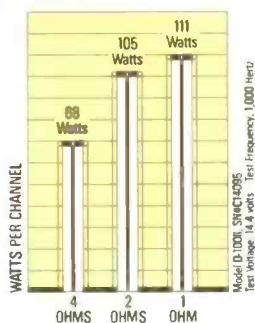
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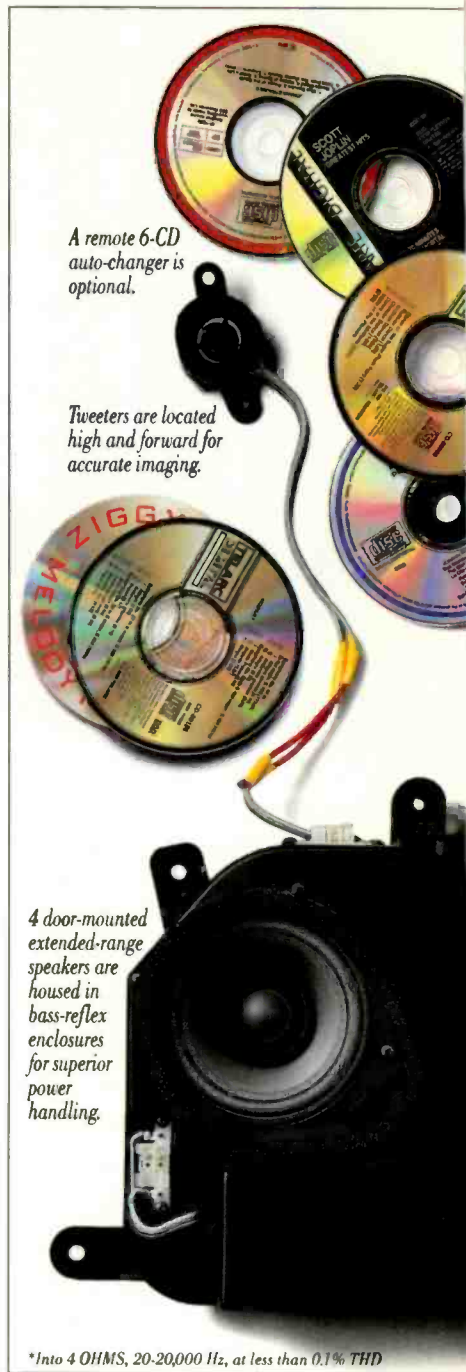
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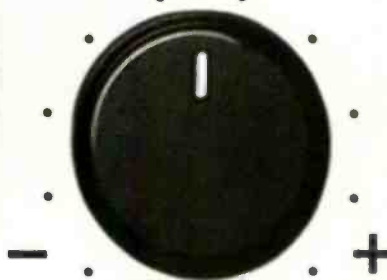
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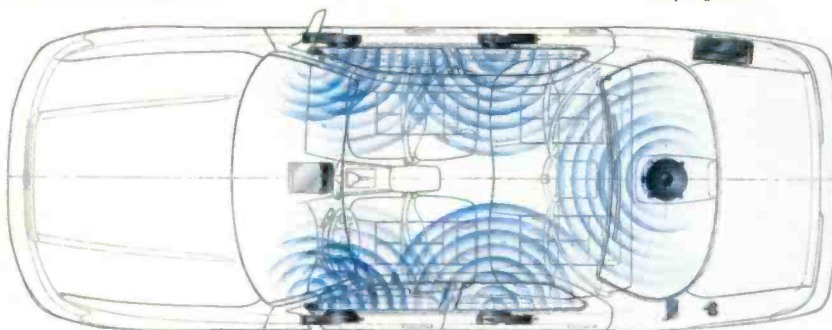
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The '90s will indeed be a digital decade, and methinks the analog diehards are in for a very tough time tilting at the digital windmills.

Sony's acquisition of the late Herbert von Karajan's 48 video productions, specifically intended for laser videodiscs with digital sound. Currently, Sony, Pioneer, and several other companies are marketing combi players with fiber-optic digital outputs for connection to outboard D/A converters.

Up to now, most VCRs have provided only analog sound, though many recorders and prerecorded videocassettes have the hi-fi variety. Now JVC (and Sansui, via license) have countered the laser videodiscs's advantage of digital sound by introducing Super-VHS VCRs with digital recording and

playback capabilities. Through what is called "Depth-Multiplexed Signal A.c. Bias Recording," PCM digital signals are recorded in the lower layer of the tape's magnetic coating. For stereo, the system uses a 48-kHz sampling rate, 16-bit quantization, and even a Reed-Solomon error-correction system, but four-channel recording with 32-kHz sampling and 12-bit nonlinear quantization is also provided for. Already, at least one movie (*Indiana Jones and the Last Crusade*) has been issued in the S-VHS format, and I wouldn't be surprised to see movies on S-VHS cassette with digital soundtracks by the time these new VCRs become available (probably not until sometime in 1991).

What's more, the 48-kHz, 16-bit stereo mode can be used even at the EP speed, yielding 6 hours of recording and play. Granted that we can get long playing time from CD changers, it still wouldn't be surprising if some enterprising company were to offer six-hour albums recorded in this S-VHS format. Think of it as a king-size, six-hour R-DAT—triple the recording time of audio-only R-DAT—with video capabilities thrown in. I don't see why anyone would want regular R-DAT then, except perhaps to play in a car.

HDTV, as presently envisioned, is an analog medium. It could be great if we could get a full 1,125-line system that was somehow compatible with our present NTSC TV. In spite of all the hoopla, which may lead some people to think that HDTV is just around the corner, such is not the case; in fact, HDTV is still probably a minimum of three or four years in the future. With such a time scale, if the telephone people can reduce the cost of a fiber-optic cable link from a home to the network to around \$500 or \$700, then purely digital HDTV would be possible and certainly preferable to analog HDTV. In addition, once a home was linked to the telephone fiber-optic cable network, a great many more digital-based services would become available.

Most of what I have reported on will very likely be well in place by *Audio's* 50th anniversary in 1997. It will indeed be a digital decade and methinks the analog-LP diehards will then have a very tough time tilting at the digital windmills!

A

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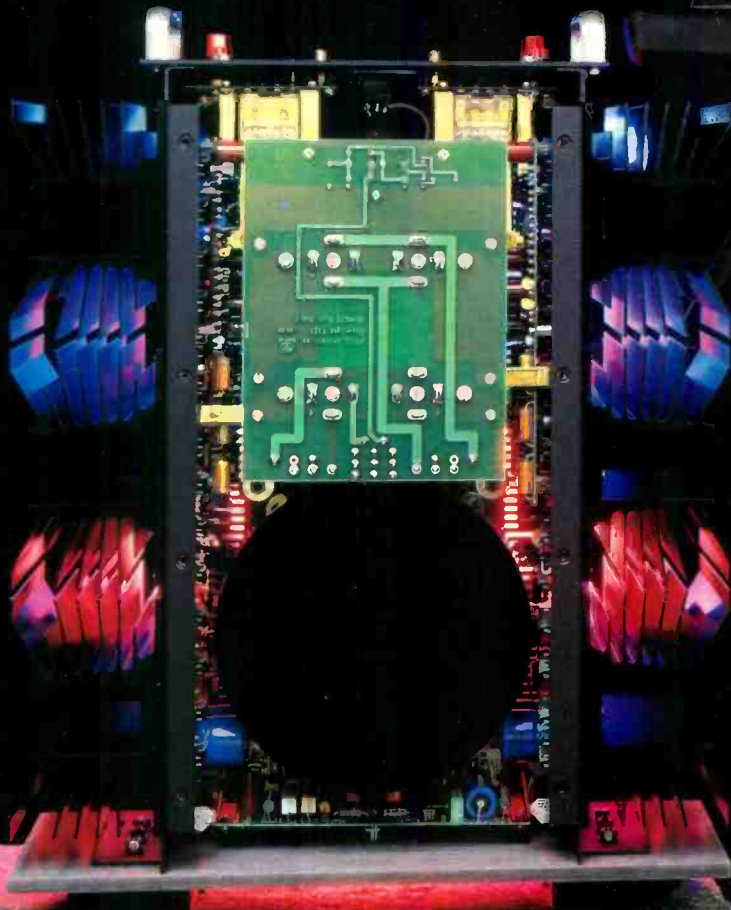
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## CES SIGHTS



**T**he Winter Consumer Electronics Show, which took place in its usual site, Las Vegas, this past January, was notable not so much for its good attendance or for the introduction of new technology, but rather for its business-as-usual tone. The Summer CES in Chicago had presented so much in the way of new developments, as it traditionally has, that we have come to expect massive technological expositions only once each year. This is, after all, a mid-season show, despite the fact that its size now rivals the Chicago show's. The tight economy notwithstanding, there was plenty of order-writing, and few were singing the blues.

The major audio trends of recent years have been the conversion of the automobile into a prime listening environment and the transformation of the home into a video entertainment center. The rise of automotive stereo over the last 15 years has resulted, essentially, through the hard work of the so-called aftermarket, the car audio specialists. So impressive have been their accomplishments that the major auto manufacturers themselves were motivated to bring out their own quality systems, some of them as joint ventures with audio manufacturers. We are

now seeing luxury import automobiles outfitted in a similar manner. Part of this picture of stereo-on-the-go is the upgrading of software capability in the car. While AM stereo has yet to make much of a dent, better cassette players, the promise of Dolby S-type noise reduction, and, of course, the CD all contribute to good listening in that difficult environment.

In the home, things are different. While high-end audio will always have a strong, dedicated base, most people would rather look than listen. Mitsubishi released a sobering statistic at the show: Seventy percent of the people polled in a recent study had their main television sets in the same room with their high-fidelity systems. The market penetration of VCRs, the promise of IDTV and future possibilities of HDTV, and the resurgence of the laser video-disc all point to a new era of the home video theater, complete with surround sound. Not all of this is to everyone's taste. Just as we are forgetting how to read novels, we are also, so it seems, forgetting how to listen to music without watching it as well.

Automotive stereo has reached a plateau of performance in the conventional sense of two stereo pairs, one in front and one in back. Frequency re-

sponse contours tend to favor the low end, usually in an effort to mask road noise, while the high end is often gently rolled off to avoid any sense of harshness, which could be intensified by reflections from the windows. The next step is to bring some degree of sound-field synthesis into the car so that the aural impression is less confining. This is where digital signal processing (DSP) will make quite a contribution, and at least one company, Eclipse, was demonstrating (not in a car, but in a small room) an ambience system which worked quite well. The unit was no larger than a conventional in-dash head unit, and of course must be used in conjunction with a head unit. The Eclipse unit was capable of simulating acoustical sound fields ranging from small clubs all the way up to large cathedrals, some of them quite successfully.

Ten years ago this type of sound-field simulation would have been approximated via analog "bucket brigade" devices, and its performance limited accordingly. The real advantage of doing it digitally is that, once in the digital domain, increased performance options do not necessarily call for more hardware; they simply call for more flexible internal programming. Sony and Pioneer made known their intention to bring out products in this area later in the year. You will remember that it was Sony who broke both price and technology barriers last summer with the announcement of a fully digital preamplifier which was to list for \$1,000.

Automotive stereo has just about topped out in the horsepower department. There is only so much acoustical power that can be generated in the passenger compartment of a car or van before the Environmental Protection Agency steps in. The high-powered auto stereo displays have traditionally been located in the outdoor exhibit area between the Convention Center and the Hilton Hotel. As you approach that area you hear a dull roar, which eventually rattles your thoracic cavity when you move in close! These are the competition-grade installations, available only from aftermarket dealers. Eighteen-inch woofers are commonplace, leaving limited storage space even in sizeable vans.



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All signs point to the 1990s as the Era of Home Video Theater, not that this trend is to everyone's taste.

What is loud enough in a car, anyway? Most people would be quite happy if their auto systems topped out cleanly in the range of 105 decibel sound pressure level. In simpler terms, this would be about twice the loudness of peak program normally heard in the motion picture theater.

Continuing our walk through the show, we note that emphasis on loud-speaker size has changed markedly in only a few years. As recently as about five years ago, most of the mainline manufacturers would have shown several lines of home speakers, in either wood veneer or vinyl wrap. Most of

these would have been floor-standing or available with optional stands, and clearly aimed at an audio-only environment. Now we are likely to see only one or two large models, with the rest of the display and demo space given over to smaller speakers, many in systems with integral subwoofers. Such systems are very adaptable to difficult environments, and of course they lend themselves well to video applications. Rectangular corner details have given way to trapezoids and rounded contours. Gloss and metallic finishes are popular, as are unusual textures. The design goals are to create loudspeakers which can fit into a video setting and not seem out of place. There are some internal changes too. Many of the older loudspeaker models have unshielded ferrite magnets, which create convergence problems when used next to video monitors. The newer models have shielded magnets to avoid this problem.

There is plenty of engineering creativity in the subwoofer area. Only a few years ago, the subwoofer would have consisted of a low-frequency driver mounted in a simple sealed or ported enclosure whose size would have been dictated mainly by how loud the system was to play at its lowest frequencies. Many new designs have the driver completely enclosed, feeding double-tuned cavities, which creates a bandpass operation, with the driver's output coming entirely from the ports. When all the parameters are right, this approach enables a fairly substantial driver to operate quite well with a fairly small overall volume. While the weight may still be there, the space occupied is less and the subwoofer easier to conceal.

In video projection, Sharp's LCD single-lens system appeared improved over what was shown last summer. While these systems still do not offer the seamless detail of the best three-tube projectors, they excel in brightness, portability, and freedom from convergence and alignment problems. For many applications, they are ideal.

High Definition Television (HDTV) still appears far in the future. It is always seen at each show, and it gets a lot of discussion in Washington, where it is viewed as another example of America's inability to keep pace in

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Car stereo has just about topped out, power-wise. You can only generate so much acoustic power in a car before the EPA steps in.

consumer electronics. HDTV works very well, but it requires a high investment in signal transmission bandwidth, not to mention new equipment and increased programming costs. It may not represent the most effective use of money—in Japan or anywhere else. Technology thrives not through the

sheer will of an industry, but through the benefits it provides for a broad base of consumers.

For the present, at least, those benefits we are all looking for in video can be met in large part by Improved Definition Television (IDTV). While the picture size would remain the same as in

current models, the benefits of higher resolution and freedom from scan lines (raster) would be had with no change in the basic transmission/reception system. Thus, a screen could be viewed at closer quarters, with a correspondingly larger viewing angle. While we have yet to see a major effort in this field, I believe that it could be the television of the '90s.

As for software for the new decade, it was auspicious that Dolby Laboratories used this show for the formal announcement of their new S-type noise reduction. One of the problems with Dolby in the consumer area was the existence of two NR standards, B- and C-type. The cassette duplicating and record industries had earlier settled on B-type noise reduction, partly because it was a good compromise with nondecoded playback as well as with playback over systems equipped with C-type noise reduction. However, B-type does not provide enough noise reduction action to produce a really quiet cassette, whereas C-type does.

The record companies refused to issue a double cassette inventory to solve the problem, so Dolby solved it for them with S-type noise reduction, which is based on some of the techniques used in Dolby Spectral Recording (SR). This new system accomplishes 10 dB of noise reduction at low frequencies and 24 dB at high frequencies, where the cassette is noisiest. On its own terms of encode-decode, S-type will provide performance exceeding that of C-type noise reduction. The truly amazing thing about its operating parameters is that it also sounds quite good when played back over *all* previous Dolby consumer formats, as well as when it is played back with no decoding at all!

When it is played back over a straight system (NR decoding turned off), the listener will hear essentially a compressed signal with an acceptable amount of spectral skewing at the lowest levels. More to the point, for the record companies, an S-type tape played back over a B-type system is said to sound "well-balanced spectrally, and essentially free of such dynamic artifacts as pumping." If this is indeed the case, then the record industry should have no qualms about converting over to Dolby S-type, secure in

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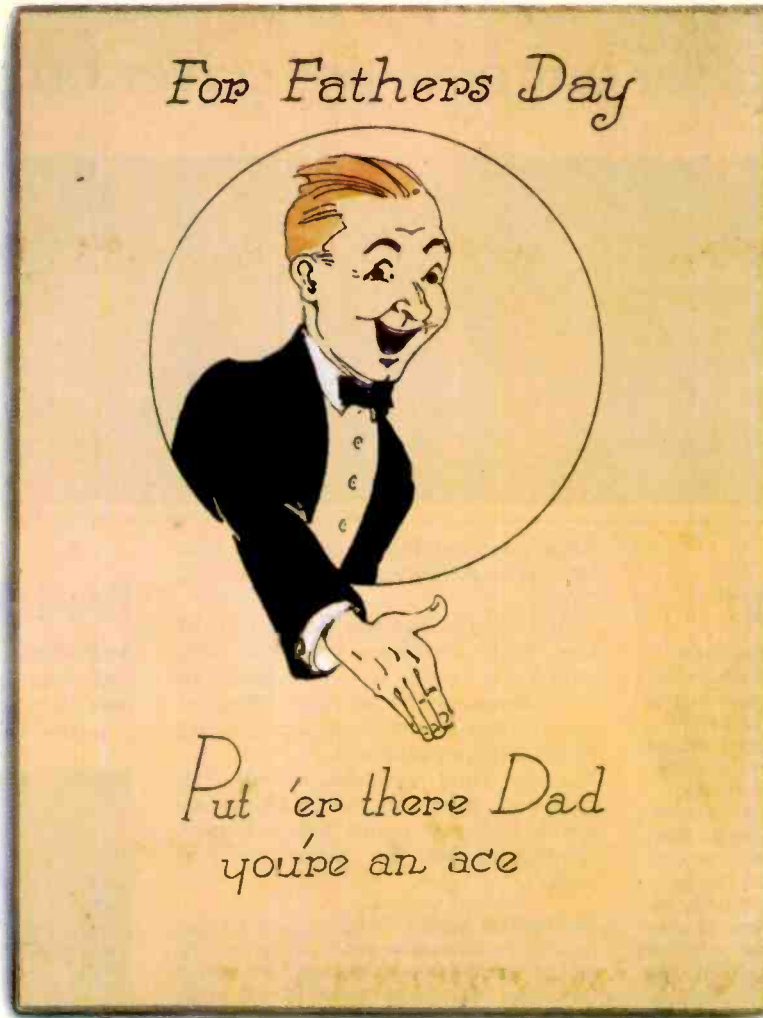
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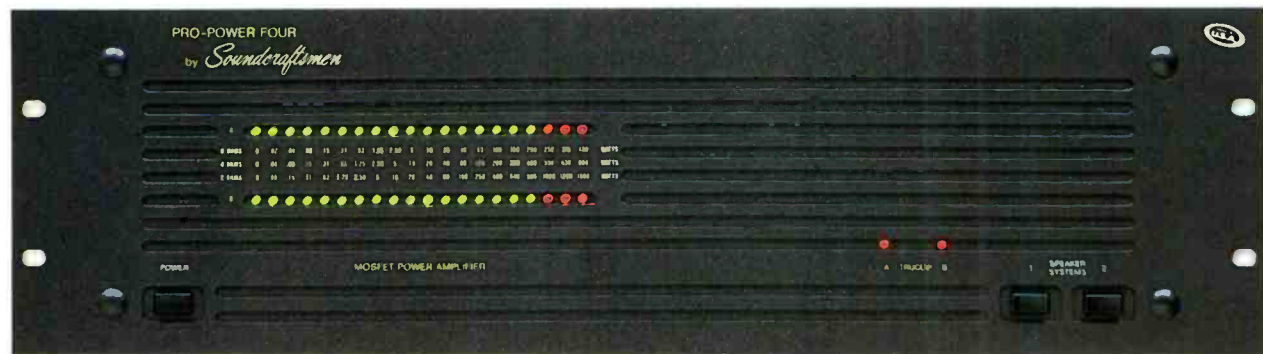
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**DESCRIPTION:** The New PRO-POWER amplifiers are especially designed for the extended Dynamic Range requirements of today's Compact Disc players and Hi Fi VCRs. The ULTRA HIGH CURRENT design offers you Incredibly high power without sacrificing distortion-free performance, superb reliability, and the utmost in sonic purity. These new amplifiers operate flawlessly under all operating conditions. It is well known that most of today's highly regarded loudspeakers exhibit impedance curves which drop to 1 or 2 ohms at some frequencies, and in conventional amplifiers this results in severe clipping and the triggering of protective circuitry. However, our new PRO-POWER Phase Control amplifiers continue to operate even under those extremely low impedance conditions. Current limiting had been eliminated entirely by the use of the latest POWER MOSFET technology, thus avoiding the sonic degradation typically found when limiting circuitry is employed.

Says Leonard Feldman in his Test Report in AUDIO Magazine, Vol. 71, No.9:

"...it brought out the best in all of the loud speaker systems with which I tried it. I sensed an effortlessness about the musical crescendos reproduced from some of my CD spectaculars..."

"In my view, you can spend five times as much as what this amp costs, but you won't get a better, more reliable, or more musical unit."

**FEATURES:** MOSFET amplification stages provide the utmost in sonic purity, rivaling that of vacuum tube amplifiers...Precision-Calibrated LED power meters (0-400 watts at 8 ohms)...Speaker switching for two pair of stereo speakers...

**SPECIFICATIONS:** CONTINUOUS RMS POWER: 205 watts per channel @ 8 ohms, 20Hz-20kHz, 300 watts per channel @ 4 ohms, 20Hz-20kHz, 450 watts per channel @ 2 ohms, 1kHz...THD—less than 0.05%. 19"Wx5¼"Hx12"D, 30 pounds.

## Pro-Power One

**PRO-POWER ONE:** The NEW PRO-POWER ONE amplifier provides all of the performance features of the PRO-POWER FOUR in a smaller, non-rack-mountable chassis.



The PCR800 amplifier is similar to the PRO-POWER ONE, rated at 205 watts per channel @ 8 ohms, but with plain overlay front panel.

## Pro-Power Ten 2/3/4 Channel 600-watt Mosfet Amplifier

**TWO-CHANNEL MODE**  
The PRO-POWER TEN, used in this mode, is the ultimate in high current, high power amplifiers, and provides a massive 600 w/p/c @ 8 ohms.

**THREE-CHANNEL MODE**  
This mode provides 205 w/p/c for a stereo pair of satellite speakers for mids and highs, plus 600 watts to guarantee optimum sub-woofer bass performance.

**FOUR-CHANNEL MODE**  
The ultimate In audio/video systems is the Surround Sound system, where the Theatre environment is recreated by stereo front and stereo rear speakers.



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# Soundcraftsmen Pre-ceiver<sup>®</sup>...

NEW Remote-Control Preamp-Tuner  
...the perfect Control Center to match  
your choice of any Power Amplifier...



## PROFESSIONAL RACK-MOUNT C-MOS DIGITAL CONTROL CENTER

Soundcraftsmen, America's leader in separate components, introduces the new **PRO-PT FIVE-R PRE-CEIVER**. This new Control-Center/Preamplifier/Tuner combines the outstanding performance and features of our separate tuner and preamplifiers, and adds the versatility of **WIRELESS REMOTE CONTROL**. The **PRE-CEIVER** offers the sensible alternative to the "all-in-one" receiver, by allowing the freedom to choose a separate power amplifier to match the needs of the speaker systems. This intelligent **PRECEIVER** approach allows you to avoid the inherent problems and compromises found in today's receivers, and still enjoy the cost-saving of combining the compatible preamplifier and tuner stages on a single chassis.

Due to space and technical design limitations, ordinary receivers cannot be equipped with the **high-current, high-voltage** power stages found in even modestly-priced separate power amplifiers. In a receiver, these heavy-duty power stages, necessary for high dynamic range amplification, would generate levels of heat, hum, and noise unacceptable to the tuner and preamplifier's low level, sensitive circuits. The new **PRE-CEIVER** eliminates all of these compromises by keeping the low-level preamplifier and tuner stages completely separate from the incompatible high-level power amplifier stages; thus providing a near-perfect and distortion-free output signal to drive **any amplifier**, from 50 watts to 600 watts. For example, two of our PCR800's in bridged mode, 600 watts per channel @ 8 ohms.

## C-MOS PREAMP SECTION

The **PRO-PT FIVE-R**'s preamplifier section has the quality and features you need as the cornerstone of your audio system. Discrete FET transistors are used in critical circuits for lowest distortion and noise. **Feather-Touch Digital C-MOS** Switching for noise-free and distortion-free listening and recording. Source selections include **CD/DAT, Phono, Tuner** (built-in), **Audio/Video**, plus two **Tape Monitors** with dubbing. Each source has its own push-button and LED for easy selection and verification of signal desired. Our unique **Spectral Gradient** circuit provides extremely critical discrete filtering to eliminate the harsh characteristics associated with many analog/digital Compact Discs. **Direct/Tone Defeat** selector patches input directly to line amplifier.

Two pairs of outputs for **Surround Sound** applications or **Subwoofer/Satellite** speaker systems. Two switched plus one un-switched AC outlets are provided for powering other audio components. Our unique **Variable Contour Loudness Control** allows precise and easy selection of frequency balance at any volume level.

## DIGITAL PLL TUNER SECTION

The **PRO-PT FIVE-R** Tuner section's advanced technology incorporates a digitally synthesized, quartz-referenced crystal oscillator which guarantees unparalleled tuning accuracy and drift-free reception. **Differential MPX High-Blend** circuit provides maximum Stereo separation, while reducing noise and distortion when listening to distant FM broadcasts. Multipath distortion, common in urban areas where many strong stations exist, has been virtually eliminated by a specially designed RF stage. In rural areas, where low signal levels are common, the **PRE-CEIVER'S** high sensitivity assures you of distortion-free and noise-free reception. A **Micro-Computer** memory system, coupled with Automatic Scanning allows extremely simple programming of **16 stations** of your choice. **Direct access** retrieval of any of your preprogrammed stations is as simple as pressing one or two buttons. The **Scan Selector** provides you with easy access to strong stations or direct access to even the weakest of stations. The **Mono/Mute-Off** selector allows noise-free listening of very weak stereo broadcasts.



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# Soundcraftsmen

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Today's speaker designer wants to make loudspeakers that can fit into a video setting and not seem out of place.

the knowledge that their compatibility problems will be no worse than they have ever been, and delighted with the prospects of producing a tape which, when played back with a dedicated decoder, sounds better than C-type NR ever did.

It looks like a no-lose situation for both hardware and software manufacturers alike, and it appears to put DAT as a source of recorded music for the consumer in an even more precarious situation.

On the subject of DAT, Sony Classics made the announcement at the show that they will release prerecorded DATs in the second quarter of the year. While there are DAT recorders in the field, the majority of them are in the


end home recording medium, regardless of the future course of prerecorded DAT tapes.

All of which leads to the subject of the stereo LP. As usual, the high-end exhibits (this year at the Sahara) had lots of turntables for LP demo, but the real surprise was to be found in the ADC exhibit back at the Convention Center. That company had the Fional Technology Model LT-1 laser LP turntable on display. It was up and running and sounded quite good, as best I could tell in a noisy environment. Essentially, the unit works by using the intersection between groove walls and the record surface for tracking, and then reflecting laser beams from the two groove walls. The angle of reflec-

Home video theater finds no greater proponents than Fosgate and Barco, exhibiting this time in cooperation with Stewart Film Screen company in the elegance of the new Mirage Hotel. Their exhibit easily sets standards for matrix-derived multichannel sound, along with superb video projection quality.

Home movies were nearly dead when the VCR came along, and the video camcorder merely finished the job. Now, Toshiba goes up against the single-lens reflex with a still camera which stores 400,000 pixels (picture elements) per shot on a solid-state card. The card holds 12 shots, which can be viewed, via a special reader, over any television set. The camera itself is quite small and the picture quality good. I don't believe the film industry has anything to worry about, however.

One of the best things heard at the show was not even on official display. Joe Grado, of cartridge fame, was in town and had a prototype pair of new headphones demonstrated with a portable DAT machine. At a targeted \$500 a set, they'd better be good! I can say that they were the only headphones I have ever heard without a trace of screech—and which I could easily use as recording monitors, in place of loudspeakers.

As the digital age moves forward, there will probably be more emphasis given to stand-alone digital processors for both CD and DAT machines. In essence, these processors take the raw digital data from the player (many CD players now have such outputs) and treat that data to special signal reconstruction techniques, then to high-quality analog output stages. Some of the Japanese digital preamplifiers already do this, but in the United States the art is still associated with the very high end. Wadia was the first company to establish a reputation here, and at this show, PS Audio introduced its Digital Link processor, for less than \$1,000. While digital engineers know that there is basically one "master plan" for D-to-A signal reconstruction, there are a number of ways to arrive at it, and it is such variations which will fuel this activity—maybe even resulting in the demise of what is left of the anti-digital movement! 



*Finial Technology's LT-1 Laser Turntable.*

hands of professionals who use them in their work. There are virtually none in the hands of consumers, due essentially to the legal hassles which have surrounded the copying dilemma. Sony hopes to change all of this, but the current announcement can only be seen as a last-ditch effort to create a new medium for delivery of music into the home. The record industry has resisted this from day one, adamant that only two carriers are needed at the present time, the Compact Disc and the Philips cassette. There will of course be a place for DAT as a high-

tion is detected, multiplied by the reciprocal of the tangential groove velocity, and then converted to audio. The unit is not noise-free, inasmuch as dust particles can lead to misreading the groove wall angle. Part of the signal processing includes a sophisticated tick/pop detector which will "clamp" the system momentarily, thus minimizing the effects of such ticks. The price for the unit? Only \$32,000! It comes at the end of the LP era rather than in its golden age, but the unit will surely be welcomed by broadcasters, archivists, and well-heeled audiophiles.

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**IVAN BERGER**

# *Cool Cars, Hot Sound*

Car stereo equipment of the quality we test in *Audio* deserves better installations than the neat but temporary ones we're obliged to make for road testing. The examples on these pages—a Porsche Speedster installation using the Nakamichi equipment tested elsewhere in this issue, and the Ferrari Testarossa shown on our cover—were done by Barry Smith of Ultrasmith Systems, a New York City company renowned for its custom electronics and stereo work.



"The Speedster," says Smith, "is a special edition of the 911 Turbo body, with a chopped roof, a raked windshield, and a cowling to cover the top when it's down. Only 800 were made for the U.S., and this is the only one in Ferrari 'fly yellow.' Look at the paint code label in the front luggage compartment: Instead of a Porsche number, it says 'Ferrari.'

"It was a tough installation: Although the car has air conditioning, it's a retro model, with only manual windows and antenna. The difficulty was finding a spot where we could flush-mount the a/d/s/ 320i/s tweeters where they'd clear the window crank and gear as-

sembly (which is quite big), and not be shadowed by the door handles. The rear speakers are Nakamichi 4-inch coaxials; there's not much you can do with the rear, because of the top mechanism.

"As with all our systems, we created our own electrical fuse and distribution panel just for the stereo (the speaker fuses are in there too), and put a legend sheet inside, so the owner can tell which fuse is which. All wiring is wrapped in heat-shrink tubing."

For all the work that went into the system, there are no trick features done for their own sake—no motorized amplifier shelves, no

PHOTOGRAPHS: BILL ASHE



Besides installing the Nakamichi TD-560 tuner/cassette unit in the dash, Ultrasmith painted the gauge needles and numbers to match the color of the car and added a "Speedster" logo from a 1955 Porsche (current Speedsters have no special badge) to the dash. An identical logo, painted black, is on the rear deck.



The Nakamichi CDC-101 changer is mounted behind the passenger seat, and is covered by a Porsche glove-box door; the DAC-101 D/A converter is concealed below it. The Nakamichi amplifiers are sunk into the floor behind the seats, with their heat-sinks exposed to cooling air; the Sony crossover is under the passenger seat.

hidden compartments, no speaker enclosures that use up all the trunk space. "Our parameters were 'just a good system—not overkill,' " says Smith.

The installation in the Testarossa on our cover does have some trick features, but only by necessity. Says Smith: "Space was a major problem. It's a challenge, putting a high-performance stereo into a car that was really built just to house the passengers. I wanted this system to have the performance of a 12-



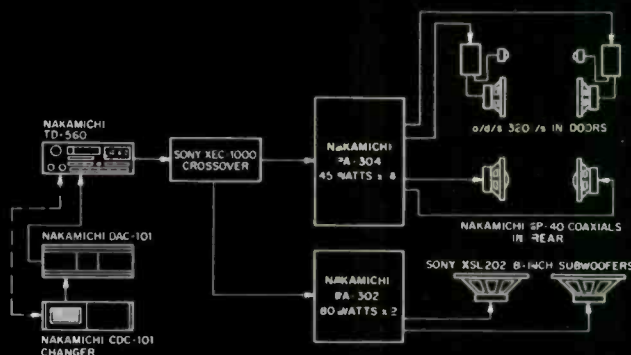


**Porsche  
Speedster**

**"The oval woofer grille is sort of a trademark of ours," says Smith; here, it conceals 8-inch**



**Sony woofers. In this shot, the coaxial rear speakers are partially concealed by the shoulder belt.**



**Block Diagram of the Porsche Speedster system.**

cylinder motor. I wanted it invisible too—and whatever did show had to blend with Ferrari esthetics.

"One bold step was cutting the dash to put in the 320i/s tweeters. We had to form the tweeter bezel to the curve of the dash while preserving the interlocks that hold the tweeter in the bezel. You get the jitters cutting into a car like this, but it's still a car, meant to be driven and enjoyed, not enshrined.

"The sound system took about 70 hours, but the whole job (including discreet radar detection, our custom alarm, and custom ostrich trim—with a matching cover for the car and stereo owner's manuals) took 200 hours. That's not counting the removable top, which took us 1200 hours. We even have a special circuit in place which we developed; it mutes the stereo when the radar system picks up an alert. That's a very useful feature, because you can get carried away, between driving



"The Denon DCC-8970 CD head unit is under a flap in the dash. Somehow, it's out of character for the owner of a car like this to pull the radio out and take it with him, because the car is usually in a



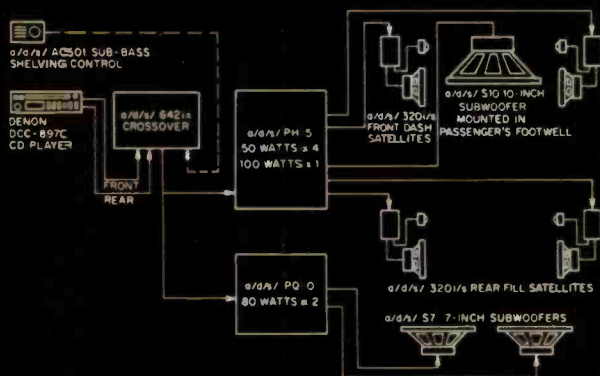
protected environment. But I guess even the parking lot of the country club isn't secure enough."

and the music, and not hear the radar detector go off.

"I think it's really an incredible experience to drive around in that car and see how many senses it stimulates. Driving a Testarossa is an experience in itself, and when you have all those other toys working for you, it's a dream. Just driving over to *Audio's* photographer from my shop was a scene. Little kids stop their fathers and point. If aliens were to visit Earth, they would drive Testarossas. They just look like that." A



"We made fitted cabinets, consoured to fit the rear shelf and house the rear satellite speakers and subwoofers. They're removable, so you still have luggage space."



**Block Diagram of the Ferrari Testarossa system.**





**Ferrari  
Testarossa**

"We use 460 watts of power, because the engine is loud and it gets louder when you lift the top off. But trunk-room is precious, especially since the removable top fits in the

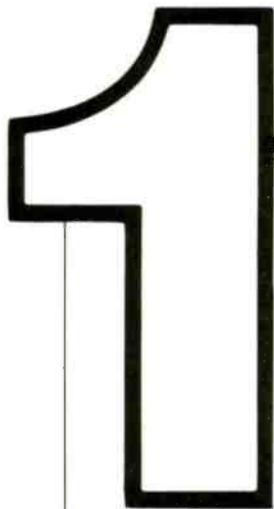


"The mid-woofer is in the original factory locations, down in the kick panels, but we also built a 10-inch woofer into the floor, in a sealed enclosure. That way, if you pop out the rear enclosure to get luggage space, you still have a complete three-way system. Ordinary speaker grilles bulge out, and would reduce footroom. So we improvised, using the wires from a dartboard." With the carpet in place (inset), the floor is perfectly flat.



trunk, so we put the amps and crossover under the spare tire. We also made a vent flap ahead of the tire, to get cooling air to the amp." The a/d/s/ crossover's remote subwoofer level control is under the dash.





## NAKAMICHI CAR COMPONENTS

### Manufacturer's Specifications TD-560 TUNER/CASSETTE

#### FM Tuner Section

**Usable Sensitivity:** 17 dBf.  
**50-dB Quieting Sensitivity,**  
**Mono:** 22 dBf.  
**THD, Mono:** 0.3% at 1 kHz.  
**S/N, Mono:** 65 dB.  
**Frequency Response:** 30 Hz to 15 kHz.  
**Alternate-Channel Selectivity:** 65 dB.  
**Image Rejection:** 40 dB.  
**I.f. Rejection:** 80 dB.  
**Stereo Separation:** 35 dB at 1 kHz.

#### AM Tuner Section

**Sensitivity:** 30 dB $\mu$ .

#### Cassette Section

**Frequency Response:** 20 Hz to 20 kHz,  $\pm 3$  dB.  
**S/N Ratio (at 400 Hz, re: 3% THD level on Type IV tape):** With Dolby B NR, better than 64 dBA; with Dolby C NR, better than 70 dBA.  
**Wow and Flutter:** Less than 0.08% wtd. rms.  
**Channel Separation:** Better than 35 dB below zero level, at 1 kHz.

**Crosstalk:** Better than 60 dB below zero level, at 1 kHz.  
**Fast-Winding Time:** Approximately 75 S for C-60 cassette.

#### Preamplifier Section

**Frequency Response:** 10 Hz to 50 kHz,  $\pm 1.0$  dB.  
**High-Level Input Level and Impedance:** 0.5 V, 10 kilohms.  
**Output Level and Impedance:** 0.7 volts, 1 kilohm.  
**Tone Control Ranges:** Bass, +10, -5 dB, at 20 Hz; treble, +10, -5 dB, at 20 kHz.

#### General Specifications

**Power Requirements:** 14.4 V d.c. nominal, 10.8 to 15.6 V permissible; negative ground; 2 amperes, max.  
**Dimensions:** 7 $\frac{1}{2}$  in. W  $\times$  2 $\frac{3}{8}$  in. H  $\times$  7 in. D (19 cm  $\times$  5.9 cm  $\times$  17.8 cm).  
**Weight:** 4 lbs., 7 oz. (2.0 kg).  
**Price:** \$895.

#### CDC-101 CD CHANGER

**Frequency Response:** 5 Hz to 20 kHz.  
**S/N:** Greater than 91 dB (IHF A-weighted).  
**Dynamic Range:** More than 88 dB.  
**THD:** 0.05% at 1 kHz for 0-dB recorded level.  
**Channel Separation:** Better than 80 dB.  
**Line Output Level:** 1.5 V at 0 dB.  
**Power Requirements:** 14.4 V d.c. nominal, 10.8 to 15.6 V permissible; negative ground; 1.5 amperes, max.  
**Dimensions:** 11 $\frac{7}{8}$  in. W  $\times$  3 $\frac{3}{8}$  in. H  $\times$  7 $\frac{7}{8}$  in. D (30.1 cm  $\times$  9.8 cm  $\times$  20.0 cm).  
**Weight:** 6 lbs., 10 oz. (3 kg).  
**Price:** \$895.

#### DAC-101 D/A CONVERTER

**Sampling Frequencies:** 32, 44.1, and 48 kHz.  
**Frequency Response:** 5 Hz to 20 kHz,  $\pm 0.5$  dB.

**S/N Ratio:** Greater than 105 dB, IHF A-weighted.

**Dynamic Range:** Better than 98 dB.  
**THD:** 0.0025% at 1 kHz and 0 dB.  
**THD + N:** 0.0025% at 1 kHz and 0 dB.

**Channel Separation:** Better than 100 dB.

**Power Requirements:** 14.4 V d.c. nominal, 10.8 to 15.6 V permissible; negative ground; 1 ampere, max.

**Dimensions:** 8 $\frac{1}{4}$  in W  $\times$  1 $\frac{7}{8}$  in H  $\times$  7 $\frac{1}{2}$  in D (21.0 cm  $\times$  4.8 cm  $\times$  19.0 cm).

**Weight:** 3 lbs., 15 oz. (1.8 kg).  
**Price:** \$495.

#### CA 101 CONTROL AMPLIFIER

**Frequency Response:** 10 Hz to 50 kHz,  $\pm 1.0$  dB.

**THD at Rated Output Level:** 0.002% at 1 kHz, 0.005% from 20 Hz to 20 kHz.

**S/N Ratio:** 105 dB, A-weighted.

**Tone Control Ranges:** Bass,  $\pm 12$  dB at 20 Hz; midrange  $\pm 20$  dB at 200 Hz; treble,  $\pm 12$  dB at 20 kHz.

**Input Sensitivity and Impedance:** 0.5 V, 10 kilohms.

**Output Level and Impedance:** 1.0 V (5 V max., for 0.01% THD), 1 kilohm.

**Power Requirements:** 14.4 V d.c. nominal, 10.8 to 15.6 V permissible; negative ground; 0.5 amperes, max.

**Dimensions:** Control module, 7 $\frac{1}{16}$  in. W  $\times$  1 in. H  $\times$  4 $\frac{15}{16}$  in. D (18.0 cm  $\times$  2.5 cm  $\times$  12.5 cm); input/output module, 6 $\frac{7}{8}$  in. W  $\times$  1 $\frac{9}{16}$  in. H  $\times$  6 $\frac{5}{16}$  in. D (17.5 cm  $\times$  4.0 cm  $\times$  16.0 cm).

**Weight:** Control module, 1 lb., 2 oz. (0.5 kg); input/output module, 1 lb., 12 oz. (0.8 kg).

**Price:** \$595.

**Company Address:** 19701 South Vermont Ave., Torrance, Cal. 90502. For literature, circle No. 90

The four Nakamichi products tested here can also be used on their own, but the company's concept, as I understand it, was to develop a line of car audio products that would work synergistically when assembled into a complete audio system. That line also includes amplifiers and speakers, but we opted to test only the most distinctive components in the system. (The Porsche Speedster in our cover story has a more complete Nakamichi installation.)

The components I did test were the TD-560 tuner/cassette head unit, the CDC-101 10-disc CD changer, the DSC-101 digital-to-analog converter, and the CA-101 control amplifier. You may be wondering why someone would equip a car stereo system with *both* a CD changer (complete with its own D/A converter circuits) and a separate D/A-converter component. Stay with me, and it will become clear by the end of this report.



The TD-560's special tape head and two-way azimuth system gave it very flat response in both tape directions.



#### Features

The TD-560 head unit not only serves as a tuner and cassette player but also as a controller for the CDC-101 changer (though the changer can be used with a small controller of its own, if the TD-560 is not used). Its cassette transport provides auto-reverse convenience without the performance compromises found in many auto-reverse deck mechanisms. It employs the same in-line "Crystalloy" head found in Nakamichi's more expensive TD-1200 car tuner/cassette unit and Dragon home cassette deck. This specially contoured head has four vertically stacked cores with narrow (0.6-micron) gaps in a single housing. Thanks to this head design and a two-way azimuth-calibration system, the player proved capable of delivering flat response in both directions of tape travel. The auto-reverse transport features the same dual-flywheel configuration and high-torque drive motor found in other Nakamichi TD-series head units.

The tuner section of the TD-560 incorporates what Nakamichi terms its Auto Dynamic Reception circuitry, which they claim provides the "clearest possible FM signal as a car moves through 'crowded' air waves." Rather than attenuate noise with conventional dynamic high-blend and switchable high-cut techniques, this circuit aims to prevent noise from occurring in the first place by adjusting the high-frequency response dynamically, according to signal strength. Another circuit developed by Nakamichi is said to suppress multipath distortion in difficult reception areas. I will leave it to Technical Editor Ivan Berger to tell you how effectively that circuit works.

As I mentioned earlier, the TD-560 incorporates the interface and controls for connection and operation of Nakamichi's CDC-101 CD changer. That changer/player can be mounted in a remote location (such as the trunk of a car) and utilizes a 10-disc cartridge supplied with it. Additional cartridges can, of course, be purchased.

All the TD-560's audio stages, from tape head to output, are direct-coupled. Nakamichi also uses an isolated-ground

system to prevent interference via the power-supply circuitry. The bipolar power supply uses a d.c.-to-d.c. converter to provide sufficient voltage to handle the high audio-signal levels and dynamic range of digital audio program sources.

The TD-560 comes in a slide-out chassis for anti-theft installation, and comes with a hand-held wireless remote control. It has external inputs for an auxiliary source such as the CDC-101 changer, and all its audio connectors are gold-plated. It also has many convenience features, which will be discussed with the control layout.

The CDC-101's 10-disc mechanism is a multi-suspension design, using a bidirectional oil damper for shock damping and a coil-spring system to control faster cyclic vibrations. The changer mechanism itself employs rubber rollers and a magnetic clutch for gentle and secure disc handling.

Separate D/A converters with four-times oversampling are used for left and right channels. Digital filtering is combined with third-order, linear-phase, active analog filtering. In addition to its analog outputs, the unit has a direct digital output for use with the DAC-101 outboard D/A converter or with any similar converters, when they appear. Isolation and buffer circuitry is incorporated ahead of the changer's digital output, to prevent external interference from degrading the digital signal. This protective measure, and others in the DAC-101, are taken in case the cable run to the D/A converter is long. In my tests, I compared the performance of the CDC-101 CD changer's own D/A circuits with the performance of the separate DAC-101 converter.

The CDC-101's disc/track access, scan, search, and programming features are all controlled from the in-dash TD-560 tuner/cassette deck. The only controls on the changer itself are a button to eject the 10-disc cartridge, and a tiny switch on the top surface of the unit used to select digital or analog outputs. Independent analog, digital, and control cables are provided to prevent interference. If a severe jolt makes the laser pickup assembly skip, a "Quick Recovery" feature resumes play from the point on the disc where the skip occurred. As with the TD-560, the CDC-101's output terminals (digital and analog) are gold-plated. The changer comes with one 10-disc magazine (model number CDM-10); according to Nakamichi, these magazines can also be used in Sony 10-disc home players. An optional wired controller (the MC-101, \$195) is also available for use with other head units or with the CA-101 control amplifier.

The DAC-101 D/A converter unit is said to use the same type and quantity (four) of D/A circuits as are used in Nakamichi's \$11,000 DAT recorder. These circuits are used in a unique push-pull configuration that Nakamichi calls a "4 x 4 Processor." This configuration, according to Nakamichi, cancels out the instabilities and glitches of the individual D/A converters and also cancels out and eliminates external noise. The DAC-101 employs an eight-times oversampling digital filter and third-order, linear-phase, active analog filters. The two channels of audio circuitry following the D/A converters are isolated from each other by independent power regulators. As in the other components of this system, an isolated ground system prevents interference from power-supply circuits.

The DAC-101 also addresses the problem of digital "jitter" by employing a twin phase-locked-loop digital interface

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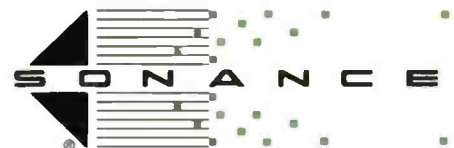


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The CDC-10 CD changer has both a D/A section of its own and digital outputs to feed Nakamichi's unique stand-alone D/A unit.

that, according to Nakamichi, absorbs and corrects any time-base data errors at the input. This, too, permits the DAC-101 to be mounted behind the dashboard, connected to the CDC-101 mounted in the trunk, without incurring any signal degradation. The DAC-101 can operate at 32-kHz, 44.1-kHz, or 48-kHz sampling rates, with the appropriate rate automatically selected depending upon the input. The entire D/A converter is encased in a high-strength aluminum shell. There are, of course, no controls on the unit, though an easily replaceable automotive-type power-supply fuse is mounted on the outside of the DAC-101.

Aside from measuring its performance, I did not spend as much time with the CA-101 control amplifier as with the other components in this system. It is, as its name implies, just a control amplifier—the equivalent of a preamplifier in a home audio system—with about 6 dB of gain and four sets of user-selectable inputs. If you were to install a CDC-101 CD changer now, and later wanted to add a DAT player, using this multi-source controller would solve your problem (and provide additional inputs besides). One of the four inputs on the CA-101 is a dedicated front/rear stereo path that bypasses the CA-101's audio control circuitry. It permits the connection of existing TD-series tuner/cassette decks that have no auxiliary inputs, but nevertheless include a preamplifier section. The CA-101 offers three tone controls instead of the two found on the TD-560 head-end unit. In addition to the usual bass and treble controls, there is a mid-bass tone control that alters the level of signals around a center frequency of 200 Hz—a good choice, since most cars exhibit interior resonances at or near that upper-bass frequency.

The unit comes on two chassis, one carrying the controls and signal circuitry, the other the inputs, outputs, switching relays, and power circuitry; these chassis are linked by a pair of plug-in cables with DIN connectors. The control module is half DIN size, and reasonably shallow, to make it easier to mount where its controls can be conveniently reached; the TD-560 and CA-101 control section could probably be made to fit together into the dashboard slots of some U.S. cars. The input/output module, which is usually concealed beneath the dash or elsewhere, is somewhat larger. It contains a d.c.-to-d.c. converter to raise the available voltage from 12 V to  $\pm 20$  V, for better circuit headroom. Dividing the CA-101 in two separates the noise-generating d.c.-to-d.c. circuit from the audio signal path, as well as making installation easier.

The CA-101 has concentric volume and fader controls, plus the controls for balance and for bass, mid-bass, and treble, and the selector switch (with settings for "AUX 1," "AUX 2," "CD," and "TD"). The "TD" setting is the one I referred to earlier as bypassing the volume, balance, tone, and fader controls of the unit. Gold-plated input and output jacks, the DIN connectors for the control unit, and the ground and power wires are on the input/output module's rear panel.

#### TD-560 Control Layout

This head-end unit looks, at first glance, like most DIN-sized tuner/cassette combinations. The intelligent human engineering only becomes evident as you explore the func-

tions of each control. At the left are the concentric volume knob (which controls balance when pulled out) and fader; below them are the bass and treble tone controls, which have well-defined center detents and can be pushed in flush with the faceplate when not in use. To the right of the volume knob are the cassette eject button and the loading slot.

Six small buttons below the cassette slot select "Skip" (which fast-winds past long, unrecorded tape sections during playback), Dolby NR (B, C or off), tape equalization, local/distant tuner sensitivity, mono reception, and preset scanning. This last function scans through all 12 preset FM or all six preset AM stations, for 5 S each. Pressing this button again, or pressing any other tuning control, stops the scan.

Three large buttons just below this row of six select the signal source (tape, tuner, or CD) and perform related secondary functions: Pressing "Tape" a second time reverses tape direction; pressing "Tuner" again switches between the two banks of FM presets and the AM band, and a second press of "CD" puts the disc in pause. To the right of these three is a "Mem." button which is used to automatically load local stations into the currently selected bank of six station memories or to program a desired sequence of CDs.

At the far right in this row are two buttons marked with left and right double arrows, flanking a "Mode" button. In tuner mode, the arrow buttons tune up or down the dial, changing from manual to "Seek" (auto) operation as the "Mode" button is pressed. In tape mode, the arrow keys handle fast forward and rewind (and program search, if you press them a second time), and "Mode" resets the display's elapsed-time indication to zero or (if you hold the button for 2 S) turns that indication off. And in CD play the arrows either change CD tracks or let you scan the current track audibly, depending on the "Mode" selection.

Just above this group of three buttons is the display. In tuner mode, it shows frequency, the number of the currently selected preset (if any), whether tuning is automatic or manual, stereo/mono status, selected band ("FM1," "FM2," or "AM"), and the status of the local/distant switch. When a tape is playing, the display shows direction of tape travel, whether Dolby B or C NR has been selected, which equalization is in use, whether blank-skip has been selected, and elapsed tape-playing time. If a CDC-101 changer is connected and playing, the display shows disc and track number (or disc number and elapsed time on the track, depending on the "Mode" setting), and when the pause and random-play functions are activated. If the "CD" input is selected when the head unit's rear input is hooked up to another CD player or high-level source, the display will read "CD." A "Mute" indicator shows when this function has been selected from the remote control.

Finally, along the lower edge of the panel, there are six numbered preset buttons, used for station memories and control of the CD changer. Since there are two FM bands, these buttons can store and select a total of 12 FM stations, while only 6 AM stations can be stored.

In CD operation, the first button selects "Random" play of the tracks on each disc, though the discs are played in normal order. The second button initiates track scan, play-

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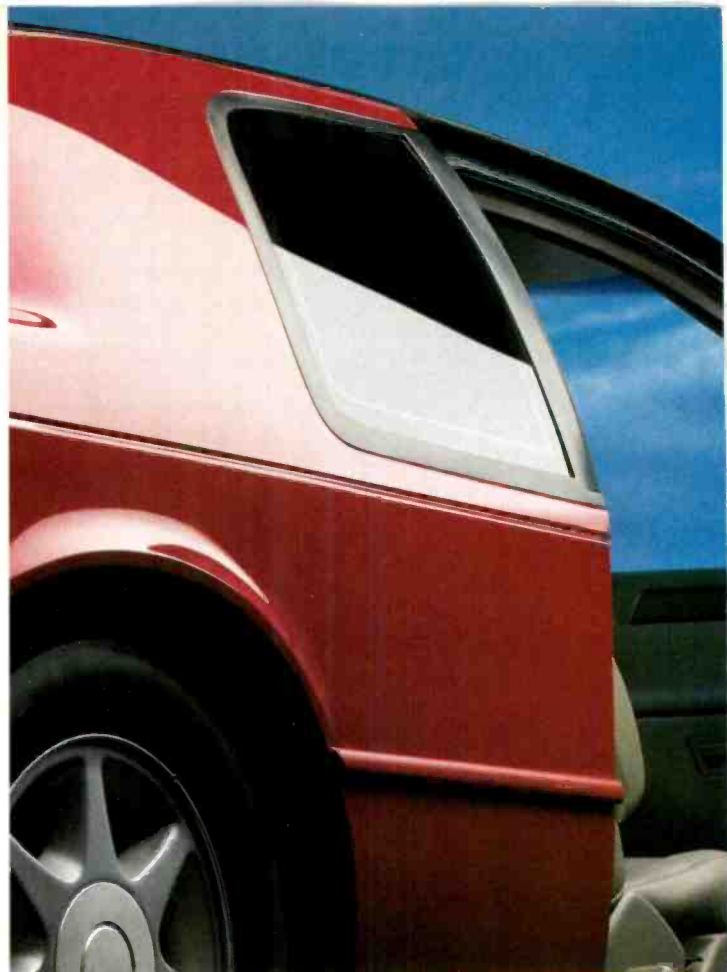
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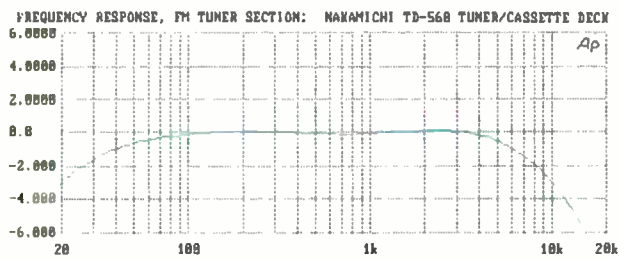


Fig. 1—Frequency response of TD-560 FM section.

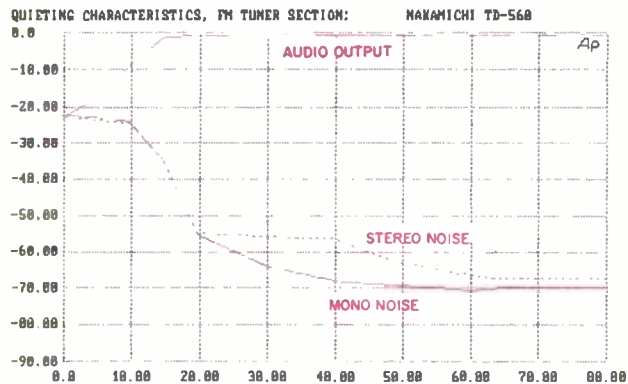


Fig. 2—FM quieting characteristics.

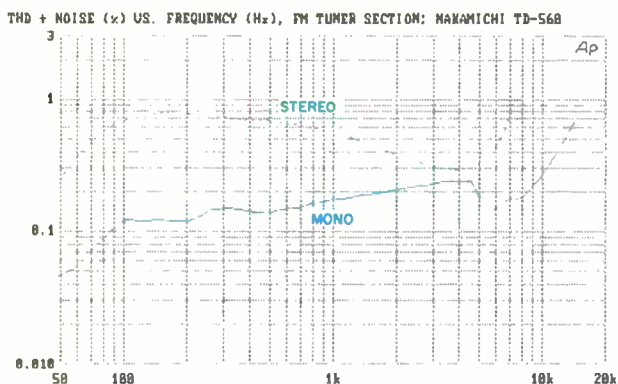


Fig. 3—THD + N vs. frequency, FM tuner section.

ing the first 10 seconds of each track of every CD in the changer. Next to it is a button that plays the first 10 seconds of Track 1 of each disc. The "M. Play" button initiates memory play, after discs have been programmed in with the "Mem." button just above it. (Note that programming is only for the order of disc play, not for the order of tracks within a disc.) The last two buttons select the previous or next disc in the stack (the changer loops directly between discs 10 and 1). Repeated pressing of either button will get you to any disc in the cartridge very quickly. In fact, I noted that the change cycle of this CD changer was extremely fast—less than 5 S for the complete retract-and-change cycle.

The small remote control supplied with the TD-560 duplicates only the most important control functions found on the front panel, such as tape selection and tape direction reversal, tuner and tuner band selection, and CD source selection. Fast forward and rewind buttons on the remote, used during tape play, double as up/down auto-tuning buttons when in the tuner mode. A button unique to the remote control is the "Mute" button that, when pressed, lowers volume level without your having to adjust the main volume control. Pressing this button a second time restores original volume level.

#### TD-560 Measurements

Figure 1 shows the frequency response of the FM tuner section of the TD-560 head unit. Response was down less than 2 dB at 30 Hz and a bit more than 5 dB at 15 kHz. Since no tolerance accompanied the frequency response specified by Nakamichi in their published specifications, I cannot state whether these results meet specs or not.

Figure 2 shows the quieting characteristics of the FM tuner section, for mono and stereo reception. In mono, 50-dB quieting required a signal level of only 18 dBf, as against 22 dBf specified by Nakamichi. Signal-to-noise ratio for strong signals was also considerably better than claimed, measuring 69 dB in mono and 66.5 dB for stereo, at 65-dBf signal strengths.

Figure 3 shows how THD + N varied as a function of modulating audio frequency. At 1 kHz, THD + N in mono was 0.18%, as against 0.3% specified by Nakamichi. At 100 Hz, I measured only 0.12%, while at 6 kHz, THD + N was 0.15%. Stereo THD + N measured 0.58% at 1 kHz, 0.68% at 100 Hz, and 0.39% at 6 kHz. As I learned later, what appears to be a steep rise in stereo distortion at higher frequencies was caused by out-of-band beats and subcarrier products. As is true in most FM tuners designed for mobile use, little attempt was made to filter or attenuate these non-harmonically related components caused by the 19-kHz pilot carrier and the 38-kHz subcarrier and its sidebands. Since users will not be making tape recordings from signals derived from car tuners, there is really no reason to suppress these inaudible out-of-band components.

Figure 4 shows how THD + N varied with increasing signal strength. Usable sensitivity, defined as the signal strength needed to reduce THD + N to 3%, measured only 15 dBf in mono, as against 17 dBf specified by Nakamichi. At 65 dBf, there was almost perfect correlation with the earlier readings shown in Fig. 3; in mono, the correlation was perfect, for a reading of 0.18% on either test.

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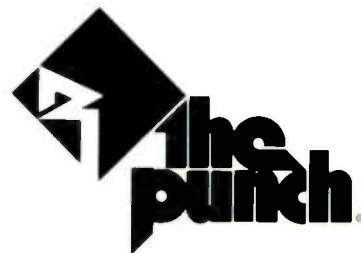
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As expected, Nakamichi's unrivalled tape-recorder expertise came shining through in the TD-560's cassette section.

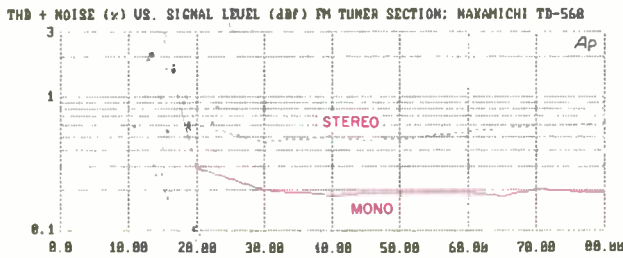


Fig. 4—THD + N vs. signal strength.

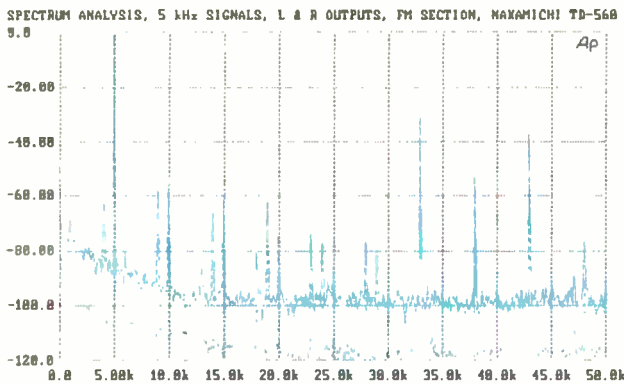


Fig. 5—Spectrum analysis of crosstalk and subcarrier products for FM stereo channel modulated by 5 kHz (solid curve) and for unmodulated channel (dashed curve).

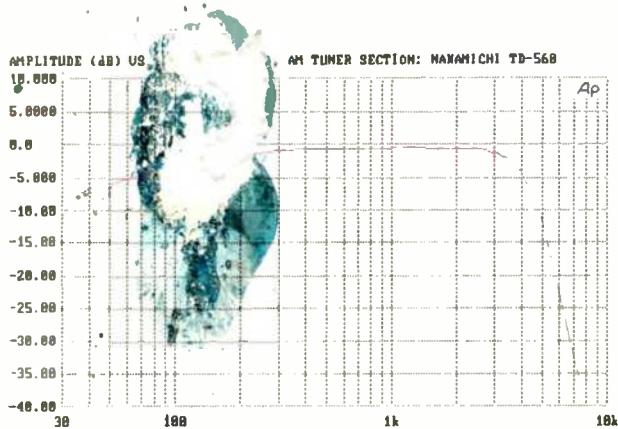


Fig. 6—AM frequency response.

Stereo FM separation fell slightly short of published specifications, measuring 32.5 dB at 1 kHz and 100 Hz, and 26.0 dB at 10 kHz. When signal strength was reduced to 45 dBf, separation decreased to approximately 15 dB at all audio frequencies. Figure 5 is a spectrum analysis of the left (solid line) and right (dashed line) outputs from the tuner section of the TD-560, when a 5-kHz signal was used to modulate the left channel. In addition to confirming my earlier separation reading of approximately 26 dB at this frequency, this analysis also shows the influence of subcarrier products at 38 kHz and the associated sidebands (33 and 43 kHz) on the THD + N readings cited earlier. Crosstalk products appearing at the output of the unmodulated channel output also tend to degrade separation readings at these higher audio frequencies.

Alternate-channel selectivity measured 68 dB for my sample, while image rejection was considerably better than claimed, measuring 58 dB. The figure for i.f. rejection was 82 dB, slightly more than the 80 dB claimed by Nakamichi.

Figure 6 shows the frequency response of the AM tuner section of the TD-560. Response was down 6 dB at 50 Hz and at 4.3 kHz. While these results fall short of the newly recommended National Radio Systems Committee (NRSC) specifications designed to upgrade AM radio performance, they are still far better than what I usually measure for mobile AM tuners.

Next, I turned my attention to the cassette tape player section of the TD-560. As I fully expected, Nakamichi's unrivaled expertise in this area came shining through. Figure 7 shows the playback frequency response I measured, using a standard BASF normal-bias (Type I) calibration tape. While the spot frequencies on that test tape extend only to 18.5 kHz, it is clear that response would have extended to 20 kHz and even beyond before reaching the 3-dB roll-off point. Much the same thing holds true for high bias or Type II tape, whose frequency response is also shown.

I had originally intended to show frequency response for both of these calibrated tapes in both forward and reverse direction, but results were virtually the same in either direction, thanks to Nakamichi's superb azimuth calibration system.

With Dolby noise reduction turned off, signal-to-noise ratio for a Type I tape measured 57.9 dB (referred to the 3% THD level). Adding Dolby B NR increased this S/N reading to 65.9 dB, while turning on Dolby C NR increased the S/N still further, to 73.2 dB. All of these readings were A-weighted. Figure 8 shows the spectral distribution of noise versus frequency without NR, with Dolby B NR, and with Dolby C. It is interesting to note how Dolby C NR reduces low-frequency noise components as well as high-frequency hiss, whereas Dolby B is mostly effective above 1 kHz.

A 25-S test of wow and flutter of this tape player revealed that Nakamichi's claim of 0.08% wow and flutter was conservative. My sample exhibited wow and flutter level between 0.052% and 0.06%—outstanding for a mobile tape player. Using the FFT spectrum analysis capability of my Audio Precision System One test set, I noted too that no single wow or flutter frequency predominated; what wow and flutter there was, was fairly evenly distributed over the frequency range from 0 to 200 Hz.





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Henry Kloss is the creator of the dominant speaker models of the '50s (Acoustic Research), '60s (KLH) and '70s (Advent)—as well as of Cambridge SoundWorks' highly acclaimed Ensemble and Ambiance speaker systems. While packing a stereo system into a suitcase before a recent vacation, Henry realized that an amplifier, a portable CD player and two small speakers take up the same amount of space as required for an acoustic suspension woofer enclosure to reproduce really deep bass. That was the inspiration for BassCase. Model Eleven's bass speaker enclosure which doubles as the entire system's carrying case.

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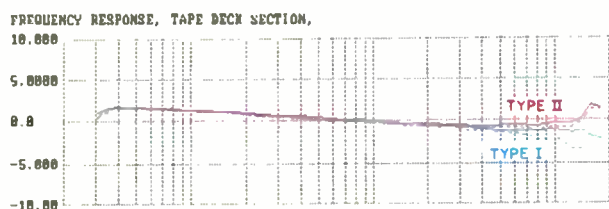
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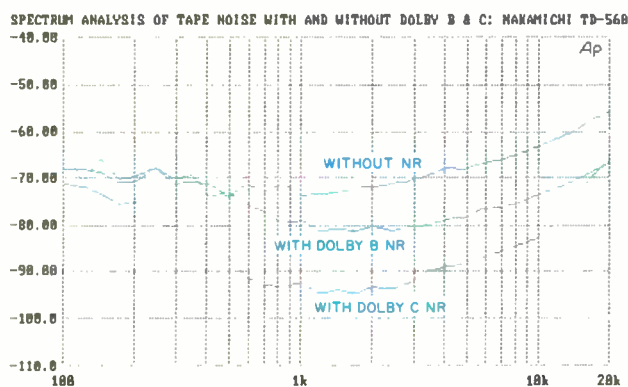
†Plus freight (Ensemble \$7-\$25, Model Eleven \$5-\$14, Ambiance \$2-\$12). Delivery time usually 2-7 days.

Using the changer's own D/A circuits I measured less than 0.04% THD + N; using the DAC-101 converter, it was an incredibly low 0.002%!

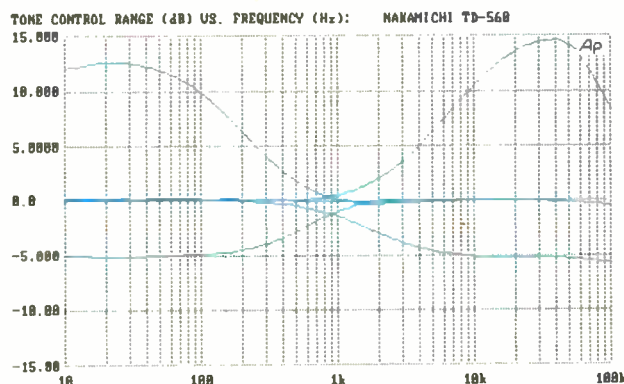


**Fig. 7—Frequency response of TD-560 cassette section for Type I and Type II tapes. Frequency response in opposite tape direction**

(not shown) was virtually identical. Solid curve is left channel and dashed curve is right channel in this and following graphs, except where noted.



**Fig. 8—Spectral distribution of tape noise without Dolby NR and with Dolby B and Dolby C NR.**



**Fig. 9—Bass and treble control range, TD-560.**

Before turning my attention to the CDC-101 CD changer, I measured the range of the bass and treble tone controls of the TD-560. Results of the multiple sweep plots I made are shown in Fig. 9. I am not quite certain why Nakamichi chose to provide far less cut than boost for both the bass and treble controls of this head end, but whatever their reason, the amounts of boost and cut in each case are virtually in perfect agreement with Nakamichi's published claims for this circuit.

### CDC-101 and DAC-101 Measurements

In addition to checking out the basic performance of the CDC-101 changer, I was interested in comparing the performance of its internal D/A converters with that of Nakamichi's separate DAC-101 D/A unit. Figure 10 shows both the frequency response obtained directly from the CDC-101's analog outputs and the response obtained when the CDC-101 was used in combination with the DAC-101. The chief improvements that I observed were flatter response for the CDC-101/DAC-101 combination and less ripple at the higher audio frequencies. In both cases, however, response was extremely flat out to 20 kHz. Surprisingly, though, the CDC-101 alone was "off" by no more than about 0.2 to 0.3 dB at 20 kHz, while the combination of CDC-101 and DAC-101 yielded response that was down by approximately 0.5 dB at 20 kHz.

A similar comparison was made of THD + N versus frequency for the two modes of operation. Here, the differences were more pronounced, as is shown in Fig. 11. Measuring the analog outputs of the CDC-101 alone, THD + N was 0.025% for the left channel and 0.038% for the right channel at 1 kHz. Both figures are well within Nakamichi's published specification of 0.05%, but when the same sort of measurement was made using the combination of the CDC-101 feeding its digital output to the digital input of the DAC-101 converter, distortion at the analog outputs of the converter was an incredibly low 0.002%, coming close to the limits of my Audio Precision's measurement capability!

Up to this point, all of my measurements of CD player performance ignored the fact that in an actual installation, output signals, whether taken directly from the CD changer or from the DAC-101 D/A converter, would have to pass through the TD-560 analog stages as well. Accordingly, for Fig. 12 I decided to compare THD + N versus signal amplitude measured from the outputs of the CD changer with the THD + N measured at the output of the TD-560 head-end—the way most users would hear the music reproduced by the CD player. Results were similar at maximum recording levels, with THD + N between -70 and -75 dB. But at lower signal levels, the analog stages of the TD-560 obviously proved to be the "limiting factor" for residual THD + N. Of course, a reading of -75 dB corresponds to a percentage of only 0.018%, hardly worth worrying about in a mobile environment, but the difference in readings might well be one factor in justifying the use of a component such as Nakamichi's CA-101 control amplifier, which would allow the output of the CDC-101 (or the CDC-101/DAC-101 combination) to be fed directly on to whatever power amplifiers were in use in the system. To complete this analysis, I measured THD + N versus signal level for the combination

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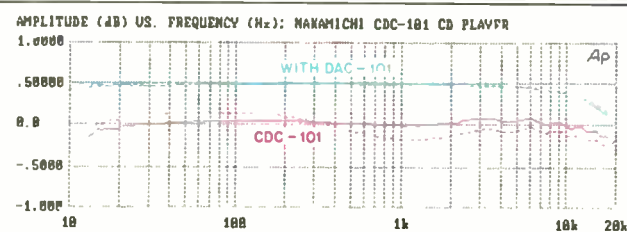
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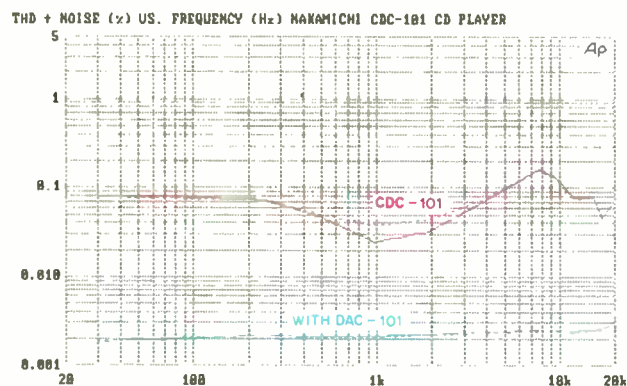
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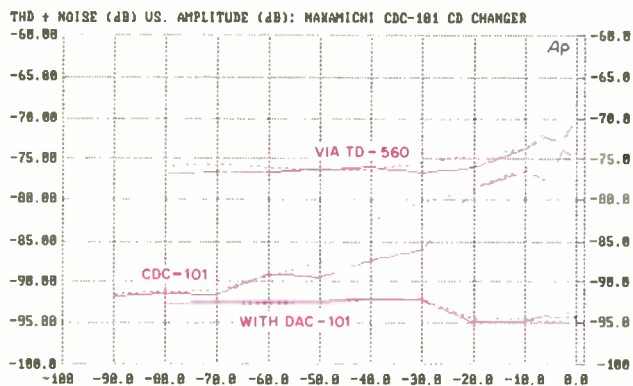
The fade-to-noise test yielded an EIA dynamic range of 102 dB for the changer alone, and 110 dB if the DAC-101 was used.



**Fig. 10—Frequency response of CDC-101 CD changer alone and through DAC-101 converter. The DAC-101 curve has been shifted upwards 0.5 dB for clarity.**



**Fig. 11—THD + N (%) vs. frequency for CDC-101 alone and through DAC-101.**



**Fig. 12—THD + N vs. level for CDC-101 alone, via DAC-101, and through CD input of TD-560 head unit.**

of the CDC-101 and the DAC-101 D/A converter. Now, THD + N ranged between  $-92.5$  dB and  $-95$  dB! For some purists, these results alone might justify the use of the DAC-101 with the CDC-101. A  $-95$  dB reading corresponds to a percentage of only 0.0018%!

Figures 13A and 13B offer additional justification to the audio purist for opting for the DAC-101 as well as the CA-101 control amplifier. Figure 13A is a spectrum analysis of a 1-kHz signal at maximum recorded level as measured at the output of the TD-560 head unit. Low-level harmonic distortion components are clearly visible at multiples of the 1-kHz test frequency, though even the greatest of these is 80 dB below the signal level. Nevertheless, comparing these results with those shown in Fig. 13B (obtained at the output of the DAC-101 when it was used in combination with the CDC-101 CD changer) makes it obvious that the use of the DAC-101 (and, possibly, bypassing the audio stages of the TD-560) will yield far lower distortion. In Fig. 13B there are far fewer harmonic distortion components visible and those that are present are more than 90 dB below the signal level.

Signal-to-noise measurements were made three different ways. With the CDC-101 connected to the TD-560 head unit and readings taken at the outputs of the TD-560, S/N measured 91.4 dB on one channel and 90.3 dB on the opposite channel. Measuring S/N directly at the analog outputs of the CDC-101 yielded readings of 104.3 dB on one channel and 99.0 dB on the other channel. Finally, using the DAC-101 connected to the CDC-101 and measuring at the outputs of the separate D/A converter yielded readings of 114.9 dB for one channel and 113.9 dB for the other channel. Figure 14 shows the spectral distribution of residual noise for the first and last of these measurement conditions.

Figure 15 shows how separation varied with frequency for the CDC-101 player connected directly to the TD-560 and measured at the outputs of that head unit. At 1 kHz, separation measured in this way was 72 dB for the left-to-right direction and 62.5 dB for the right-to-left. Measured directly at the outputs of the CDC-101, separation improved and exceeded Nakamichi's published specification of 80 dB at this frequency.

While linearity was nearly perfect from levels of 0 dB (maximum recorded level) to  $-80$  dB when measured directly from the outputs of the CDC-101 changer, it was even more nearly perfect when measured at the output of the DAC-101 converter when that component was used with the CDC-101. Figures 16A and 16B show a comparison of these two conditions, and indicate deviation from perfect linearity for each case. To be sure, the differences are very small, but they are measurable.

Differences were much more pronounced when I conducted the usual fade-to-noise tests first, as measured directly from the analog outputs of the CDC-101 (shown in Fig. 17A) and then as measured at the outputs of the DAC-101 when it was used in combination with the CD changer (shown in Figure 17B). EIA dynamic range proved to be higher when the D/A converter was used, measuring more than 110 dB as against about 102 dB when the measurement was made at the outputs of the CDC-101.

I could discern no difference between the appearance of a unit pulse measured at the output of the CDC-101 chang-

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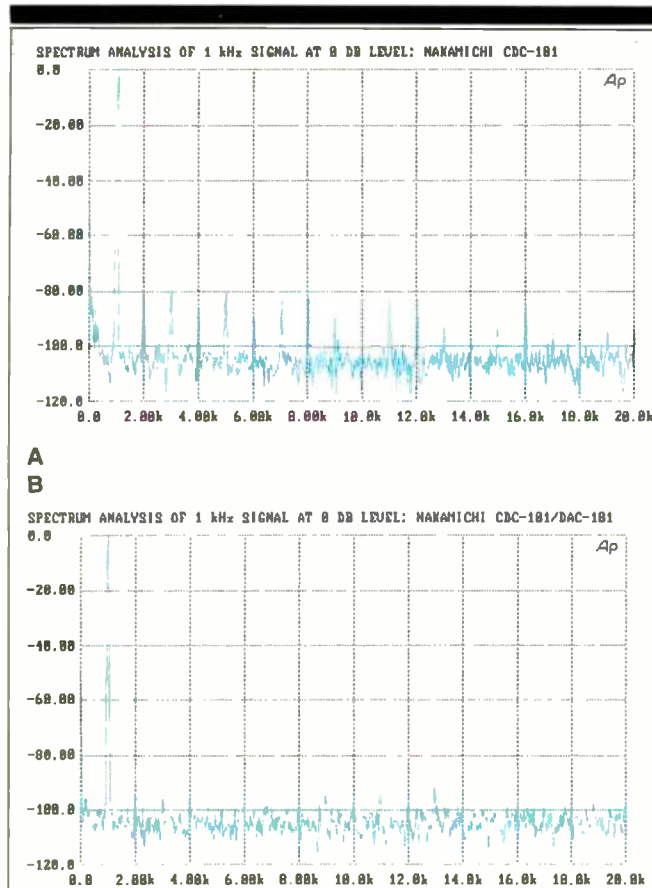
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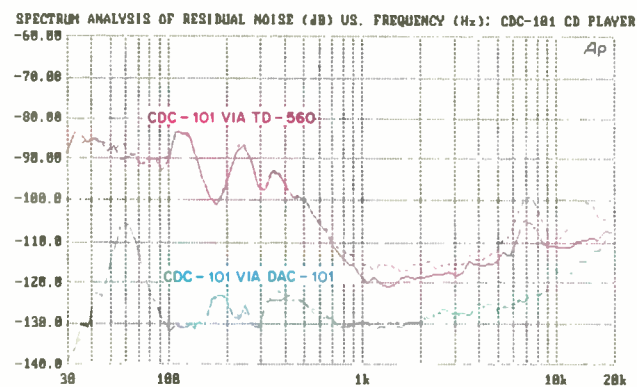


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The CA-101 control amp is on two chassis, for easier installation and to isolate the audio signal from power-supply noise.



**Fig. 13—Spectrum analysis of 1-kHz signal at 0 dB (maximum) recorded level, measured through TD-560 (A) and through DAC-101 (B).**



**Fig. 14—Spectrum analysis of residual noise when playing “no signal” test track, for CDC-101 via TD-560 and via DAC-101. The 60-Hz hump in the lower curve is from the test-bench power supply.**

er and the appearance of the same pulse at the output of the DAC-101. There was no inversion of signal polarity with either component.

### CA-101 Measurements

Having established that there could indeed be justification for using the DAC-101 and for bypassing the TD-560 head unit when doing so, I decided to measure some characteristics of the CA-101 control amplifier, which would make such bypassing possible. Figure 18 reveals that response of this control amplifier is flat to within  $-0.2$  dB out to 20 kHz and down less than 1.0 dB at 50 kHz. The graph also shows the additional tonal compensation capabilities of this control unit. Not only do the bass and treble controls have more range than is provided by the tone controls in the TD-560 head unit, but the additional “Mid” control (which might have more properly been described as an upper-bass tone control) makes it possible to more accurately equalize the entire system for the typical mobile acoustical environment.

The plot shown in Fig. 19 was a real revelation. It shows how THD + N varied with audio frequency. Over most of the range of measurement, THD + N hovered around the 0.001% level. Certainly, this component is not about to contribute to overall THD or noise when it is used with the other components of this Nakamichi mobile audio system! To my mind, if you are willing to spend \$2,255 or thereabouts for the other components tested for this report (and not counting required power amplifiers), then another \$595 for the CA-101 Control Amplifier shouldn’t make that much difference (and may well be worth it).

Having completed all these measurements, I did do some listening to the entire system, using my reference home amplifier and speakers. Needless to say, every function of the system performed as it should have. After a short while, I was practically able to operate the controls on the TD-560 while barely glancing at the front panel, as might be the case if I were using this system while driving a car. Unhappily for me, the pleasure of using this system in my car is not to be mine. As usual, Technical Editor Ivan Berger reserves that pleasure, and his report follows. I only hope that before Mr. Berger returns all these wonderful components to Nakamichi he gives me a ride in his car. *Leonard Feldman*

### Behind the Wheel

I got into the Nakamichi system’s operation by easy stages, adding the CD-101 changer a week after the TD-560 was installed in my dash, and the DAC-101 a further week thereafter.

It was a pleasure to use, though I wish Nakamichi’s designers had resisted the temptation to use two rows of six uniform buttons each, which are rather hard to negotiate when watching the road. The large buttons on the bottom aren’t bad; they spread over enough geography to give me some positional cues. But the six little buttons just below the tape slot would have been easier for me to use if the three tape-function controls on the left had been slightly separated from the three radio controls on the right. Also, these minor controls are not illuminated at night—the only exception to otherwise-excellent night illumination.



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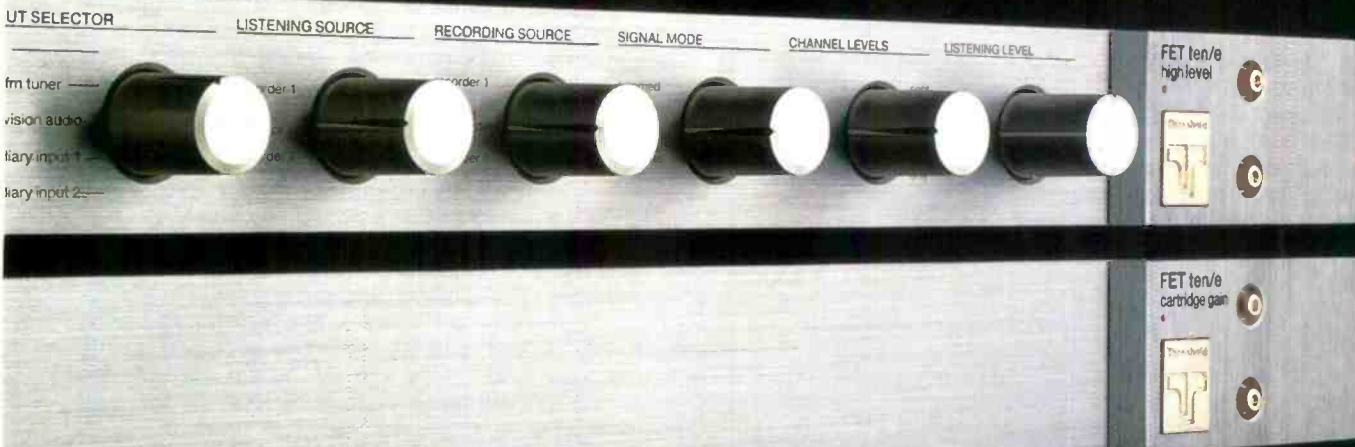


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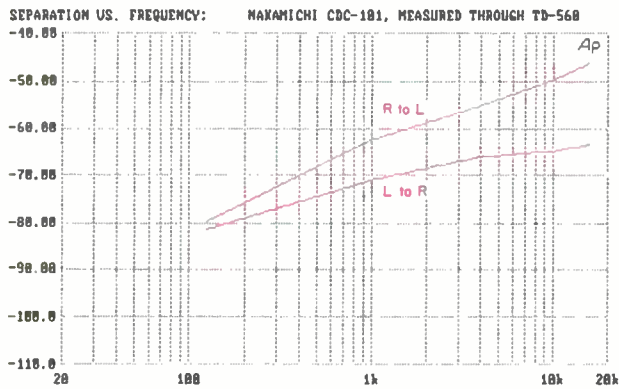
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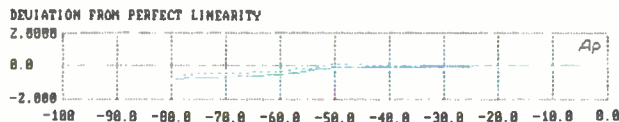
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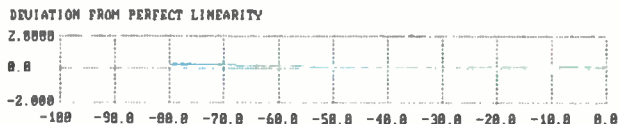
On the road, the TD-560 was a model of good ergonomics and a sheer delight to use, with a superb display.



**Fig. 15—Separation vs. frequency for CDC-101 playing through TD-560.**



**A**



**Fig. 16—Deviation from perfect linearity for undithered signals for CDC-101 changer, measured at its own analog output (A) and at analog output of DAC-101 (B).**

Otherwise, operation was a sheer delight. The general audio controls are clustered at the far right—a reasonably big volume knob with concentric balance and fader tab, plus bass and treble controls that are far enough from the volume knob for uncramped operation, and push in to prevent inadvertent misadjustment. The only apparent oddity here is the unit's "standby" system: The TD-560 turns on

as soon as you press in the volume knob, but won't turn off unless you press and hold that knob for about 2 S. This annoyed me until Nakamichi explained it (the manual didn't): It's to ensure that you don't turn the unit off by accidentally knocking the knob, as you'd be likely to do in a moving car.

What you're more likely to do by accident is eject the tape while reaching for the volume knob. Ejecting the tape does not turn the tuner on, thank goodness, but puts the unit on standby. The tape doesn't pop out and get in your way when you switch from tape to tuner or CD, or when you turn off the ignition. Instead, the transport disengages and goes into its own standby mode. The tape does pop out, however, when you pull the Nakamichi from the dashboard.

The middle button row is a model of good ergonomics, with no adjacent buttons having the same size and shape, and the row broken into function groups. The secondary functions performed by the three source-selector buttons all relate to the sources they select. The buttons under the display change their functions for each operating mode, but these multiple functions (changing stations, shuttling the tape, or changing CD tracks) are all logically consistent.

The display is a pure joy—large, clear, and easy to read by day or night. The subsidiary indications are too small to read clearly unless you have a fishhawk's eyes; as with most units this complex, you learn to read the indicators' positions rather than the indicators themselves. I'd prefer having LEDs by each two-position button to show how it's set, but that would cost more.

The remote was equally well designed. It fits nicely in the hand and the multiple functions controlled by its button pairs were logically related. It worked well over a surprisingly wide range of angles, an absolute necessity in a car. It even worked well when mounted to the steering wheel, except when I made hard left turns. Once I even triggered the muting function while moving the controller around in the open glove box; luckily, the TD-560's display reminds you when "Mute" is on, which explained the volume drop. The tone quality is a bit less clean when the muting is on.

Even the handle used to pull the TD-560 from the dash is unusually well designed. It lies perfectly flat until you push a button to unlock it—which is slicker in reality than in my description.

As with all our test units for the past few years, the Nakamichi system was installed in my car by Tony Igel of New York City's Stratford Mobile Sound. According to Tony, "Installing the TD-560 and associated components is very straightforward. The removable-chassis head unit easily fits into a standard DIN opening, and the lock-down tabs secure it nicely. The changer control cable (which also carries power to the changer) and the audio cables should go into the wire passageway on the side of the car opposite the car's main power wiring; if there's no room in the side passageway, the control cable can run down the car's center passage. The power wire for the DAC-101 converter should go into the car's opposite side passageway, to make sure no noise leaks into the audio. The power cabling is a standard three-wire configuration—standard 12-V, ground, and trigger. No high-power cabling is needed; 10-gauge (and 16-gauge for the trigger) are fine.

The remote control worked over so broad a range of angles that you could use it to run the TD-560 from your steering wheel.

"The changer installation, once the cables are in place, is easy, especially using Nakamichi's variety of supplied mounting systems. But make sure to set the spring system for horizontal or vertical mounting before installation, and to switch on the digital output if the DAC-101 is used. Although Nakamichi's circuits are designed to handle long runs between the changer and the DAC unit, the company recommends placing the two close together, and only supplies a 1.5-meter cable to connect them."

Shifting from ergonomics and installation to performance, I was surprised to find the TD-560's FM reception in the suburbs to be virtually identical with that of my reference set—even tuners that get exactly as many good stations as my reference usually do better on some, worse on others. The Nakamichi rolled off the treble a bit more, which made the difficult stations more tolerable but the strong ones less crisp, and my reference tuner's seek function stopped at a few so-so signals I was glad the Nakamichi ignored. In my multipath tests, however, the Nakamichi did slightly better than the reference unit; I couldn't be sure whether that was due to better multipath resistance, to quicker high-blend action, or just to the slight treble roll-off.

On AM, the Nakamichi equalled the reference set with one hand tied behind its back—I was halfway through my test before I realized that the TD-560 was in "Local" tuning mode, which reduces input signal strength. The TD-560's high-end roll-off is far more pronounced on AM, but more welcome too, because it trades off treble for interference rejection. This makes the Nakamichi sound warmer and less crisp, but also more clean except on the very best of signals—and such signals are few and far between, particularly in the New York area.

The control functions were well chosen, though I would have preferred a station-scan function to the preset scan that Nakamichi provides. (The preset scan gives you only 5-S sound bites, insufficient for identifying too many programs.) More car stereo units should have mono buttons for FM, as this one does. The auto-memory feature is less useful in travel than it would be if it saved your home stations in some hidden memory from which they could be restored. On the other hand, it was sensitive enough that starting it from the bottom of the dial filled the memories up before the dial had been half traversed; that gave me six public and college stations, whose programming I prefer, out of six. On other tuners, this function usually finds only the six strongest signals, providing a mix of high-intensity rock and sleepy-music stations. And if that's what you want, shifting to "Local" reception mode before you press "Mem." will probably get it for you.

Loading a tape turns the TD-560 on and switches it to tape mode, a common but not universal convenience. Tape loading also resets the display to "00:00," after which the display shows elapsed time as you continue playing. This is a stopwatch, not a true counter, so it does not update the count when you're in rewind or fast-forward. It also holds its count when the tape is in standby. I'd have preferred to have the counter work in all modes (even if it were just a bargraph of tape remaining) or zero itself at either end of the tape; very few head units, however, have even this much indication of tape motion.

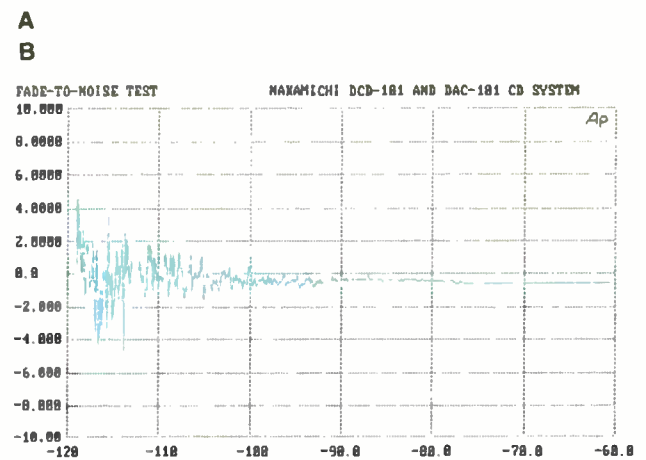
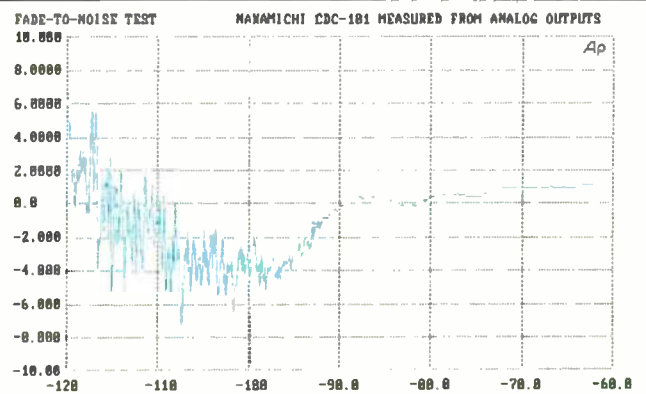


Fig. 17—Fade-to-noise test for CDC-101 changer, measured at its own analog output (A) and at analog output of DAC-101 (B).

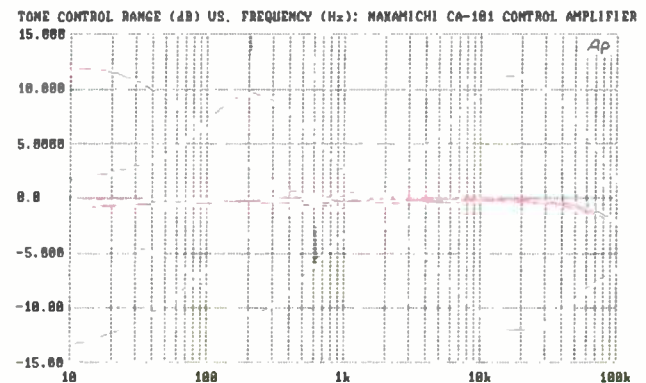


Fig. 18—Frequency response (middle curve) and tone control ranges for CA-101 mobile control amplifier.

Deciding whether to add the D/A unit and control amp to the Nakamichi system will set off a battle between purism and pocketbook.

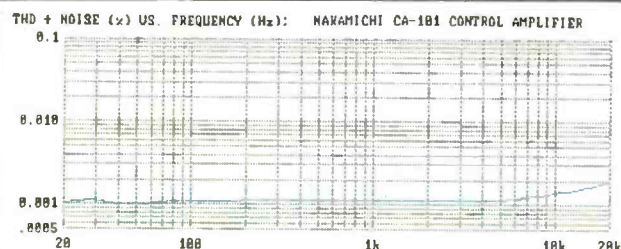


Fig. 19—THD + N vs. frequency of CA-101 control amplifier, at rated output (1 V ms).



You have to know which way the tape is moving to tell which fast-wind button is fast-forward and which is rewind—no problem with such large, clear display arrows. Pressing a fast-wind button twice switches it to program-seek mode, which is logical and convenient; pressing the "Tape" button stops fast winding.

The blank-skip function was useful on pop tapes, but sometimes got hung up on the quiet passages of soft ones, as did the program-seek function. I've had the latter problem on every other head unit I've tested, but Nakamichi is the first company to explain why: Both functions sense passages only 30 dB below zero level—as, I suspect, do the program-seek features of competing units.

The sound from tape was clear and clean, but seemed slightly imbalanced, as if the frequency response was flat

but slightly tilted to elevate the bass and lower the treble. When I saw Len's figures later, this turned out to be the case (Figs. 8 and 9), but to an extremely small degree. There were no tape-motion problems on bumpy roads.

The CD player changed my mind about how well a CD changer would fit my lifestyle. I've always felt that it was better to have an in-dash player, so I could load any CD I liked. The 10-disc CD-101 holds enough music for a full day's driving, especially if you listen to radio, tapes, or your fellow passengers from time to time. And having discs on tap at the touch of a button is a lot more convenient than juggling them and their jewel boxes. The CDC-101 manual shows a variety of horizontal and vertical mounting options, so it should be possible to set it up conveniently in just about any vehicle.

The system is easy to use. While six CD functions are controlled by the long button row along the bottom, the functions I used most—pause, track select, and track scan—are not part of that row, and the buttons that shift to the next or prior disc, while part of the long row, are just under the buttons that select CD tracks. The track-scan button, which I used a lot, was conveniently second from the row's end, and the disc-scan button was right next to it. Both buttons let you hear 10 seconds per track—enough to give you a decent idea of what's on it, especially as you're scanning discs from your own collection. To stop a track scan, just hit the left arrow button to go back to the start of that track. Two fairly large black bars appear on the display when the transport is in pause mode.

If you switch back and forth from CD to some other source, you can resume play from the same spot on the disc; if you turn the ignition or the system off while a CD is playing, you'll start from the beginning of the same track when you restart play.

One golden-eared passenger felt the CD sound was a bit lifeless, but I revelled in it. There were no problems in normal highway driving; on bumps, the player sometimes paused, but always continued from the same place on the disc within a second or two.

Did the DAC-101 make a difference? I think I heard an improvement with it, a slight edge in clarity and naturalness, a slightly more open sound. But I was listening through the TD-560 (there was no room to install the CA-101 Mobile Control Amplifier), and 48 hours had elapsed between my hearing the CD-101 through its own D/A section and my hearing it through the external converter. What's more, the sound of just the changer and head unit was already too good to admit of massive improvement. Considering the price of the D/A unit and control amp, deciding whether or not to add them to a Nakamichi system will set off a real tug-of-war between purism and pocketbook for those listeners who can afford the Nakamichi system in the first place. I wouldn't go for the DAC-101 without the CA-101 as well.

I was severely tempted to replace my reference system with the TD-560 and CD-101, dissuaded only by the slight treble softness I heard on tape and FM. (Tweaking out that softness with my equalizer would then bias my listening tests against any head units that had flatter response.) The system is very clean, very convenient, and looks great in my car. I'm going to miss it.

Ivan Berger

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## VIOL PLEASURES

**Antoine Forqueray: Pièces de Viole (Suites I and II).** Jordi Savall, bass viol; Ton Koopman and Christophe Coin, continuo.

**Astrée E-7762, CD; AAD; 49:30.**

Bass viol? That familiar instrument in both classics (with bow) and in jazz/pop (as a plucked instrument) actually has behind it a long, aristocratic history nicely illustrated by this recording. The bass used here dates from 1697, the very time of the music played on it at the Court of Louis XIV, the Sun King.

This bass, you note, is a viol—not of the violin family—and so is our present bass. The viols were earlier a highbrow grouping of various sizes, and now are being increasingly revived in their assorted forms for early music. The newer violin was more flamboyant and, in comparison, a popular upstart; as the lute was to the guitar, the viols were to the violin family, which in the end took over—all except the bass. Indeed, the highest tones on the bass viol, you will note, have the same thin, nasal quality heard in, say, an English "consort of viols" of Queen Elizabeth I's time.

Very simply, this man Forqueray (also "Forcroi," but pronounced "For-crai") was the bass viol Paganini of his day—so much so, he was similarly compared to the devil! He could do absolutely incredible things with his big machine and, at an early age, fascinated Louis XIV. Also like Paganini (but more profoundly), he composed his own music—which nobody else could play. His physical gymnastics were apparently just as unbelievable as Paganini's on the violin, 200 years later.

Remarkably enough, Jordi Savall, on this CD, can play the music—and with impeccable styling and precisely in tune—on an instrument such as Forqueray himself played. Such talents, it seems, return, like Halley's comet, at rare intervals.

Beware a bit: The stunts are not as obvious on first hearing as those of a Paganini. After all, this is an elephant of a stringed instrument. As might be

expected, it tends to omit occasional elephantine grunts and groans, and the finely detailed melodies in its upper works are not immediately obvious. But the utter sweetness of these higher notes soon begins to come through, in all the super-fancy decorations of trills and turns that belonged to the high French style of the Louis XIV period,



familiar in other forms of French "baroque" music.

The first suite, six movements with the usual French titlings (one is "La Forqueray") is considerably on the serious side; the second is noticeably lighter and relatively more popular in its tunes. Maybe you would want to reverse the order and get the heavier stuff (worth its weight) after an easier indoctrination? If so, jump to the other suite, at track 7.

By the way, this music is not far removed from the unaccompanied works for various instruments—notably violin and cello—by J. S. Bach, though Bach's instruments play by themselves (a less decorated idiom) where the Forqueray is backed by a continuo accompaniment, discreet and almost inaudible here, as it should be. Believe it or not, this rendering includes *another* bass viol on the bottom. Maybe you'll

think of a pair of walruses. Or sea cows, manatees, hippopotami.

*Edward Tatnall Canby*

**String Quartets from Poland: Szymanowski Nos. 1 and 2, Lutoslawski, and Penderecki No. 2.** The Varsovia String Quartet.

**Olympia OCD-328, CD; AAD; 67:38.**

Any record containing four major works by Poland's three most important composers of this century cannot be passed over lightly. All four are imposing and absorbing—and progressively more challenging for most listeners, I'd guess.

Karol Szymanowski's two quartets were written a decade apart: In 1917 and 1927, when he was 35 and 45. Both are thus mature works, and they share more or less equally in the rich passion and dramatic utterance that characterize his music. At moments, the writing suggests Alban Berg, Franz Berwald, Wilhelm Stenhammar, Frank Bridge, or perhaps a dozen more, but in the end, Szymanowski is utterly his own man. And what a man! This is truly engrossing music. If you have any taste for relatively modern string quartet music, these two pieces are highly recommended.

Both have three movements. The first quartet is the more conventional in overall plan: A slow/fast movement, a quasi-canzone, and a two-part vivace that begins scherzando to replace the classic scherzo. The second has a slow/fast/slow plan that makes it seem somewhat more inward and personal. Even the manic scherzando of this composition's middle movement repeatedly pauses, as if to reflect on its own impulses.

I must admit my response to the other two quartets on this record reflects more respect and less enjoyment than is the case with the Szymanowski. Perhaps I simply don't understand Lutoslawski or Penderecki as well—which isn't surprising considering that the quartets by which they are represented here are only a little over 20 years old.

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The playing of the Varsovia Quartet is incandescent and polished throughout these four Polish compositions.



Witold Lutoslawski's quartet (his only one to date, I gather) has a bold outline which retains its focus despite the rather episodic nature of the material it incorporates. These are two sections, an introduction and a "principal movement." Some passages are strikingly beautiful—in particular, a densely

scored section characterized by downward glissandi—and all of it is provocative.

Krzysztof Penderecki's second quartet is more of a piece; it has no formal divisions, though there are three sections. While the Lutoslawski uses aleatory techniques (that is, chance) for some details, the Penderecki leaves major considerations of pitch, tempo, and even length to the performers. As realized here, it is a taut, terse piece lasting only 7½ minutes.

The playing of the Varsovia is polished and incandescent throughout. Though these analog recordings date from 1982 and 1983, the sound doesn't betray the fact—even in the long pregnant pauses of the Lutoslawski. I can't imagine that either the performance or the clean, up-front sound is likely to be bested by a significant margin, though the LaSalle Quartet is twice represented on CD with the Lutoslawski, of which it played the first performance.

*Robert Long*

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**Samuel Barber: Symphony No. 2; "Music for a Scene from Shelley"; Overture to "The School for Scandal"; Essay No. 1; Adagio for Strings.** The New Zealand Symphony Orchestra, Andrew Schenck.  
**Stradivari SCD-8012**, CD; DDD; 66:22.

At the very first notes of this Barber collection, my audio ears were wide open—a most unusual, big sound with lots of presence (i.e., a real sense of music in a hall). New Zealand! Well, it happens everywhere.

Barber is another of those recent composers who, during the long span of "modern" and neoclassic music, when Romantic sounds were taboo, held to his convictions and wrote "romantic" music—perhaps best put in quotes since there was also a good modicum of contemporary in it, including well-managed dissonance. Fortunately for him, he was very late Romantic—young enough to see the light on the horizon, when his sort of music would again shine! And his ultra-unclassical Adagio for Strings was taken up by Toscanini (who did not play modern) and became famous.

And yet Barber had his problems. For one thing, he had a severe con-

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science about his own music, which all too many prolific big-stuff composers do not, even when they are loud-mouths and not very good. His Second Symphony, composed during World War II, was commissioned by the Air Force, presumably to entertain servicemen. Twenty years later, Barber tore up the parts (it survived). He still could not approve of it, and in a sense, he was right: Listening today, one hears not the expected happy hash of wartime tunes, plus the roar of battle and planes and general mayhem, but simply a big, late-Romantic symphony. The man was true to himself, if perhaps not well serving of the servicemen (he was an Air Force corporal).

Honesty and conscience, unfortunately, do not always lead to fine music. Barber is still a mildly controversial figure, and this simply because some people hear his honesty and directness, quite rightly, and others, equally rightly, hear a vagueness and doubt, a kind of sincere meandering hither and yon that does not sustain itself in musical terms. It rises up—it sags; and it does this even though Barber was a complete professional as far as composing technique is concerned. It is basically himself who meanders.

*Edward Tatnall Canby*

**Introduction et Allegro: Musique Francaise pour Harpe.** English Chamber Orchestra, Edmon Colomer; Allegri String Quartet; Vanessa McKeand, harp; Carol Wincenc, flute; David Campbell, clarinet.

**Virgin Classics 790721-2, CD; DDD; 60:31.**

This Compact Disc features harp virtuoso Vanessa McKeand in some deliciously atmospheric works by French composers such as Debussy, Caplet, Piere, and Saint-Saëns. However, the real gem here—the work which, alone, is worth the price of admission—is Ravel's Introduction et Allegro for Harp, Flute, Clarinet, and String Quartet. One of the composer's most romantic works, it is voluptuous and sensual, with ethereally beautiful scoring for the harp and lovely melodic accompaniment from the flute, clarinet, and string quartet. Harpist Vanessa McKeand displays her artistry with a superbly clean and articulate touch,



Harpist Vanessa McKeand's artistry shows a superbly clean and articulate touch, coupled with wonderfully expressive dynamic control.

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## SUPERGROUP '90



### Animal Logic

IRS 82020, CD; ADD; 38:53.

Sound: B- Performance: B

Here's the premise: A couple of popster-fusionites, masters of time and space, decide they want to collaborate on a project. A pop music project. Since neither one sings or writes pop music, they add an unknown singer/songwriter/former piano teacher—someone who can provide new songs and a fresh perspective. Welcome to Animal Logic.

The very thought of a Stanley Clarke-Stewart Copeland rhythm section sends most of us into a drooling anticipation of the first downbeat. It's a fact: These gentlemen can flat-out play. Whether you want your rhythm quirky or machine-steady, they can do it.

This collection finds them playing effortlessly, making transitions from one style to another in a seamless manner. There's little opportunity for soloing here by drummer Copeland or bassist Clarke, but this recording project wasn't meant to be a wide-open experiment. These guys wanted to create a rock/pop album containing songs where you get in, say what you need to say and get out; next song, please.

Singer/songwriter Deborah Holland's material stays fresh-sounding

throughout the album because it crosses musical borders, from up-tempo rock to pop ballads to—most prominently—modern country. It's her voice, though, and how it's matched with the arrangements, which constitute the album's major flaws.

Holland's voice is clear, tuneful, and always in pitch, but it has little individual character and personality. It's not a distinctive instrument. I've heard lots of unsigned singers who sing as well. Only on the country-tinged numbers does Holland's voice take on a more convincing tone, for instance, the no-frills "I'm Through With Love." It could well be that Holland is most comfort-

able in modern country; perhaps, in an attempt to reach a pop/rock audience, Copeland and Clarke have obscured Holland's true calling.

This CD's sound is very bright, almost brittle. The high frequencies sound harsh, especially the crash cymbal and hi-hat; aural fatigue set in quickly even at medium listening levels. De-emphasize the upper frequency spectrum if you are going to listen at high levels, or you're in for a large headache. Explaining why this occurs on this CD would be speculative, considering the many possible reasons, but I did listen to it on several sound systems, both home and commercial, and got similar results in each case.

Clarke and Copeland should be applauded for taking a musical chance. They could easily have continued on, satisfied with their achievements. Or, heaven help us, succumbed to the beckon of the big dollar and formed one more supergroup—say, with Vernon Reid and Axl Rose on guitar and vocals . . . Instead, they took the high road. Admittedly, the results are uneven; Holland, Clarke, and Copeland don't yet seem in synch with one another. I'm willing to wager, however, that if Animal Logic stays together, their next album will prove the experiment a success. *Hector G. La Torre*

**Paris-Soweto:** Mahlahlathini & the Mahotella Queens

Polydor 839 676, CD; 52:42.

Sound: B Performance: B+

Ebullient optimism has always provoked calm cynicism in me, but not so with the endure-and-overcome spirit



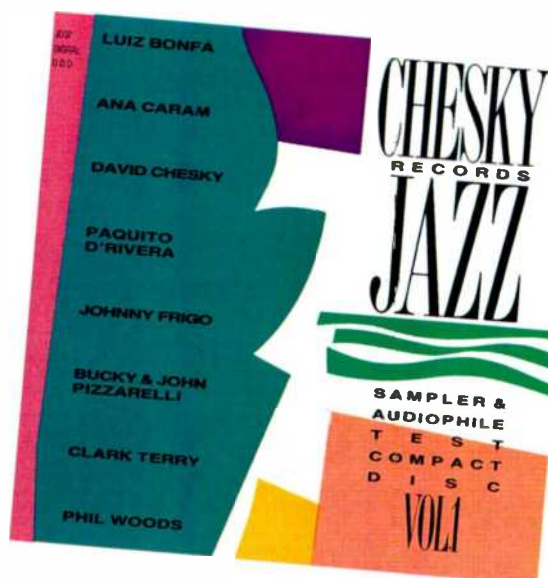
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# Paris-Soweto gives mbaqanga's jaunty blend of urban influences and traditional South African harmonies a European sheen.

and irrepressible rhythms of South Africa's township musics. Mahlathini and the Mahotella Queens are a prime example of a group with the shrug 'n' shuffle rhythm that drives the indestructible beat of Soweto. In fact, the group (which includes the accompaniment of the Makgona Tshole Band) are

pioneers of what is generally referred to as "mbaqanga" music—a jaunty blend of traditional South African harmonies with urban sounds, influenced by jazz, boogie-woogie, and the more sanctified varieties of rhythm and blues. Although their lineup has changed over the years, this ensemble

has retained its vitality, tight harmonies, and perky feel. The current release (actually a 1987 recording for French Celluloid) doesn't fail in this regard; however, the international connection stated in the title comes through in the music—it's got a European sheen.

*Paris-Soweto* is a fun, communal album with lyrics about perseverance, African pride, and dancing that doesn't cater to cultural tourism. It is also a release less esoteric, folksy, or diverse than previous discs I've heard by this group. The rhythm section, though certainly sharp, with guitars chopping out crackling half-chords over busy drumming, doesn't provide the earlier album's stumbling, wrenching interplay of bass and guitar, nor is the drummer's brushwork as exquisitely Jo Jones-like. A new mix by the British popsters Art of Noise ("Yew") and a dance remix of the tootling, reggae-ish "Kazet" (sans accordion) are decent, straight-up dance numbers of the just-got-paid, gonna-get-laid variety, but they're disappointing even when considered as invidious comparisons. These are minor quibbles, since *Paris-Soweto* is also a brighter sounding, more even recording. And the vocals of the Queens, countered by Mahlathini's deep, groaning voice (the burp of a baritone sax put through a megaphone) still sound like a call-and-response conversation among gods.

Don Palmer

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## Save the Children: Bobby Womack CBS/Solar ZK 75317, CD; AAD; 48:41.

Sound: B+ Performance: B-

There are few singers on a par with Bobby Womack, and his writing contributions include giving The Rolling Stones three of their finest minutes ever ("It's All Over Now"). He is one of the few auteurs of soul music to survive the changes of the past 20 years, but he hasn't exactly reigned supreme on the charts. In fact, his past few LPs have barely dented the public's consciousness, save for a great duet with Patti Labelle and a brilliant, underrated album, *The Poet II*.

The Bobby Womack heard on this CD is very digitized, altogether too reliant on the latest hip-hop beats; he's hardly playing his guitar at all. In two



Having crossed over from sideman to star, Bromberg nods to that anonymous class from which he sprang.

As Bromberg promises, each song's sideman ensemble turns in a sterling performance, and the sound is amazingly well balanced despite the many studios. But even though Bromberg's offbeat voice and singing guitar hold this record together, the overall impact lacks a clear focus. *Michael Wright*

songs, he quotes from Marvin Gaye and Sam Cooke, and though he's fully entitled to (given his relationships with both), it'd be more satisfying to have Bobby's performance evoke the comparison than to hear him simply quote from "What's Goin' On." There are some really bad songs here—in the literal, not the slang, sense—but the worst ("Free Love") are written by outsiders. Though the title track comes the closest to being good all the way through, nothing here is as entertaining as even Womack's last few commercial failures. Yet even a mediocre Bobby Womack album's got more musical moments than just about any other record coming out right now.

*Jon & Sally Tiven*

**Sideman Serenade:** David Bromberg  
Rouder 3110, CD; ADD; 37:33.

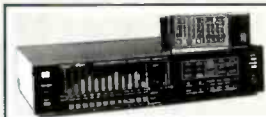
Sound: A Performance: B

Having crossed over, as it were, from sideman to star, David Bromberg steps back to nod his head to that mostly anonymous class from which he sprang. Actually, this is a rather clever way to package a collection of cuts done with veteran studio stalwarts around the country, though no doubt the tribute is sincere.

Bromberg takes us on a stroll through lots of the styles he's played in, devoting half the record to eclectic, urbane "City Songs" and half to folksy "Country Songs." Cityside, we've got a funky R&B jam ("Mobile Lil the Dancing Witch"), a horn-drenched, humorous gospel sendup ("Testify"), a jazzy "Sideman's Samba," and a blues duet with Dr. John. Back in the country, Bromberg does bluegrass, Nashville ("Save the Last Dance for Me," with David Lindley on guitar and Jackson Browne singing backup), and then gets down to grass-level folk on Big Bill Broonzy's "Long Tall Mama" and the exquisite ballad "Come All You Fair and Tender Maidens."

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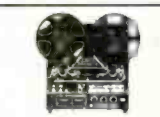
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## SYNCOATED ALGORITHMS



**Dick Hyman Plays Fats Waller**  
Reference Recordings 33DCD, CD;  
Direct-to-CD; 59:28

Sound: A Performance: A

I tend to shy away from many of the specialty discs and tapes known as "audiophile" recordings. Often what they provide are great-sounding recordings of artists heretofore (and deservedly) unknown to man. These experiments in technology, while worthwhile for technology's sake, go far toward confirming my musical credo: "If I must choose, give me a poor recording of great music rather than a great recording of poor music."

Of course, there are times when specialty discs deliver the total package. Such seems to be the case with Reference Recordings' *Dick Hyman Plays Fats Waller*. While the recording process is not cost-effective, and, in fact, is difficult to employ (and comprehend), the result is outstanding.

Pianist Dick Hyman, best known for his jazz interpretations (although he's an excellent composer too), is the solo performer here. Hyman manages to showcase Waller's composing genius and humor while never losing his own personality. The CD presents 15 Waller compositions, including the well-known "Ain't Misbehavin'," totalling nearly one hour of music.

The technical objective of this session was to make a recording without the use of recording tape—hence the phrase "direct-to-CD." The producer and engineering staff felt that even the transferring of digital information to tape prior to CD mastering caused sound deterioration. How they managed to get from point A to point B without tape is highly inventive. It would take columns to explain fully the entire procedure; briefly, this is how it was done.

The first step involves the Bösendorfer 290 SE Reproducing Piano, invented by Wayne L. Stahnke. This acoustic grand piano is interfaced with a computer via optical sensors. The sensors receive information from the keys, hammers, strings, and pedals. All information, including notes, key motion, and touch of Hyman's performance is then relayed and stored in the computer, to be edited at the pianist's leisure. At a later date, the computer can "tell" the piano to play back the stored performance. Linear motors—one for each key and pedal—relay the stored information from the computer to the piano. Thus, the original motions of the pianist are precisely duplicated.

The musical and the editing information required for all CD mastering were put together on the computer. Then

microphones were placed and the piano was set into motion—controlled by the playback of a DAT recorder on which the piano code and SMPTE time code (for synchronization) had been copied. The microphone signals were sent to a digital converter, then on the disc mastering plant via microwave transmission. Conversion to the CD format was done at the plant.

If this seems to you like a lot of work, you're right. In terms of final sonic quality, though, the experiment is a solid success. The CD offers a pristine, extremely well defined sound quality.

The initial issuing of this limited-edition CD retails for about \$30. Ordinary CDs, cassettes, and LPs mastered from tapes of the session, will be released at a later date. (I will be very interested to hear the quality of the regular CD versus that of the original special edition.) All things considered, *Dick Hyman Plays Fats Waller* meets all the requirements of an outstanding recording: Excellent musicianship, top-quality material and grade-A sound. Who could ask for more?

Hector G. La Torre

**Georgian Voices:** The Rustavi Choir  
Elektra/Nonesuch 79224, CD; AAD;  
45:13.

Sound: B+ Performance: A

You might hear The Rustavi Choir mentioned as the male counterpart to the Bulgarian female vocal choirs that have become so popular in recent years. There's some truth to this, but it misses the mark. The closer harmonies of The Rustavi Choir are nearer the ground than the skyscraping wails of the Bulgarians.

Culled from over 100 recordings made between 1981 and 1988 on the Soviet Melodiya label, the recordings have a surprisingly high quality, with reverberant spaces and separation highlighting the interwoven vocal harmonies.

The choir can create exhilarating multi-part themes ("Ali-Pasha"), with voices rocketing back and forth in yodeling refrains, or become earthy and boisterous on work songs like "Odoya" and "Tshkenosnuri," with the latter's complex, multi-layered harmonies. But it's often on the quieter pieces like "Orovela" that the singers show their

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The interwoven harmonies of the Rustavi Choir bring tears to the eyes and strength to your heart.

control, with a seamless, nonstop vocal bass drone underlying the poignant glissandos of tenor Hamlet Gonashvili. "Mirangula" uses a bowed instrument to underline a mournful piece that's subtitled "Lament for a Lost Son." The Rustavi Choir brings tears to your eyes, strength to your heart.

*John Diliberto*

**Parallel Realities:** Jack DeJohnette  
MCA 42313, CD; DDD; 53.05

Sound: A- Performance: B+

This record could've been a summit meeting. Between them, Pat Metheny, Herbie Hancock, and Jack DeJohnette have covered every spectrum of contemporary jazz, from the avant-garde

to fusion. Drummer DeJohnette provides the common link, having played with Hancock in Miles Davis's 1960s band and with Metheny on the guitarist's 1986 collaboration with Ornette Coleman, *Song X*.

Although DeJohnette is the titular leader and wrote half the music, this could've been a Metheny session—his guitar burns his brand on every track. Even DeJohnette compositions like "Jackin'" would sit comfortably next to Metheny's classic "Phase Dance," with its ostinato opening. And Metheny quickly nails the tune with his signature Synclavier guitar sound, like an elephant trumpeting.

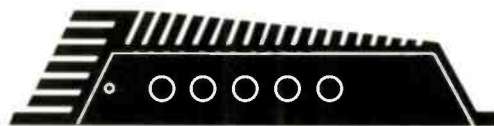
On "Dancing," aptly entitled "Pat Fast" on an earlier demo tape, Metheny

goes for a more mellow, rounded jazz tone, unleashing some fleet-fingered runs that scramble and probe for a way out. He faces a rare challenge in DeJohnette, who creates a fount of poly-rhythms and percussive colors that can't help but inspire a soloist.

Metheny's own songs run the stylistic gamut. "John McKee" is a dark blues, with Metheny playing a slow, menacing sampled bass line, while Hancock rolls arpeggios on the piano. They're both stalked by DeJohnette, who shoots rolls and rimshots left and right like a gunslinger walking down Main Street.

The title track, also composed by Metheny, is a soundscape that recalls Miles Davis' "Bitches Brew," DeJohnette's own avant-fusion group Directions, and the Metheny/Mays tone poem, "As Falls Wichita, So Falls Wichita Falls." Synthesizer textures mix with rustling percussion, tablas, and an insistent hi-hat, while everyone hints at a melody. It slowly coalesces into a

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**Anson Funderburgh's Rockets** is a no-frills, time-warp blues band whose music might overjoy collectors of scratchy '50s singles.

straight-out improvised free-fall that's centered by a churning DeJohnette funnel of rhythm.

Herbie Hancock is oddly subdued on this recording. He ripples across the airy landscape of the DeJohnette ballad "Exotic Isles," and on "Dancing" he builds his best solo, glancing off the drums as if he were inside a pinball machine. But for the most part, he stays in the background or simply coasts with terse, acerbic asides on his solos.

Between DeJohnette and Metheny, there's an excitement to these performances that comes from true interaction. However, they also recognize that this is an album, not a mere documentation. Metheny added in Synclavier orchestrations, providing punctuating horn charts on "Nine Over Reggae" and string sustains behind "Exotic Isles." *Parallel Realities* isn't the summit meeting that these names might promise, but on today's terms, it's a paradigm of fusion. *John Diliberto*

**Rack 'Em Up:** Anson Funderburgh and The Rockets

**Black Top 1049, LP.**

Sound: B+ Performance: A-

If Muddy Waters were alive and touring, Anson Funderburgh would be playing guitar for him. Muddy never stepped onstage without a technically proficient guitarist who could add a personal touch to the blues without breaking too much with tradition, and that description suits Texas' Funderburgh to a T. Anson never did get to travel with Muddy, but he's done what may be the next-best thing: He recruited Sam Myers, a veteran singer/harp blower best known for briefly backing Elmore James, and formed a no-frills blues band that's proud to be stuck in a time warp. Not many listeners object to Anson's focus on the past: His group won two 1988 W. C. Handy Awards.

Given a slightly different set of circumstances, this group would be

known as the Sam Myers Band and everyone would be raving about the guitarist. Tracks like "I'm Your Professor" let Myers blow amplified harp that recalls Little Walter as the band falls into place behind him, sometimes augmented by a gritty brass section. Several of the tracks would set off whoops of joy from collectors as the B-sides of scratchy '50s singles.

Funderburgh is a stunningly sure-footed guitarist, never guilty of a misstep—hence his induction into the Texas Music Awards Hall of Fame before he was 30. Like his Texas forerunners T-Bone Walker and Clarence "Gatemouth" Brown, Funderburgh is at home working off a horn section, but he's equally convincing in a more modern, B. B. King vein (listen to his graceful opening solo on King's "Hold That Train, Conductor," a song that also inspired Buddy Guy).

Stop wondering why they don't make blues like this anymore, and grab *Rack 'Em Up*. *Roy Greenberg*

**"The M-200 power amplifier is a smashing success by any standard, and an absolute steal at the price."**

**Kent Bransford**

*Hi-Fi Heretic, Autumn 1989*

Highlights of the review:

Over the years, B & K Components, Ltd. has become one of America's leading manufacturers of affordable, high-quality audio electronics. B & K has done an admirable job of providing musical, reliable preamplifiers and power amplifiers within the budget of virtually any music lover.

The M-200 can drive virtually any loud-speaker load in existence. Rated at 200 watts into 8 ohms and 400 watts into 4 ohms, the M-200 can drive loads as low as .75 ohms and still pump out its rated 200 watts! Rated peak current output of the M-200 is an incredible 150 amperes.

**"I was floored by the M-200's sense of pace and drive."**

Internal construction is most impressive—a massive, shielded toroidal transformer centrally sited within the steel chassis. Four filter capacitors offer nearly 70,000 mfd of

storage capacitance. The input and driver circuits are carried on a single glassfibre board that sits atop the power supply caps. A gold-plated premium input jack is included, with gold-plated 5-way binding posts handling speaker cable connection.

**"I was bowled over by its combination of smoothness (a B & K hallmark) and detail."**

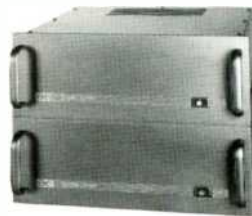
All too often extremely powerful amps excel on bombastic symphony works, but fall down when it comes to conveying the subtlety and nuance of "smaller" music. The M-200 proved to be a glorious exception. Yes, the massed brass and great whomping bass drum shots in "Uranus, the Magician" were appropriately startling, but equally satisfying were the quiet flute and violin passages. Delicate instrumental shadings and nuances that are so important in communicating the emotion of the music were never glossed over or homogenized. The M-200 had that essential

ability to draw me further and further into the music, rather than hurling it in my face. Equally impressive was the M-200's soundstage width and depth.

While offering the tonal naturalness that characterizes all B & K products, the M-200 goes far beyond previous B & K amps in its outstanding bass quickness and definition, as well as its excellent retrieval of low-level detail and recording acoustic.

The M-200 power amplifier is a smashing success by any standard, and an absolute steal at the price.

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**B & K** *Sonata Series*

B & K COMPONENTS, LTD., 1971 Abbott Rd., Lackawanna, NY 14218 1-800-543-5252 (NY: 716-822-8488) (FAX: 716-822-8306)  
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**T H E  
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**Car stereo has always had the air of carefree good times. Top down cruising along beachside boulevards, sleek cars and sleek women. But to keep the music coming, there's got to be more than just image to a product. Sherwood has the hard-nosed engineering and manufacturing expertise to bring you sophisticated circuitry and superior sound at affordable prices. Check out our great new line of car audio components. Sherwood, the music is right on the money.**



**We call our amplifiers "Bullet Proof" because they just won't quit!**

Thanks to BP protection circuitry, temperature and current flow are monitored continuously, assuring stable, distortion-free performance while solving the problem of



overheating shutdown. Pulse width modulation keeps them running at constant power. BP units are rated from 50 watts per channel up to 120 watts per channel. Some models include bass equalization and subwoofer crossover, while most have four separate channels with three and two channel high power options.



**Sherwood cassette-receivers offer no-compromise musical performance.**

Highly engineered cassette sections, high powered amplifiers and sophisticated tuners offer the full complement of sound Sherwood has become known for. Performance and convenience features such as 30 station presets, Dolby® B & C, four channel high power amplification, automatic memory, and auto-reverse are available on many of our newest models. Their understated styling integrates beautifully into contemporary automotive interiors.



**Equalizers and loudspeakers, the finishing touch for any system.**

Sherwood equalizers offer a variety of features, from thermal overload protection circuits to built-in spectrum analyzers. Sherwood's EQ line provides products for every level of system. The speaker line is built to the highest standards of performance and durability.

They're designed to perform with low powered receivers, yet absorb the full force of our biggest amps. Specially formulated materials assure that our speakers will withstand all the heat and moisture of the automotive environment.



## Cassette Receiver Features

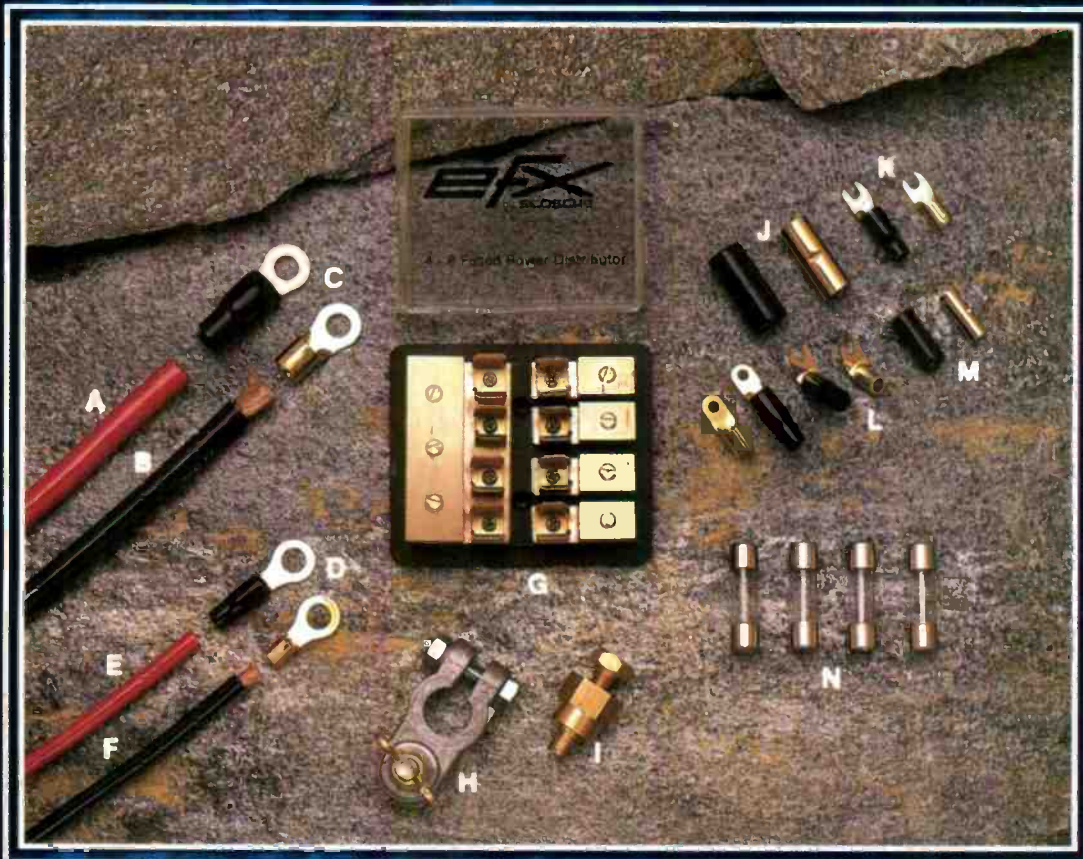
	XR-1604	XR-1504	XR-1304	XR-2204	XR-2704	XR-2304	XR-2507	XR-2307	XR-2207
Slide-Out Security Mount System	■	■	■	■					
4/2 Channel Switchable Output	■	■	■		■	■	■		
Full Logic Cassette	■				■				
Dolby® B	■	■			■		■		
Dolby® C	■				■				
Auto-Reverse	■	■	■		■	■	■	■	
Metal Tape Capability	■	■	■	■	■	■	■	■	
Program Switch	■	■	■		■	■	■	■	
Automatic Noise Reduction	■	■			■				
Stereo/Mono Switch	■	■	■	■	Auto	■	Auto	Auto	Auto
18 Station Presets (12FM + 6AM)	■	■	■	■ <sup>1</sup>	■ <sup>1</sup>	■ <sup>1</sup>	■ <sup>1</sup>	■ <sup>1</sup>	■
Automatic Preset of 6 Strongest Stations	■	■	■	■	■	■	■	■	■
Preset Scan	■	■	■	■	■	■	■	■	■
Music Search in Tape Mode	■	■			■		■		
Preamp In/Out Jacks	■	■	■ <sup>2</sup>		■	■ <sup>2</sup>	■	■ <sup>2</sup>	
Bi-level Fader	■	■	■	■	■	■	■	■	■
Front Panel CD Input Jack	■	■			■				
Separate Bass and Treble Controls	■	■	■	■	■	■	■	■	■
Seek Function	■	■	■	■	■	■	■	■	■
Local/Distance Switch	■	■	■	■	■	■	Auto	Auto	Auto
Loudness Switch	■	■	■	Auto	■	Auto	Auto	Auto	Auto
2-Color Switchable Illumination	■	■			■				
Power Antenna Lead	■	■	■	■	■	■	■	■	■
Line Filter	■	■	■	■	■	■	■	■	■

<sup>1</sup>30 Station Presets (18FM + 12AM)

<sup>2</sup>Preamp Out Jacks

 **Sherwood**<sup>®</sup>  
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# ROCK STEADY EFX



**Designed tough, performs brilliantly, even in the harshest auto-acoustical environment**

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Scosche's design engineers have worked in the auto-acoustical environment for over a decade now. In that time Scosche has established itself as a respected consultant, to both installers and leading autosound manufacturers. It's this vast database of information that has gone into the design of EFX.

EFX by Scosche, the new performance cable line, created to meet the challenge.

**EFX**<sup>TM</sup>  
by SCOSCHE

A. Power cable - 4 gauge, 150 amps, red; B. Power cable - 4 gauge, 150 amps, black; C. Ring terminals - 4 gauge; D. Ring terminals - 8 gauge; E. Power cable - 8 gauge, 75 amps, red; F. Power cable - 8 gauge, 75 amps, black; G. 4-8 Fused power distributor, 8 cables with individually fused outputs to protect up to four amplifiers; H. Top-mount battery clamp; I. Side post battery adaptor; J. Splicing joint, 4 gauge; K. Barrier spade terminal, 8 gauge; L. Right angle barrier spade, 8 gauge; M. Splicing joint, 8 gauge; N. EFX Fuses, available in 10 thru 60 amp values.

# You need two things shopping for You're already

## *Searching For The Facts.*

Buying a sound system for your car isn't easy.

But you've already made a smart move. You're reading AUDIO Magazine's Car Stereo Directory, the most comprehensive consumer autosound product guide on the market. And getting the facts you need about the components you want before making a decision.

Now you're ready to take the next step. The step that gets you the "inside story" about the most important component of all.

Your car.

After all, isn't that what everything else goes into?

## *The Car Stereo Installer's Bible—*

This is the Scosche Autosound Encyclopedia, and master installers around the country have just one word for it. Indispensable.

The Autosound Encyclopedia tells these professionals what will fit in your car. What won't. And why.

This three volume set provides information on things like critical dash panel and speaker cavity measurements, detailed disassembly, installation techniques, and more!

Wouldn't this knowledge be invaluable to you as you cross reference the Scosche facts and figures with AUDIO's Car Stereo Directory listings?





# ings when you're a car stereo. holding the first.

You'd KNOW if you had room in your dash for that CD/FM/AM head unit. Or if it's a better idea to shop for a trunk-mounted CD changer. You'd KNOW if one 6½" speaker was a better choice than another that needed a bit more mounting depth.

## —The AutoMatch Advantage

Until now, there was only one problem with the information in the Autosound Encyclopedia: distribution was limited to professional installers and you couldn't get it!

But AUDIO Magazine puts an end to that roadblock with AutoMatch, the Autosound Encyclopedia that's as close as your telephone.

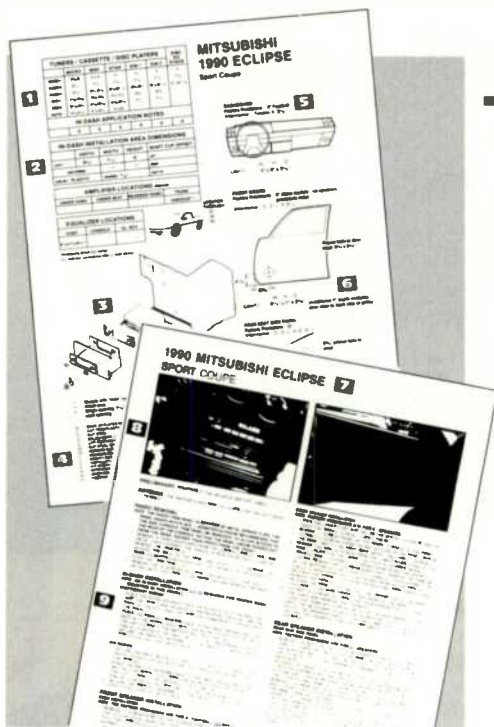
Simply call this number:

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and tell the operator what kind of car you're putting your sound system into.

Within days, you'll get your in-depth two page report—just like the one shown at left. With the Scosche information in hand, you can now go through the directory and compare your vehicle's specs to those of the listed manufacturers. And, you'll better understand any options your car stereo salesperson points out.

So call 1-900-246-2886 now. Take advantage of AUDIO Magazine's exclusive AutoMatch service. And help yourself to the second source of information you'll need to make your next car stereo system an investment rather than just a purchase.



Examples of the detailed installation specs you get when you call AutoMatch!

# Audio

The Equipment Authority

Note: AUDIO Magazine strongly recommends that you use this information only to complement your car stereo dealer's help in selecting and installing your system. Most dealer recommendations are based on years of experience. Proper installation techniques take an equally long time to perfect. Take advantage of your dealer's expertise—real professionals appreciate your informed interest! (AutoMatch phone charge: \$1.95 for first minute. \$1.50 each additional minute. No restriction on number of vehicles you may request fact sheets on.)

# FIRST CLASS UPGRADE.



**Sony introduces the world's first car CD Player with a built-in 4-channel amplifier. So you can upgrade without reservations.**

Now you can get the expansive sound of Compact Disc in your dash without getting an expensive add-on amplifier. Simply replace your old in-dash radio with the Sony CDX-7540—and you'll be travelling in luxury. This single, affordable package has everything you need: AM, FM, power for four speakers, and the first-class fidelity of Compact Disc.

Of course, the CDX-7540 incorporates all the CD technology you'd expect from the company that invented Compact Disc. Sony's 8x oversampling digital filter and dual D/A converters play your music with a clarity that economy-class car stereo simply can't match. The CDX-7540 is also flexible enough to drive anything from simple two- or four-speaker setups to high-flying multi-amp systems. And to keep your sound safe and sound, there's even a slide-out version: the CDX-7580.

So if concerns about price, security, or installation have kept you from upgrading your car's sound, experience the Sony CDX-7540 or 7580 CD Players.

You may well forget your reservations.



**SONY**

THE LEADER IN DIGITAL AUDIO™



# 16<sup>TH</sup> ANNUAL CAR STEREO DIRECTORY

Photograph: ©Bill Ashe

It probably comes as no surprise but car stereo has become a very big business. Our 1987 Car Stereo Directory listed four categories (plus addresses) in 33 pages; this year the Directory covers 51 pages and incorporates a small additional category, DAT players.

The largest increase—again, no surprise—is in speakers, which gained 10 pages up to 27. The number of models in 1987 was 1250 from 90 firms; this year, over 110 companies offer more than 2,000 speakers. Another big gainer was CD players; we had 29 players from 17 makers in 1987, while this year we list about 90 players from more than two dozen firms. Separate amplifiers has gained as well, going from about 400 models to over 630.

All of this activity in the Directory is mainly about what's happening in aftermarket sales, but judging from what I see

at the Consumer Electronics Shows, on TV, and hear in radio ads, as well as read in various magazine columns such as Ivan Berger's "Roadsigns," there is just as much activity in original equipment design and sales. Seems to me that the horsepower race of the 1950s has turned into a wattage or sound-output contest for cars. There is even some backlash against cars with loud stereo systems in that various communities across the country have proposed, and some actually passed, legislation enabling police to issue citations to drivers of overly loud cars. Measuring these automobiles is going to be a problem, however, and I can just hear the courtroom battle now: "My client did not turn down the volume of his car stereo until asked to do so by the arresting officer, who is a well-known hater of rap music. Your Honor, I move for a dismissal."—**E.P.**

## DAT PLAYERS

MANUFACTURER	Model	Price, \$	Frequency Response, Hz to kHz, ±dB	Dynamic Range, dB	THD at 1 kHz, %	Filtration: Analog Only (A), Digital + Analog (B), AUX Input?	Repeat Functions: Tape (A), Track (B), Entire Program (C)	Audible Fast Search?	Automatic Rewind?	Controls: Volume (V), Balance (B), Fader (F), Tone (T)	Program Search?	Intro Scan?	Direct-Access Numeric Keypads?	FM Sensitivity, dB (For 30-dB Overload)	Alternate-Channel Selectivity	TUNER			
																FM Mono S/N Ratio, -dB	Total Number of Station Presets	Theft Protection: Pull-Out (P), Secret Code (S)	RCA Out Jacks?
ALPINE	5700	1540.00	5-22 ± 1	90	0.005	D	Yes A/B/C	No	Yes	V/B/F/T	Yes	Yes				S	Yes		
BLAUPUNKT	DTP 08	1799.95	5-20 ± 1	90	0.005	D	No A/B/C	Yes	Yes	V/B/F/T	Yes	Yes	Yes				No		
CLARION	Audia 8100	2299.95	30-15	92	0.005	D	Yes A/B/C	No	Yes	V/B/F/T	Yes	Yes	No	12	70	92	12	S	Yes
ECLIPSE	EST-240	1299.95	10-20 ± 3	90	0.006	D	No C	Yes	Yes	V/B/F/T	Yes	Yes	No					No	
KENWOOD	KDT-99R	1999.00	10-20 ± 1	92	0.005	A	Yes A/B	No	No	V/B/F/T	Yes	Yes	No	15.2 (at 50 dB)	80	75	20	No	No
MITSUBISHI	DT-10	1650.00	20-20	85	0.01	D	Yes A/B/C	No	Yes	V/B/F/T	Yes	Yes	No						2-Ch. In, 4-Ch. Out

# AMPS/EQUALIZERS

MANUFACTURER	Model	Price, \$	Preamp (P)	Amp (A)	Equalizer (E)	Number of EQ Bands	Boost/Cut Range, ±dB	S/N Ratio, dB, A-Weighted	Watts/Channel into 4 Ohms, per EIN-490	Full-Power Bandwidth, Hz to kHz	THD at Rated Output, %	Input Levels, Preamp (P), Speaker (S)	Fader Control?	Includes Active Crossover?	RCA Input Jacks?	Dimensions, inches	Notes
A/D/S/	PS5	280.00	A			105	40	20-20	0.05	P			Yes	7 7/8 x 1 3/4 x 5 1/8		Bridges to 90 watts.	
	PQ8	180.00	A			105	20 x 4	20-20	0.3	P			No	9 3/4 x 1 7/8 x 5 7/8		35 watts x 4 into 2 ohms.	
	PQ10	530.00	A			105	†	20-20	0.05	P			Yes	11 3/4 x 2 x 6 1/8		†Two-channel mode, 80 watts x 2; three-channel, 80 watts x 1 and 40 watts x 2; four-channel, 40 watts x 4.	
	PQ20	790.00	A			105	†	20-20	0.05	P			Yes	14 x 2 3/4 x 8 1/4		†Two-channel mode, 200 watts x 2; three-channel, 200 watts x 1 and 80 watts x 2; four-channel, 80 watts x 4.	
	PH12	240.00	A			105	20 x 6	20-20	0.3	P			No	9 3/4 x 1 7/8 x 7 3/4		35 watts x 6 into 2 ohms.	
	PH15	690.00	A			105	†	20-20	0.05	P			No	14 x 2 3/4 x 8 1/4		†Three-channel mode, 100 watts x 3; four-channel, 100 watts x 2 and 50 watts x 2; five-channel, 100 watts x 1 and 50 watts x 4; six-channel, 50 watts x 6.	
AIWA	MA-8500	425.00	A			98	†	10-25	0.045	P	No	Yes	Yes	10 1/2 x 2 x 12 5/8		†Three-channel operation, 60 watts x 3; five-channel, 35 watts x 4 and 60 watts x 1.	
	MA-8400	350.00	A			98	35 x 4	10-25	0.045	P	No	No	Yes	10 1/2 x 2 x 10 1/4		Bridges to 60 watts x 2.	
	MA-7400	300.00	A			95	25 x 4	10-25	0.05	P	No	No	Yes	10 1/2 x 2 x 9 1/4		Bridges to 40 watts x 2.	
	MA-2500	110.00	A			90	25	20-30	0.1	P/S	No	No	Yes	5 1/2 x 1 1/4 x 5 5/8			
	MA-G250	150.00	A/E	7	12	87	25	20-30	0.1	P/S	Yes	No	Yes	7 1/8 x 1 x 16			
ALPHASONIK	P-2	300.00	P/E	5	12	100			0.01	P	Yes	No	Yes	1 x 7 x 6		Adjustable center frequencies; CD input jacks.	
	PQ-7	150.00	E	7	18	95			0.02	P/S	Yes	No	Yes	1 x 7 x 5			
	PAS-1060	190.00	A/E	1	+12	90	60 x 1	10-150 Hz	0.05	P/S	No	Yes	Yes	2 x 6 3/8 x 8		Mono subwoofer amp; high- and low-pass crossover outputs.	
	PAS-1100	295.00	A/E	1	+12	90	100 x 1	15-160 Hz	0.05	P/S	No	Yes	Yes	2 x 6 1/8 x 8		As above.	
	PMA-4050	445.00	A			98	†	5-30	0.01	P/S	No	No	Yes	2 1/2 x 10 1/2 x 8 3/4		†Two-channel operation, 100 watts x 2; three-channel, 50 watts x 2 and 100 watts x 1; four-channel, 50 watts x 4.	
	PMA-4075	625.00	A			98	†	5-30	0.01	P/S	No	No	Yes	2 1/2 x 14 1/2 x 8 1/2		†Two-channel operation, 150 watts x 2; three-channel, 75 watts x 2 and 150 watts x 1; four-channel, 75 watts x 4.	
	GP-2035		A			98	35	5-30	0.01	P/S	No	No	Yes	2 3/8 x 9 x 9		Bridgeable; Class A.	
	GP-2050		A			98	50	5-30	0.05	P/S	No	No	Yes	2 3/8 x 9 x 9		Bridgeable.	
	GP-2075		A			98	75	5-30	0.05	P/S	No	No	Yes	2 3/8 x 11 x 9		As above.	
	GP-2100	79.00	A			98	100	5-30	0.01	P/S	No	No	Yes	2 3/8 x 12 1/2 x 9		As above; Class A.	
	A-2018H	165.00	A			85	18	20-20	1.0	P/S	No	No	Yes	1 1/4 x 4 x 4 3/4			
	PMA-2030	240.00	A			95	35	5-30	0.01	P/S	No	No	Yes	2 1/8 x 7 1/8 x 5 7/8		Bridgeable.	
	PMA-2050	265.00	A			95	50	5-30	0.05	P/S	No	No	Yes	2 1/8 x 7 1/8 x 7 1/2		As above; Class A.	
PMA-2075	345.00	A			95	75	5-30	0.05	P/S	No	No	Yes	2 1/8 x 7 1/8 x 10		Bridgeable.		
PMA-2100	475.00	A			98	100	5-30	0.01	P/S	No	No	Yes	2 1/8 x 7 1/8 x 11 1/4		As above.		
PMA-2175	625.00	A			98	175	5-30	0.01	P/S	No	No	Yes	2 1/2 x 8 x 14 1/8		As above; Class A.		
PMA-2300	1200.00	A			98	300	5-30	0.01	P/S	No	No	Yes	2 1/2 x 8 x 16 3/8		As above.		
ALPINE	3545	1000.00	A			110	250	20-20	0.08	P/S	No	No	Yes	17 3/8 x 2 1/8 x 9 1/8		Bridges to 700 watts.	
	3544	700.00	A			110	150	20-20	0.08	P/S	No	No	Yes	11 1/8 x 2 1/8 x 10 3/8		Bridges to 400 watts.	
	3543	550.00	A			110	100	20-20	0.08	P/S	No	No	Yes	11 1/8 x 2 1/8 x 10 3/8		Bridges to 300 watts.	
	3542	280.00	A			105	60	20-20	0.08	P/S	No	No	Yes	8 5/8 x 2 x 7 1/8		Bridges to 160 watts.	
	3541	230.00	A			105	40	20-20	0.08	P/S	No	No	Yes	8 5/8 x 2 x 6 3/8		Bridges to 100 watts.	
	3522	150.00	A			100	30	20-20	0.08	P/S	No	No	Yes	8 1/4 x 1 7/8 x 5 1/8		Bridges to 80 watts.	
	3554	480.00	A			105	†	20-20	0.08	P/S	No	Yes	Yes	11 1/8 x 2 1/8 x 10 3/8		†Two-channel operation, 150 watts x 2; three-channel, 50 watts x 2 and 150 watts x 1; four-channel, 50 watts x 4.	
	3552	370.00	A			105	†	20-20	0.08	P/S	No	Yes	Yes	10 5/8 x 2 1/8 x 10 3/8		†Two-channel operation, 85 watts x 2; three-channel, 30 watts x 2 and 85 watts x 1; four-channel, 30 watts x 4.	
	3501	80.00	A			90	13	20-20	0.8	P/S	No	No	Yes	5 7/8 x 1 1/4 x 2 3/4			
	3401	485.00	P/E	7	15	100				0.8	P	No	No	Yes	9 1/2 x 1 1/2 x 6 1/4		Trunk-mount parametric EQ.
	3209	50.00	A	2	+6	90	13	20-20	0.8	P	No	Yes	No	7 x 1 x 5 1/4			
	3321	250.00	P/E	11	12	100				0.8	P	Yes	Yes	7 x 1 x 5 1/8		Subwoofer output level control.	
	3319	130.00	P/E	7	12	95				0.8	P/S	Yes	No	Yes	7 x 1 x 5 1/8		RCA output jacks.
	3216	130.00	A/E	7	12	95	13	20-20	0.8	P/S	Yes	No	Yes	7 x 1 x 5 1/8		As above.	
	3339	420.00	P/E	11	12	100				0.8	P	Yes	Yes	†		†Control unit, 6 1/4 x 1 1/8 x 3/4; base unit, 7 x 1 x 5 1/8. Includes spectrum analyzer; ambience and compressor circuitry; control unit removable with optional kit, Model 4932.	
	3550	280.00	A			105	25 x 4	20-20	0.08	P/S	No	No	Yes	8 5/8 x 2 x 9 3/4		Bridges to 70 watts x 2.	
	3531	150.00	A			95	18 x 4	20-20	0.8	P/S	No	No	Yes	4 3/4 x 1 1/2 x 5 7/8		Continuously variable input sensitivity.	
ALTEC LANSING	ALA 250	250.00	A			95	50	10-40	0.1	†	No	No	Yes	2 1/8 x 9 7/8 x 6 5/8		†Variable.	
	ALA 552	300.00	A			110	50	10-30	0.08	P/S	No	No	Yes	3 1/2 x 3 x 10 3/4		Bridgeable.	
AUDIOCONTROL	EQL	199.00	P/E	12	12	110			0.005	P/S	No	No	Yes	1 1/2 x 6 3/4 x 9 1/2		Level-matching preamp; half-octave spacing for bass EQ, one-octave spacing for mids and highs.	
	EQX	299.00	P/E	12	12	110			0.005	P/S	No	†	Yes	2 1/4 x 6 3/4 x 9 1/2		†Two-way, 18-dB/octave programmable crossover. As above.	
	EQQ	349.00	P/E	12	12	110			0.005	P/S	No	No	Yes	2 1/4 x 6 3/4 x 9 1/2		Level-matching preamp; independent EQ on four channels.	
	EQT	299.00	P/E	30	12	110			0.005	P/S	No	No	Yes	2 1/4 x 6 3/4 x 9 1/2		Mono; level-matching preamp; 1/8-octave EQ spacing; constant 0.	
	ESP-2	189.00	E	3	Var.	110			0.05	P	No	Yes	Yes	1 1/4 x 4 1/2 x 5 1/2		Spatial restoration and ambience circuitry; remote control.	
	ESP-3	299.00	E	3	Var.	110			0.05	P	No	No	Yes	1 1/4 x 5 1/2 x 7		As above; center-channel output.	
	The Epicenter	189.00	E	1	15	110			0.005	P	No	No	Yes	1 1/2 x 5 x 6		Proprietary bass restoration circuit; dash-mountable remote control.	

# AMPS/EQUALIZERS

MANUFACTURER	Model	Price, \$	Preamp (P), Amp (A), Equalizer (E)	Number of EQ Bands	Boost/Cut Range, ±dB	S/N Ratio, dB, A-Weighted	Watts/Channel into 4 Ohms, per EA-490	Full-Power Bandwidth, Hz to kHz	THD at Rated Output, %	Input Level, Preamp (P), Speaker (S)	Fader Control?	Includes Active Crossover?	RCA Input Jacks?	Dimensions, inches	Notes
AUDIODOX	AMP-500	42.50	A		80	20	20-30	10	S	No	No	No	4 1/8 x 1 1/2 x 5	CD input jack. Includes spectrum analyzer.	
	AMP-525	100.00	A		85	25	30-40	10	P/S	No	No	Yes	8 x 2 x 6		
	AMP-535	162.50	A		85	50	30-40	10	No	No	Yes	Yes	9 x 2 1/2 x 8		
	AMP-760	75.00	A/E	7	12	80	15	50-20	10	S	Yes	No	5 1/8 x 1 x 4		
	AMP-770	137.50	A/E	7	12	80	18	20-30	10	S	Yes	No	7 x 2 1/4 x 6 1/2		
	AMP-780	162.50	A/E	7	12	80	18	20-30	10	S	Yes	No	7 1/8 x 1 1/2 x 7		
	AMP-785	125.00	A/E	7	12	80	18	20-30	10	S	Yes	No	5 1/4 x 1 1/4 x 5 1/2		
	AMP-545	250.00	A		85	60	20-40	1	P/S	No	No	Yes	9 x 2 3/4 x 6 3/8		
	AMP-565	387.50	A		85	80	20-40	1	P/S	No	No	Yes	12 x 2 3/4 x 6 3/8		
AMP-776	100.00	A/E	7	12	80	18	20-30	10	S	Yes	No	5 1/4 x 1 1/4 x 4 1/2			
AURA DYNAMICS	QS 70	269.95	A		100	35	10-60	0.05	P	No	No	Yes	5 x 8 x 2	Bridgeable. As above. As above. Bridges to two channels.	
	QS 150	369.95	A		102	75	10-60	0.05	P	No	Yes	Yes	7 x 8 x 2		
	QS 300	599.95	A		104	150	10-60	0.05	P	No	Yes	Yes	12 x 8 x 2		
	QS 280	699.95	A		102	70 x 4	10-60	0.05	P	No	Yes	Yes	12 x 8 x 2		
AUTOTEK	7030	160.00	A		80	15	20-20	0.025	P	No	No	Yes	8 x 2 1/2 x 19	Operates into 2 ohms. 18-dB boost at 43 Hz. †Variable boost (0 to 18 dB at 45 Hz, 0 to 12 dB at 20 kHz) plus subsonic filter at 33 Hz. †As above. †As above. †As above. †As above. †As above but crossover in place of filter. Bridgeable. As above.	
	7054 BTX	500.00	A		91	22 x 4	20-20	0.015	P	No	Yes	Yes			
	7600 BTS	1040.00	A		102	300	10-150	0.015	P			Yes			
	7300 BTS	770.00	A		100	150	10-150	0.015	P		Yes	Yes			
	7150 BTS	520.00	A		97	75	10-150	0.015	P		Yes	Yes			
	7100 BTS	360.00	A		95	50	10-150	0.015	P		Yes	Yes			
	7050 BTS	260.00	A		91	22	10-150	0.015	P		Yes	Yes			
	7204 BTS	770.00	A		95	50 x 4	10-150	0.015	P		Yes	Yes			
	A-232	219.95	A		80	75	20-20	0.05	P/S		Yes	Yes			
	A-182	189.95	A		80	50	20-20	0.05	P/S		Yes	Yes			
7002P	300.00	E	9	12	80		0.04	P	Yes	No	Yes	7 1/4 x 1 1/2 x 5 1/4			
7004	250.00	E	4	12	80		0.04	P	Yes	No	Yes	7 1/4 x 1 1/2 x 5 1/4			
BLAUPUNKT	BPA 2120B	479.95	A		92	100	20-20	0.2	P/S		Yes	Yes	11 x 2 1/8 x 9	Bridgeable. As above. †Three front EQ bands, three rear. Parametric EQ programmable by car-specific modules. All as above. Four EQ presets. Mounted on flexible stalk. †Three-channel mode, 150 watts x 1 and 100 watts x 2; five-channel, 150 watts x 1 and 50 watts x 4. ††Separate front, rear, and subwoofer crossovers. Three gain adjustments.	
	BPA 430	299.95	A		90	30 x 4	10-30	0.1	P/S		No	Yes	7 1/8 x 2 3/8 x 10 1/2		
	BPA 230B	219.95	A		90	30	10-30	0.1	P/S		No	Yes	6 x 2 1/2 x 9 3/8		
	BPA 420	129.95	A		89	20 x 4	10-30	0.1	P/S		No	Yes	4 1/4 x 1 1/8 x 7 1/4		
	PSA 108	199.95	A/E	†	15	90	25 x 4	20-20	0.25	P/S		No	Yes		8 1/8 x 6 1/8 x 2 1/8
	PSA 168	399.95	A/E	†	22	90	40 x 4	3-100	0.05	P/S	No	No	11 x 9 x 2 1/8		
	BEQ 08E	349.95	A/E	9	12	80		0.03	P/S	Yes	Yes	Yes	7 x 1 x 5 1/2		
	BEQ 65	229.95	E	5	12	80		0.03	P/S	Yes	Yes	Yes	2 1/8 x 6 1/8 x 1 1/8		
	BEA 108E	299.95	A/E	7	12	80	25 x 4	15-30	0.03	P/S	Yes	Yes	Yes		5 1/8 x 1 1/4 x 5 1/8
	BEA 80	209.95	A/E	7	12	80	20 x 4	15-40	0.03	P/S	Yes	Yes	Yes		5 1/2 x 1 1/4 x 5 1/8
BSA 58MS	99.95	A			90	20	20-30	0.1	P/S	No	No	Yes	4 x 1 1/8 x 4		
BMA 5350B	899.95	A			110	†	5-100	0.05	P	No	††	Yes	12 1/2 x 12 x 2 3/4		
CANTON	M 50	200.00	A		94	50 x 1	20-20	0.1	P/S		Yes		6 3/8 x 3 1/4 x 1 3/8	Mono amp module for Model MF 3 or MF 5 Mainframe. Model MF 3, holds three amp modules, 11 1/8 x 6 3/8 x 3/4 inches, \$150.00; Model MF 5, holds five amp modules, 18 1/8 x 6 3/8 x 3/4 inches, \$200.00. Stereo amp module, fits Mainframes as above.	
	S 30	150.00	A		94	15	20-20	0.1	P/S		Yes		6 3/8 x 3 1/4 x 1 3/8		
CARVER	M-2020	159.95	A		100	20	20-20	0.5	P/S		†	Yes	5 3/8 x 6 x 2 3/8	†Includes active crossover; frequency variable via plug-in modules. Bridgeable. As above. Bridges to two channels. As above.	
	M-2060	339.95	A		100	60	20-20	0.15	P/S		†	Yes	9 3/4 x 6 x 2 3/8		
	M-2120	399.95	A		100	120	20-20	0.15	P/S		†	Yes	12 1/2 x 6 x 2 3/8		
	M-4060	529.95	A		100	60 x 4	17-23	0.15	P/S		†	Yes	16 1/8 x 6 3/4 x 2 3/4		
	4-4120	799.95	A		100	120 x 4	17-23	0.15	P/S		†	Yes	17 1/8 x 6 3/4 x 2 3/4		
CLARION	711EO	299.00	E	7	12	85			P	Yes	Yes	Yes	7 1/8 x 5 1/8 x 1		
	71EO	159.95	E	7	12	85			P	Yes	Yes	Yes	7 1/8 x 1 x 5 1/8		
	51EO	99.95	E	5	12	85			P/S	Yes	Yes	Yes	7 1/8 x 1 x 5 1/8		
	3200A	799.95	A			80 x 4		0.1	P			Yes	13 1/8 x 2 3/8 x 12 7/8		
	1610A	499.95	A			40 x 4		0.1	P			Yes	8 3/8 x 2 3/8 x 12 7/8		
	1600A	429.95	A			80		0.1	P			Yes	9 3/8 x 2 1/2 x 8 3/8		
	72EO	499.95	E	7	12	85			P	Yes	Yes	Yes	9 x 1 x 6 3/8		
	702EOA	209.95	A/E	7	12	85	13.5	20-20	1.0	P/S	Yes	Yes	Yes		7 1/8 x 1 x 3 3/8
	701EOA	169.95	A/E	7	12	85	13.5	20-20	1.0	P/S	Yes	Yes	Yes		7 1/8 x 1 x 3 3/8
	501EOA	129.95	A/E	5	12	85	13.5	20-20	1.0	P/S	Yes	Yes	Yes		7 1/8 x 1 x 3 3/8
	28EOQB	239.95	A/E	7	12	85	13.5	20-20	1.0	P/S	Yes	Yes	Yes		6 1/4 x 1 1/2 x 5 1/2
	100EOB6	99.95	A/E	5	12	85	13.5	20-20	1.0	S	Yes	No	Yes		7 1/8 x 1 1/2 x 5 1/2
	1000A	309.95	A			50	30		0.1	P		Yes	Yes		9 3/8 x 2 1/2 x 7 1/4
	600A	209.95	A			30			0.1	P		Yes	Yes		7 1/2 x 1 1/4 x 8 1/2
	401A	119.95	A			13.2 x 4			1.0	P/S		Yes	Yes		7 x 1 x 5 1/8
	200A	79.95	A			13.2			1.0	P/S		Yes	Yes		7 x 1 x 5 1/8
COMPETITION	100	305.00	A		100	50	20-20	0.02	P	No	No	Yes	2 1/4 x 8 x 9	Bridgeable; MOS-FET. As above. As above. As above. As above. Bridges to 220 watts x 2; MOS-FET. Dual mono.	
	150	439.00	A		100	75	15-20	0.02	P	No	No	Yes	2 1/4 x 8 x 9		
	200	509.00	A		100	100	15-20	0.02	P	No	No	Yes	2 1/4 x 8 x 12		
	300	699.00	A		100	150	15-20	0.02	P	No	No	Yes	2 1/4 x 8 x 15		
	475	629.00	A		100	75 x 4	15-20	0.02	P	Yes	No	Yes	2 1/4 x 8 x 15		
	700	1129.00	A		100	350	15-20	0.02	P	No	No	Yes	2 1/4 x 8 x 24		

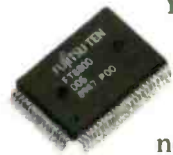
# AMPS/EQUALIZERS

MANUFACTURER	Model	Price, \$	Preamp (P), Amp (A), Equalizer (E)	Number of EQ Bands	Boost/Cut Range, ±dB	S/N Ratio, -dB, A-Weighted	Watts/Channel into 4 Ohms, per EIA-490	Full-Power Bandwidth, Hz to kHz	THD at Rated Output, Hz to kHz, per EIA-490	Input Levels: Preamp (P), Speaker (S)	Finger Control?	Includes Active Crossover?	RCA Input Jacks?	Dimensions, inches	Notes
CONCORD	CEQ7+	329.95	E	7	†	90			P	Yes	Yes	Yes	7 x 1 x 5 1/2	† ± 8 or ± 12 dB. Four EQ presets; parametric bass EQ.	
	CA 20.2	119.95	A			90	20	1.0	P/S		No	Yes	7 3/8 x 6 1/4 x 1 1/8	Bridges to two channels. Bridgeable. Bridges to 500 watts. Bridgeable; high-pass RCA outputs.	
	CA 50.2	239.95	A			90	50	0.08	P/S		No	Yes	10 5/8 x 8 7/8 x 2 3/8		
	CA 30.4	399.95	A			100	30 x 4	0.06	P		No	Yes	11 3/8 x 7 5/8 x 2 1/2		
	CA 100.2	499.95	A			100	100	0.06	P		No	Yes	13 3/8 x 7 5/8 x 2 1/2		
	CA 200.2	699.95	A			100	200	0.06	P		No	Yes	15 3/8 x 7 5/8 x 2 1/2		
CA 75.2	349.95	A			90	75	0.08	P/S		Yes	Yes	2 3/8 x 8 7/8 x 1 3/4			
COUSTIC	AMP-EGO	899.95	A			92	50 x 6	10-50	0.05	P			Yes	8 7/8 x 25 1/2 x 2 3/8	Three-, four-, five-, or six-channel operation. Bridgeable. As above.
	AMP-460	359.95	A			95	98	10-55	0.05	P/S		Yes	8 7/8 x 16 7/8 x 2 3/8	As above.	
	AMP-360	289.95	A			92	65	10-50	0.05	P/S		Yes	8 7/8 x 13 x 2 3/8	As above.	
	AMP-260	219.95	A			92	45	10-50	0.05	P/S		Yes	8 7/8 x 9 x 2 3/8	As above.	
	AMP-160	139.95	A			70	30	10-30	0.05	P/S		Yes	8 7/8 x 7 1/2 x 2 3/8	As above.	
	AMP-560	1550.00	A			92	220	20-20	0.05	P		Yes	3 3/4 x 12 x 3 3/8	As above.	
	AMP-380	309.95	A			92	75	20-20	0.05	P/S		Yes	2 3/8 x 7 7/8 x 1 13/16	As above.	
	AMP-190	199.95	A			92	35	20-20	0.05	P/S		Yes	2 3/8 x 7 7/8 x 9 1/2	As above.	
	AMP-120	129.95	A			92	30	20-20	0.05	P/S		Yes	2 3/8 x 7 7/8 x 7 1/4	As above.	
	AMP-100A	64.95	A			70	18	30-20	0.9	P/S		Yes	1 3/4 x 5 1/2 x 6 1/8	†Asymmetrical crossover.	
	EQ-1100	199.95	P/E	7	12	98			0.02	P	Yes	†	7 x 1 x 6		
EQ-1000	124.95	P/E	7	12	90			0.05	P/S	Yes		Yes	5 3/4 x 1 5/8 x 5 3/8		
EQ-1001	124.95	P/E	7	12					P/S	Yes		Yes	7 x 6 x 1		
CRAIG	MA420	300.00	A			95	65 x 4	20-20	0.05	P		Yes	Yes	2 5/8 x 9 1/4 x 14	Bridges to two channels; MOS-FET; selectable low-pass crossover frequency.
	MA210	100.00	A			80	35	80-15	0.5	P/S		Yes	Yes	2 5/8 x 9 1/4 x 7	Bridgeable; selectable low-pass crossover frequency. As above.
	MA230	240.00	A			100	125	20-20	0.05	P/S		Yes	Yes	2 5/8 x 9 1/4 x 12	
	MA220	170.00	A			90	65	20-20	0.09	P/S		Yes	Yes	2 5/8 x 9 1/4 x 9 1/2	Bridges to two channels; MOS-FET; selectable low-pass crossover frequency. Includes spectrum analyzer; floating ground.
	MA410	240.00	A			90	35 x 4	20-20	0.09	P	Yes	Yes	Yes	2 5/8 x 9 1/4 x 9 1/2	
	V509	124.95	A/E	7	12	75	20	20-50	5	P/S	Yes		Yes	2 x 6 3/8 x 6 1/4	Includes spectrum analyzer. Selectable low-pass crossover frequency; subwoofer output level control.
	V550	74.95	E	7	12	70				P	Yes	Yes	Yes	1 x 6 7/8 x 5 1/8	Floating ground; balanced transformerless output. As above.
	V551	84.95	E	7	12	70				P	Yes	Yes	Yes	1 x 6 7/8 x 5 1/8	
	ME101	49.95	A/E	7	12	70	15	20-20	5	S	Yes		Yes	1 x 5 7/8 x 4 3/4	As above.
	ME105	55.95	A/E	10	12	70	18	20-20	5	S	Yes	Yes	Yes	1 x 5 7/8 x 4 3/4	Includes spectrum analyzer.
ME12	84.95	A/E	7	12	70	14	20-20	5	S	Yes	Yes	Yes	1 x 6 7/8 x 5 1/8		
DELTASONIK	D-40	79.00	A			85	18	20-20	1.0	P/S	No	No	Yes	1 1/4 x 4 x 4 3/4	Bridgeable. Two-channel operation, 100 watts x 2; three-channel, 50 watts x 2 and 100 watts x 1; four-channel, 50 watts x 4.
	OP-90	180.00	A			95	45	20-20	0.05	P/S	No	No	Yes	2 1/4 x 7 1/4 x 6	
	OP-200	395.00	A			95	†	20-20	0.05	P/S	No	No	Yes	2 1/2 x 10 1/2 x 8 3/8	
	OP-7	125.00	E	7	18	95			0.02	P/S	Yes	No	Yes	1 x 7 x 5	Tape and CD input jacks.
PS-7B	230.00	E	7	18	95			0.02	P/S	Yes	Yes	Yes	1 x 7 x 5 1/4		
DENON	DCA-3500	570.00	A			90	†	20-20	0.05	P	No	††	Yes	15 3/4 x 2 1/8 x 8 1/2	†Three-channel operation, 56 watts x 2 and 60 watts x 1; five-channel, 28 watts x 4 and 60 watts x 1. ††Includes subwoofer crossover. Bridgeable. As above.
	DCA-3400	430.00	A			90	28 x 4	20-20	0.05	P	No	No	Yes	14 3/8 x 2 1/8 x 8 1/2	Bridges to two channels. Bridgeable. As above.
	DCA-500	320.00	A/E	1	+6	100	40	20-20	0.05	P	No	No	Yes	9 7/8 x 2 1/8 x 7 7/8	
	DCA-3280	300.00	A			90	40	20-20	0.05	P	No	No	Yes	9 1/2 x 2 1/8 x 8 1/2	As above.
	DCA-3180	200.00	A			90	28	20-20	0.05	P	No	No	Yes	9 1/2 x 1 3/4 x 8 1/2	
	DCA-3150	190.00	A			90	12 x 4	20-20	0.5	P	No	No	Yes	9 1/4 x 1 3/4 x 6	Selectable crossover frequency. †Requires either model below. Separate front and rear EQ. Four-channel level and interface controller; auto source switch. †Optional. Four-channel level and interface controller. †Optional.
	DCA-3120	100.00	A			90	12	20-20	0.5	P	No	No	Yes	4 7/8 x 1 3/8 x 3 5/8	
	DCE-2155	200.00	E	7	12	97				P	Yes	Yes	Yes	7 x 1 x 5 3/8	As above.
	CAMI	270.00	E	12	12	95			0.005	†	No	No	Yes	8 1/2 x 1 1/8 x 5 1/8	
	DCE-250	160.00	P			95			0.008	P/S	†	†	Yes	8 1/2 x 1 1/8 x 5 1/8	As above.
	CAMI	100.00	P			95			0.008	P/S	†	†	Yes	8 1/2 x 1 1/8 x 4	
	DCL-420														
	DCL-410														
EARTHQUAKE SOUND	PA-2300	750.00	A			110	300		0.015	P	No	No	Yes	2 3/4 x 9 x 16	Bridgeable. As above.
	PA-2150	560.00	A			105	150		0.015	P	No	No	Yes	2 3/4 x 9 x 11	
	PA-2075	390.00	A			99	75		0.015	P	No	No	Yes	2 3/4 x 9 x 9	As above.
	PA-2050	300.00	A			95	50		0.015	P	No	No	Yes	2 3/4 x 9 x 8	
ECLIPSE	EUM-2204	109.95	A			84	25	20-20	1	P		Yes	Yes	5 1/2 x 1 3/8 x 2	Bridges to two channels. As above.
	EUM-2410	399.95	A			103	25 x 4	20-20	0.03	P		Yes	Yes	13 3/8 x 2 3/8 x 10	
	EUM-2420	499.95	A			105	50 x 4	20-20	0.03	P		Yes	Yes	13 3/8 x 2 3/8 x 10	†Digital surround processor with center-channel output.
	EQS-1000	999.95	†			90			0.08	P	No	No	Yes	7 x 2 x 6 1/8	
FAS	PE-75S	149.95	P/E	7	12	65			0.5	P/S	Yes	Yes	Yes	7 x 1 x 5 1/2	Subwoofer EQ with high- and low-pass crossovers. Includes spectrum analyzer. Four EQ presets.
	PE-60	114.95	P/E	7	12	65			0.5	P/S	Yes	No	Yes	7 x 1 x 5 1/2	
	EEQ-100	199.95	A/E	7	12	65	18 x 4	20-20	0.3	P/S	Yes	No	Yes	6 1/2 x 2 x 7	Includes spectrum analyzer.
	EA-120	137.95	A/E	9	12	65	14 x 4	20-20 ±1	1	P/S	Yes	No	Yes	6 3/8 x 2 x 6 3/8	
	EA-65	124.95	A/E	7	12	65	14	20-20 ±1	1	P/S	Yes	No	Yes	7 x 1 x 5 1/2	
PA-151	349.95	A			100	†	15-30	0.05	P/S		Yes	Yes	10 x 2 x 8	†Mono operation, 150 watts; stereo, 75 watts x 2; three-channel, 37.5 watts x 2 and 75 watts x 1.	

# Take it for a test drive.

"...a remarkable product that sets a milestone in the evolution of car stereo components."

—Car Stereo Review, March/April, 1990



You've never heard emotion like this in your car before. *This is a promise!* The Eclipse EQS-1000 DSP Sound Processor isn't just a new technology; it's a new way of experiencing recorded music.

Using an ultra-sophisticated 24-bit chip to digitally process audio signals as fast as a mainframe computer, Eclipse acoustically recreates *space*, not just music. You can now sense the height of Notre Dame Cathedral, the width of Carnegie Hall, and the cavernous dimensions of the Meadowlands.

As well as the closeness of an intimate jazz club.

And the music? Imagine your favorite vocalist hovering over your hood ornament. With a section of strings sweeping across a 180-degree spectrum. And a thundering crowd completely encircling you, whistling, clapping and cheering up to 200 feet away.

It's that different. It's that intense. It's that real. The Eclipse EQS-1000 – you won't believe what it does for your car. And for you.



**ECLIPSE**

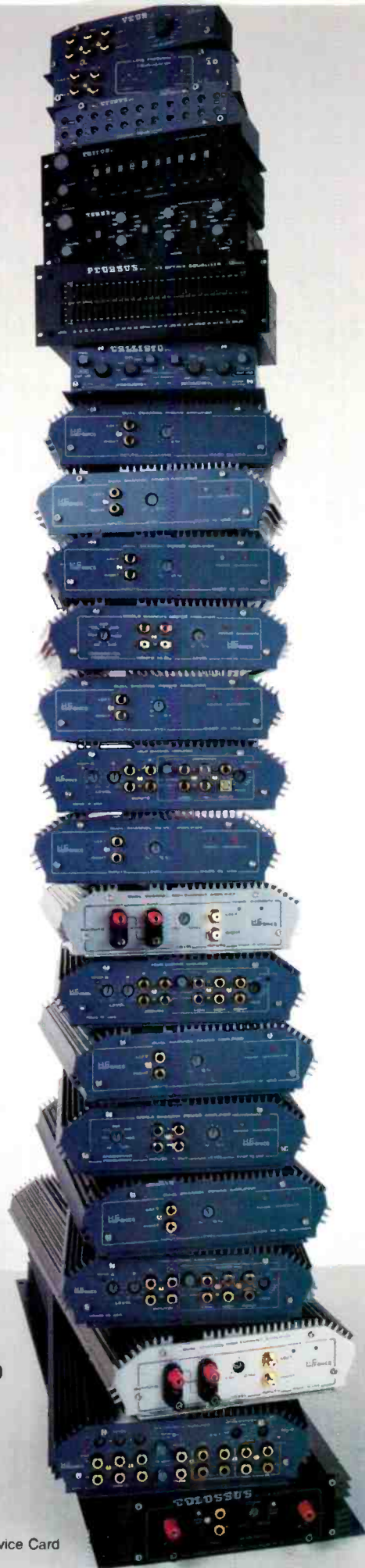
By **FUJITSU TEN**

# AMPS/EQUALIZERS

MANUFACTURER	Model	Price, \$	Preamp (P)	Amp (A)	Equalizer (E)	Number of EQ Bands	Boost/Cut Range, ±dB	S/N Ratio, dB, A-Weighted	Watts/Channel into 4 Ohms, per IEC-490	Full-Power Bandwidth, Hz to kHz	THD at Rated Output, % per IEC-490	Input Levels, Preamp (P)	Fader Control (D)	Includes Active Crossover?	RCA Input Jacks?	Dimensions, inches	Notes
FAS (Continued)	PA-101	224.95	A			100	†	15-30	0.08	P/S			Yes	8½ x 2¾ x 8		†Mono operation, 100 watts; stereo, 50 watts x 2; three-channel, 25 watts x 2 and 50 watts x 1.	
	PA-81	144.95	A			100	30	20-25	0.05	P/S			Yes	7 x 1 x 6			
	PA-25	54.95	A			86	12.5	20-20	1	P/S			Yes	4¾ x 1 x 4¾			
FOSGATE-AUDIONICS	Gavotte ProPlus	499.00	†	1	+ 18	90			0.1	P	Yes	Yes	Yes			†Surround processor with bass EQ and center-channel output.	
FUJITSU TEN	UM-132	79.95	A			97	13	20-20	1	P	No	No	Yes	6¼ x 1½ x 5½			
	OM-751	139.95	A			100	17	20-20	1	P	No	No	Yes	7¼ x 2 x 6¼			
	OM-781	299.95	A			100	35	20-50	0.5	P	No	No	Yes	7¾ x 2 x 7¾			
	QE-651	169.95	E	9	12	90				P	Yes	Yes	Yes	7 x 1 x 5½			
FULTRON	15-0735	159.95	P/A/E	7	12	60	14 x 4	20-20	5	P/S	Yes	Yes	Yes	1½ x 6¾ x 6¾		Four EQ presets; includes spectrum analyzer. Includes spectrum analyzer.	
	15-0734	119.95	P/A/E	7	12	65	13 x 4	20-30	5	P/S	Yes	Yes	Yes	1 x 7¼ x 5¼			
	15-0730	79.95	P/A/E	10	12	65	13 x 4	20-30	5	P/S	Yes	Yes	Yes	1 x 7¼ x 5¼			
	15-0760	159.95	A			65	25	20-20	1	P/S	No	No	Yes	2¼ x 6½ x 9		Bridgeable. As above.	
	15-0770	279.95	A			70	70	20-30	1	P/S	No	No	Yes	2¼ x 10¾ x 9½			
	15-0775	339.95	A			95	50	10-50	0.05	P/S	No	No	Yes	2¾ x 8 x 8			
	15-0780	489.95	A			95	75	10-50	0.05	P/S	No	No	Yes	2¾ x 10 x 8			
	15-0790	819.95	A			95	75 x 4	10-50	0.05	P/S	No	No	Yes	2¾ x 12 x 8			
	15-0740	219.95	P/A/E	7	12	60	15 x 4	20-30	1	P/S	Yes	Yes	Yes	1 x 7¼ x 5¼		EQ presets; includes spectrum analyzer.	
G & S DESIGNS	PA4X	499.00	P/E	4	18	112			0.01	P	Yes	No	Yes	1¼ x 7 x 5		Parametric; AUX loop.	
	GSX1	359.00	P/E	2	†	100			0.01	P	Yes	Yes	Yes	1½ x 7 x 6		†+12, -6 dB. Shelving EQ; for two- or four-channel systems.	
HAFLER	MA-1	449.00	A			100	100	10-70	0.01	P	No	No	Yes	12 x 8 x 2½		Bridgeable; MOS-FET power supply and outputs.	
	MA-4	499.00	A			100	40 x 4	20-20	0.05	P	No	No	Yes	12 x 9 x 3½		Two-, three-, or four-channel operation; supply and outputs as above.	
	MAQ-104	349.00	E	10	12	90				P	No	No	Yes	10 x 8 x 1¼		Four channels with adjustable input on each.	
HARMAN KAROON	TC300	800.00	A			100	100	10-100	0.1	P/S	Yes		Yes	14½ x 12¾ x 3¼		Bridges to 300 watts.	
	TC304	950.00	A			100	†	10-100	0.1	P/S	Yes		Yes	16½ x 12¾ x 3¼		†Two-channel operation, 150 watts x 2; three-channel, 50 watts x 2 and 150 watts x 1; four-channel, 50 watts x 4. Bridgeable.	
	TC600	1300.00	A			100	300	10-100	0.1	P/S	Yes		Yes	16½ x 12¾ x 3¼			
	CA205	59.00	A			90	3.5	10-100	0.20	P	No	No	Yes	1½ x 7 x 4¼			
	CA212	129.00	A			84	12	10-30	0.5	P	No	No	Yes	1 x 7 x 5½		Half DIN size.	
	CA215	149.00	A			84	12	10-100	0.20	P	No	No	Yes	1¼ x 8¼ x 6½			
	CA240	369.00	A			72	40	10-100	0.10	P/S	Yes	Yes	Yes	2¾ x 12½ x 8		Bridges to 100 watts.	
	CA260	529.00	A			80	60	10-100	0.10	P/S	No	Yes	Yes	3½ x 15½ x 7½		Bridges to 180 watts.	
CQ10	239.00	E	7	10	80				P/S	Yes	Yes	Yes	1 x 7 x 5½		Half DIN size; CD input jack.		
HI-COMP	HCB-8036	70.00	A			75	18	20-20	1	P/S	No	No	Yes	1½ x 4¾ x 4			
	HCB-8100	160.00	A			70	25 x 4	20-20	1	P/S	No	No	Yes	1½ x 7 x 5½			
	HCB-8060	150.00	A			90	30	20-20	0.05	P	No	No	Yes	2½ x 9 x 6¼			
	HCB-8120	230.00	A			90	60	20-20	0.05	P	No	No	Yes	2½ x 9¾ x 6¼		Bridgeable. As above.	
	HCB-8180	300.00	A			90	90	20-20	0.05	P	No	No	Yes	2½ x 11¾ x 6¼			
	HCB-8240	330.00	A			90	40 x 2, 80 x 2	20-20	0.05	P	No	No	Yes	2½ x 13 x 6¼			
	HCB-8250	450.00	A			90	125	20-20	0.05	P	No	No	Yes	2½ x 13 x 6¼		As above.	
HIFONICS	Mercury	155.00	A			88	20	20-20	0.05	P/S	No	No	Yes	2½ x 8¾ x 2½			
	Pluto	220.00	A			90	30	10-32	0.02	P	No	No	Yes	2½ x 8¾ x 4		Bridgeable. As above.	
	Vulcan	295.00	A			95	50	10-32	0.02	P	No	No	Yes	2½ x 8¾ x 6¼			
	Odin	395.00	A			97	75	10-32	0.02	P	No	No	Yes	2½ x 8¾ x 6¼		As above.	
	Thor	535.00	A			100	125	10-32	0.02	P	No	No	Yes	2½ x 8¾ x 7¾		As above.	
	Boltar	670.00	A			101	200	10-32	0.02	P	No	No	Yes	2½ x 8¾ x 11½		As above.	
	Zeus	825.00	A			102	300	10-32	0.02	P	No	No	Yes	2½ x 8¾ x 15½		As above.	
	Colossus	1800.00	A			110	600	5-24	0.02	P	No	No	Yes	2¼ x 9 x 29		Bridges to 1800 watts.	
	Jupiter	325.00	A			93	†	10-32	0.02	P	Yes	No	Yes	2½ x 8¾ x 7¾		†Two-channel operation, 110 watts x 2; three-channel, 30 watts x 2 and 110 watts x 1; four-channel, 30 watts x 4.	
	Europa	400.00	A			93	†	10-32	0.02	P		Yes	Yes	2½ x 8¾ x 7¾		†As above.	
	Gemini	565.00	A			95	†	10-32	0.02	P		Yes	Yes	2½ x 8¾ x 11½		†Two-channel operation, 140 watts x 2; three-channel, 50 watts x 2 and 140 watts x 1; four-channel, 50 watts x 4.	
	Olympus	850.00	A			100	†	10-32	0.02	P		Yes	Yes	2½ x 8¾ x 15½		†Two-channel operation, 360 watts x 2; three-channel, 110 watts x 2 and 360 watts x 1; four-channel, 110 watts x 4.	
	Aphrodite	1000.00	A			95	†	10-32	0.02	P		††	Yes	2½ x 8¾ x 21¾		††Three-channel operation, 160 watts x 3; four-channel, 50 watts x 2 and 160 watts x 2; five-channel, 50 watts x 4 and 160 watts x 1; six-channel, 50 watts x 6.	
	Cyclops	320.00	A			100	100 x 1	10-32	0.02	P		Yes	Yes	2½ x 8¾ x 6¼		††Includes three-way crossover. Mono subwoofer amp with variable crossover.	
	Hercules	450.00	A			103	200 x 1	10-32	0.02	P		Yes	Yes	2½ x 8¾ x 11½		As above.	
	Atlas	670.00	A			101	400 x 1	10-32	0.02	P	No	Yes	Yes	2½ x 17½ x 11½		As above.	
	Ulysses	500.00	A			93	25	10-32	0.02	P		No	Yes	2½ x 8¾ x 11½		Bridgeable; operates into 1 ohm; for competitions.	
Isis	900.00	A			95	50	10-32	0.02	P		No	Yes	2½ x 8¾ x 21¾		As above.		
Triton	275.00	P/E	10	12	85				0.02	P	Yes	Yes	7½ x 2½ x 4¾		Third-octave, 28-band EQ.		
Pegasus	375.00	E	28	12	85				0.02	P	No	No	Yes	2¾ x 8¼ x 4¼		Trunk-mount EQ.	
Cygnus	220.00	E	10	12	85				0.02	P	No	No	Yes	7½ x 1½ x 3½		Parametric EQ.	
Ceres	420.00	P/E	3	20	85				0.02	P	Yes	Yes	7½ x 2½ x 4¾		†Includes two three-way crossovers. Non-faded mono bass.		
Ophelia	850.00	P/E	(2)	12	85				0.02	P	Yes	†	Yes	12 x 8 x 2			
Epsilon	195.00	P/E	4	12	85				0.02	P	Yes	No	Yes	1 x 7 x 3½			



# TOWER OF POWER



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# AMPS/EQUALIZERS

MANUFACTURER	Model	Price, \$	Preamp (P), Amp (A), Equalizer (E)	Number of EQ Bands	Boost/Cut Range, ± dB	S/M Ratio, -dB, A-Weighted	Watts Channel Impedance & Ohms, per IEC-490	Full-Power Bandwidth, Hz to kHz	THD at Rated Output, %	Input Levels: Preamp (P), Speaker (S)	Fader Control?	Includes Active Crossover?	RCA Input Jacks?	Dimensions, Inches	Notes	
HITACHI	MA-900	479.95	A				90 †	5-50	0.3	P	No	No	Yes	13 3/8 x 2 1/4 x 8 3/4	†Two-channel operation, 90 watts x 2; three-channel, 50 watts x 2 and 90 watts x 1; four-channel, 50 watts x 4.	
THE HOTT SET-UP	HS 2.125		A	†	†		100 125	10-30	0.03	P	No	No	Yes	14 x 8 1/2 x 2 1/4	†Defeatable fixed EQ, +15 dB at 45 Hz, -6 dB at 200 Hz, and +10 dB at 12 kHz. Simultaneous stereo and bridged mono output; 2-ohm capability in stereo.	
	HS 2.75 HS 2.50		A A	† †	† †		100 75 100 50	10-30 10-30	0.03 0.03	P P	No No	No No	Yes Yes	12 x 8 1/2 x 2 1/4 10 x 8 1/2 x 2 1/4	As above. As above.	
JENSEN	A-300	279.95	A				86 75	20-20	0.5	P/S	No	No	Yes	11 x 2 3/8 x 7 3/4	Bridgeable.	
	A-80	69.95	A				80 18	20-20	1.0	P/S	No	No	Yes	4 1/2 x 1 1/2 x 4 5/8		
	A-200	199.95	A				86 50	20-20	0.5	P/S	No	No	Yes	7 7/8 x 2 1/2 x 7 3/4	As above.	
	EQA77	109.95	A/E	7	12		86 40				Yes	No	Yes	1 1/4 x 5 x 5 1/2		
	EQA110	137.95	A/E	10	12		80 30				Yes	No	Yes	1 1/4 x 7 x 5 1/2		
JSE	2045	99.95	A/E	7	10		55 50	20-20	0.1	P/S	Yes	No	Yes	2 x 7 x 6	Selectable crossover frequency; subwoofer output level control.	
	2055	79.95	P/E	7	10		55 50	20-20	0.005	P/S	Yes	No	Yes	2 x 7 x 6	As above.	
	2081	299.95	A				84 100	20-20	0.08	P/S	No	Yes	Yes	2 1/4 x 7 7/8 x 15	Bridgeable.	
	2071	249.95	A				84 75	20-20	0.07	P/S	No	Yes	Yes	2 1/4 x 7 7/8 x 11 1/2	As above.	
	2061	199.95	A				84 50	20-20	0.08	P/S	No	Yes	Yes	2 1/4 x 7 7/8 x 9 7/8	As above.	
	2051	99.95	A				80 35	20-20	0.1	P/S	No	No	Yes	1 3/8 x 6 3/8 x 5 1/2	As above.	
JVC	KS-AG404	729.95	A				90 60 x 4	20-20	0.08	P	No	No	Yes	11 7/8 x 12 1/4 x 2 1/4	Two-, three-, or four-channel operation.	
	KSA204	349.95	A				90 †	†	†	P	No	No	Yes	10 7/8 x 2 x 8 3/4	†Three-channel mode, 14 watts x 2 and 120 watts x 1; four-channel, 60 watts x 2 at 0.04% THD from 40 Hz to 30 kHz and 14 watts x 2 at 0.5% THD from 40 Hz to 20 kHz. Adjustable gain.	
	KSA154	299.95	A				90 †	40-20	†	P	No	No	Yes	9 x 1 3/8 x 7	†30 watts x 2 at 0.04% THD and 12 watts x 2 at 0.5% THD. Adjustable gain.	
	KSA152	289.95	A				90 45	40-30	0.04	P	No	No	Yes	10 7/8 x 2 x 6 7/8	Bridgeable; adjustable gain.	
	KSA202	349.95	A				90 60	40-30	0.04	P	No	No	Yes	10 7/8 x 2 x 7	As above.	
	KSA102	199.95	A				90 30	40-20	0.08	P	No	No	Yes	9 x 1 3/8 x 5 3/4	As above.	
	KSA51	99.95	A				90 12	40-20	0.8	P/S	No	No	Yes	6 x 1 1/4 x 3 1/4		
	KSEA400	229.95	A/E	7	12		90 12 x 4	40-20	0.8	P	Yes	No	Yes	7 1/8 x 1 x 6	Half DIN size.	
	KSEA200	179.95	A/E	7	12		90 12	40-20	0.8	P	Yes	No	Yes	7 1/8 x 1 x 6	As above.	
	KSE75	249.95	E	12	12		90	40-20	0.8	P	Yes	†	Yes	7 1/8 x 1 x 6	†Low-pass subwoofer crossover with level control. Half DIN size.	
KSE35	149.95	E	7	12		90			P	Yes	No	Yes	7 1/8 x 1 x 6	Half DIN size.		
KENWOOD	KAC-1021	949.00	A				105 370	20-20	0.08	P/S	No	Yes	Yes	15 3/4 x 2 1/4 x 11 7/8	Bridgeable.	
	KAC-941	499.00	A				105 80 x 4	20-20	0.5	P/S	No	Yes	Yes	11 x 1 1/8 x 7 7/8	Two-, three-, or four-channel operation.	
	KAC-921	449.00	A				105 100	20-20	0.3	P/S	No	Yes	Yes	10 1/4 x 1 1/8 x 11 7/8	Bridgeable.	
	KAC-821	349.00	A				105 75	20-20	0.5	P/S	No	Yes	Yes	9 3/8 x 1 1/8 x 11 7/8	As above.	
	KAC-721	199.00	A				105 37	20-20	0.5	P/S	No	No	Yes	8 3/4 x 1 3/4 x 5 7/8		
	KAC-521	99.00	A				105 20	20-20	1	P/S	No	No	Yes	5 1/2 x 1 1/4 x 3 3/8		
	KGC-9041	399.00	P/E	9	12		100				P	Yes	†	Yes	7 1/8 x 1 x 5 7/8	†Variable subwoofer crossover. Includes spectrum analyzer.
	KGC-6042	249.00	P/E	11	12		100			P	Yes	Yes	Yes	7 x 1 x 5 7/8	Parametric EQ.	
KGC-4042	149.00	P/E	5	12		100			P	Yes	Yes	Yes	3 1/2 x 1 x 4 3/4			
KGC-4032	199.00	A/E	9	12		100 20	15-60	0.5	P/S	Yes	Yes	Yes	7 x 1 x 6 3/8	Speaker- and preamp-level outputs.		
KRACO	KEC-6	99.95	A/E	7	12		70 20	20-20	10	S	Yes	No	No	5 x 5 x 1 1/4		
	KEC-4	69.95	A/E	5	12		65 15	20-20	10	S	Yes	No	No	4 x 4 1/2 x 1 1/4		
	KPA-100	129.95	A				75 21	20-20	10	P/S	No	No	No	8 x 8 x 2 1/2		
	KA-2525	79.95	A				65 12	20-30	0.5	P/S	No	No	Yes	7 x 6 1/2 x 2		
	KA-5050	129.95	A				75 30	20-30	0.5	P/S	No	No	Yes	8 x 8 x 8		
	KA-7575	169.95	A				75 45	20-30	0.5	P/S	No	No	Yes	8 x 8 x 11		
LANZAR SOUND	LZ 60	259.95	A				89 30	20-25	0.015	P	No	No	Yes	2 1/2 x 8 7/8 x 4 3/4	Bridgeable; full-range or bass inputs.	
	LZ 100	339.95	A				92 50	20-25	0.015	P	No	No	Yes	2 1/2 x 8 7/8 x 6 1/2	As above.	
	LZ 160	409.95	A				95 80	20-25	0.015	P	No	No	Yes	2 1/2 x 8 7/8 x 8 5/8	As above.	
	LZ 250	619.95	A				97 125	20-25	0.015	P	No	No	Yes	2 1/2 x 8 7/8 x 11 7/8	As above.	
	LZ 600	899.95	A				102 300	20-25	0.015	P	No	No	Yes	2 1/2 x 8 7/8 x 19 1/8	As above.	
	LZ 240-4	559.90	A				91 60 x 4	20-25	0.015	P	No	Yes	Yes	2 1/2 x 8 7/8 x 11 3/4	Bridgeable; crossover has variable frequency.	
LA SOUND	LP 1005	49.00	A				70 25	20-20	1.0	P/S			Yes	7 x 2 1/2 x 6 1/2		
	LP 1105	69.00	A				70 40	20-20	1.0	P/S			Yes	7 x 2 1/2 x 8		
	LP 1205	109.00	A				80 60	20-20	1.0	P/S			Yes	7 x 2 1/2 x 11 1/8	Bridgeable.	
	LP 1305	109.00	A				70 40 x 4	20-20	1.0	P/S			Yes	7 x 2 1/2 x 9 7/8		
	LE 25	59.00	A/E	7	10		80 50	20-20	1.0	P/S	Yes	No	No	7 x 1 3/4 x 5 1/4		
	LE 55	99.00	A/E	7	12		80 65	20-20	1.0	P/S	Yes	No	Yes	6 3/4 x 2 x 7	CD input jacks.	
	LE 65	119.00	A/E	7	12		80 65	20-20	1.0	P/S	Yes	No	Yes	7 x 2 x 7	Includes spectrum analyzer.	
	LE 75	149.00	A/E	7	12		80 65 x 2, 35 x 2	20-20	1.0	P/S	Yes	No	Yes	6 3/4 x 2 x 7 1/4		
LINEAR POWER	6521	169.00	A				92 32.5	10-60	0.12	P	No	No	Yes	7 1/2 x 2 x 5 1/2	Simultaneous stereo and bridged mono output.	
	7002SW	1500.00	A				92 700 x 1	10-200 Hz	0.09	P	No	No	Yes	9 1/2 x 3 x 14 1/2	Mono subwoofer amp; feedback to speaker terminals corrects damping factor for wire resistance.	
	Runt 652	130.00	A				16 32.5	40-20	0.75	P	No	No	Yes	1 3/8 x 4 x 4 1/2	BTL circuitry.	
	4521	200.00	A				32.5	20-20	0.12	P	No	No	Yes	2 x 7 3/4 x 5 1/2	Operates into 2 ohms.	
(Continued)	952	250.00	A				22.5	20-20	0.01	P	No	No	Yes	2 x 7 3/4 x 5 1/2	As above; bridgeable.	
	2202	300.00	A				47.5	20-20	0.05	P	No	No	Yes	2 x 7 3/4 x 7 1/2	As above.	
	3002	500.00	A				110	20-20	0.09	P	No	No	Yes	3 x 9 1/2 x 9 3/4	As above.	
		750.00	A				150	20-20	0.2	P	No	No	Yes	3 x 9 1/2 x 12	As above.	

# Harman Kardon TC Series.

**Buckle Up.**

# AMPS/EQUALIZERS

MANUFACTURER	Model	Price, \$	Preamp (P), Amp (A), Equalizer (E)	Number of EQ Bands	Boost/Cut Range, ±dB	S/N Ratio, -dB, A-Weighted	Wide Channel into 4 Ohms, Per EIA-490	Full-Power Bandwidth, Hz to kHz	THD at Rated Output, % Per EIA-490	Input Level: Preamp (P), Speaker (S)	Fader Control?	Includes Active Crossover?	RCA Input Jacks?	Dimensions, inches	Notes
LINEAR POWER (Continued)	5002 2652	1000.00 450.00	A A			95	250 30 x 2, 60 x 1	20-20 †	0.12 0.04	P P	No No	No ††	Yes Yes	3 x 9½ x 14½ 2 x 7¼ x 9½	As above. †Mono subwoofer out, 20 to 80 Hz; stereo, 80 Hz to 20 kHz. ††Subwoofer crossover. Master and subwoofer gain controls. Front and rear gain controls. Feedback-servo mono subwoofer amp; includes four 8-inch subwoofers (see "Speakers"). Half DIN size; 32-dB gain; two-piece version with separate control panel, Model PA-II-R.
	4302 1752S	425.00 1500.00	A A				30 x 4 175 x 1	20-20 20-200 Hz	0.12 0.09	P P	No No	No No	Yes Yes	2 x 7¼ x 7½ 3 x 9½ x 9¼	
	PA-II	350.00	P/E	4	15	105				P	Yes	No	Yes	7/8 x 6 x 4	
MAJESTIC	MEB670	49.95	A/E	7	12	55	15	20-20	0.5	P/S	Yes	No	Yes	4¾ x 1 x 4¼	Floating or common ground.
	MEB5610	99.95	P/A/E	10	12	55	15	20-20	0.5	P/S	Yes	No	Yes	5¾ x 1½ x 6	As above; adjustable gain.
	MEB1070S	99.95	A/E	7	12	70	18	20-20	0.1	P/S	Yes	No	Yes	7 x 1 x 5½	Floating or common ground.
	MPA8000S	79.95	P/E	7	12	70			0.1	P/S	Yes	Yes	Yes	7 x 1 x 5½	As above; subwoofer output level control.
	MEB2010	89.95	P/A/E	10	12	60	50	20-20		P/S	Yes	No	Yes	7 x 1½ x 5½	Floating or common ground.
	MEB700	79.95	A/E	7	12	65	18	20-20	0.1	P/S	Yes	No	Yes	5¾ x 1 x 5¼	As above.
	MPA5000	199.95	P/E	7	12	70				P/S	Yes	No	Yes	6½ x 2 x 6	Four EQ presets; includes spectrum analyzer with pink-noise generator; CD input jacks.
	MEB7300	199.95	A/E	7	12	70	18	20-20	0.1	P/S	Yes	No	Yes	6¾ x 2 x 6¾	As above; floating or common ground.
	MPA7 Cobra	149.95	P/E	7	12	65			0.3	P/S	Yes	Yes	Yes	2¼ x 6½ x 1½	Floating or common ground; gooseneck mount.
	MPA7000	69.95	P/E	7	12	65			0.1	P/S	Yes	No	Yes	5½ x 1½ x 4	Floating or common ground.
	MA60	49.95	A			50	16	20-20	0.09	P/S	No	No	Yes	4¼ x 1 x 5½	
	MA100	29.95	A			45	16	20-20	0.1	P/S	No	No	Yes	4¼ x 1 x 4½	Balanced transformerless circuit.
	MA120	79.95	A			65	20	20-20	0.1	P/S	No	No	Yes	8¾ x 2¾ x 3¾	As above.
	MA160A	119.95	A			70	33	20-20	0.05	P/S	No	No	Yes	5¾ x 2½ x 7½	Bridges to 80 watts; MOS-FET; operates into 2 ohms.
	MA550HD	149.95	A			70	50	20-20	0.05	P/S	No	No	Yes	7¾ x 7¾ x 2½	Bridgeable; MOS-FET; operates into 2 ohms.
	MA770SW	249.95	A			70	78	20-20	0.05	P/S	No	Yes	Yes	7¾ x 8¾ x 3¾	As above; subwoofer output level control.
	MA9300A	199.95	A			80	50	20-20	0.05	P/S	No	No	Yes	11 x 2¼ x 8	Bridgeable; MOS-FET; operates into 2 ohms.
MA9400A	269.95	A			80	75	20-20	0.05	P/S	No	No	Yes	11 x 2¼ x 9¼	As above.	
MA9500A	299.95	A			80	100	20-20	0.05	P/S	No	No	Yes	11 x 2¼ x 10	As above.	
MA9800A	699.95	A			80	267	20-20	0.05	P/S	No	No	Yes	11 x 2¼ x 16	As above; subwoofer output level control.	
MA460HD	299.95	A			80	65 x 4	20-20	0.05	P/S	No	Yes	Yes	11 x 2¼ x 11	Bridges to two channels; MOS-FET; operates into 2 ohms.	
MA430	269.95	A			80	15 x 4	20-20	0.05	P/S	No	No	Yes	11 x 2¼ x 10	As above.	
MA9100	179.95	A			80	37.5	20-20	0.05	P/S	No	No	Yes	11 x 2¼ x 6	Bridgeable; MOS-FET; operates into 2 ohms.	
MEI	DA7070	99.95	A			85	15	20-20	0.5	P/S			Yes	11¾ x 2½ x 3¾	
	DA7200	199.95	A			95	50	20-20	0.5	P/S			Yes	11¾ x 2¾ x 6	Bridges to 130 watts.
	DA7300	279.95	A			95	70	20-20	0.5	P/S			Yes	11¾ x 2¾ x 9¾	Bridges to 200 watts.
	DA7400	359.95	A			95	50 x 4	20-20	0.5	P/S			Yes	11¾ x 2¾ x 11	Bridges to 130 watts x 2.
	PA7220	59.95	A			90	15	20-20	0.5	P/S			Yes	5¾ x 4¾ x 1¾	
METRO SOUND	MPX 280	70.00	A			80	20	20-30	1.0	P/S			Yes	7 x 2½ x 6½	
	MPX 420	120.00	A			80	40	17-30	1.0	P/S			Yes	7 x 2½ x 11½	Bridgeable.
	MPX 752	200.00	A			67	75	20-30	0.03	P/S			Yes	8¾ x 2¾ x 12¾	As above; operates into 2 ohms.
	MPX 504	250.00	A			70	50 x 4	23-30	0.05	P/S			Yes	8¾ x 2¾ x 16½	Bridges to two channels; operates into 2 ohms.
	MPX 402	150.00	A			80	40	10-41	0.03	P/S			Yes	8¾ x 2¾ x 11¼	Bridgeable.
	MQ 9900	70.00	A/E	7	10	80	20	20-20	1.0	P/S	Yes	No	Yes	7 x 1¾ x 5¼	
MQ 9907i	100.00	A/E	7	12	80	35	20-20	1.0	P/S	Yes	No	Yes	6¼ x 1¾ x 6¼	CD input jack.	
MQ 9807p	100.00	P/E	7	12	80				P	Yes	Yes	Yes	7 x 1 x 5¼	As above; subwoofer output level control.	
MGA	MA230	69.95	A			86	16	15-20	1.0	P/S		No	Yes	1½ x 5½ x 7½	Adjustable gain; floating or common ground.
	MA250	139.95	A			90	43	15-20	0.2	P		No	Yes	2¾ x 7¾ x 8¾	Adjustable gain.
	MA450	229.95	A			90	43 x 4	15-20	0.2	P		No	Yes	2¾ x 7¾ x 13¾	As above; bridges to two channels.
MGT	CEQ 810	149.95	P/E	7	18	100				P	Yes	Yes	Yes	7 x 1 x 4¾	Subwoofer output; CD input jack.
	CEQ 750	99.95	A/E	7	12	65	18	20-20	0.5	P/S	Yes	No	Yes	7 x 1 x 5½	Includes spectrum analyzer.
	CEQ 1050	119.95	A/E	10	12	65	18	20-20	0.5	P/S	Yes	No	Yes	6¾ x 1¼ x 5¾	
	CPA 40	59.95	A			80	18	20-20	0.5	S	No	No	No	3¾ x 1½ x 4¾	
	CPA 60	139.95	A			65	30	20-20	0.5	P/S	No	No	Yes	9 x 2¾ x 6¾	Bridgeable; operates into 2 ohms.
	CPA 130	239.95	A			70	65	20-20	0.5	P/S	No	No	Yes	13 x 2¾ x 6¾	As above.
	CPA 300	379.95	A			92	75 x 4	20-20	0.05	P/S	No	No	Yes	17 x 2¼ x 9¼	Bridges to two channels.
MILBERT AMPLIFIERS	8aM-230	1695.00	A			90	30	5-60	2	P/S	No	No	Yes	18 x 6¾ x 4½	Tube design.
MITSUBISHI	A-2502	89.95	A			98	16	20-20	0.5	P/S		No	Yes	1½ x 5½ x 5¾	Adjustable gain; floating or common ground.
	A-2504	239.95	A			100	25 x 4	20-20	0.5	P		No	Yes	2½ x 7¾ x 10¾	Adjustable gain for front and rear channels.
	A-5002	299.95	A			105	50	15-25	0.05	P		No	Yes	2½ x 7¾ x 10¾	Bridgeable; adjustable gain; operates into 2 ohms.
	A-5004	399.95	A			105	†	15-25	0.05	P		No	Yes	2½ x 7¾ x 15¾	†Two-channel operation, 100 watts x 2; three-channel, 50 watts x 2 and 100 watts x 1; four-channel, 50 watts x 4.
	E-701	249.95	E	7	12	92			0.05	P/S	Yes	Yes	Yes	6½ x 7 x 1	Adjustable gain for front and rear channels; operates into 2 ohms. Selectable crossover frequency and slopes; subwoofer output level control.

# Cool Power:

Introducing Transverse Tunnel cooling. A cool solution to a hot issue: High power, high current in a car environment. That was the challenge. TC Series amplifiers are Harman Kardon's answer.



**TC 600** - 600 watts continuous power, 200w x 2 channels @ 4 ohms, 300w x 2 channels @ 2 ohms, 600w x 1 channel @ 4 ohms. **TC 300** - 300 watts continuous power, 100w x 2 channels @ 4 ohms, 150w x 2 channels @ 2 ohms, 300w x 1 channel @ 4 ohms. **TC 3C4** - 300 watts continuous power, 50w x 4 channels @ 4 ohms, 75w x 4 channel @ 2 ohms, 50w x 2 channels @ 4 ohms + 150w x 1 channel @ 4 ohms, 75w x 2 channels @ 2 ohms, + 150w x 1 channel @ 4 ohms, 150w x 2 channels @ 2 ohms.

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Workhorse ruggedness is matched with musical excellence. A Harman Kardon guarantee. All discrete circuitry including inputs and outputs, ultrawidebandwidth and high current capability (up to 100 amps in the TC 600) are design elements that have made Harman Kardon amplifiers the choice of car stereo competition enthusiasts and audiophiles, worldwide.

*Simultaneous bridged mono/stereo satellite operation for multi-speaker high power, one-amp systems.*

*Continuously variable balanced inputs handle anything from the "weakest" preamp outputs to direct speaker connection.*

*50Hz variable boost equalization.*

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# AMPS/EQUALIZERS

MANUFACTURER	Model	Price, \$	Phono (P), Amp (A), Equalizer (E)	Number of EQ Bands	Boost/Cut Range, ±dB	S/N Ratio, dB, A-Weighted	Watts/Channel into 4 Ohms, per EQ-egg	Full-Power Bandwidth, Hz to kHz	THD at Rated Output, % Per EQ-egg	Power Level: Phono (P), Speaker (S)	Fader Control?	Includes Active Crossover?	RCA Input Jacks?	Dimensions, inches	Notes	
M & M ELECTRONICS	PA-500	1738.95	A													
	PA-250	926.95	A													
	PA-100	409.95	A													
MONOLITHIC SOUND	Class A Monoblock	599.00	A													
	PA-5000	1199.00	A													
	PA-2400X	649.00	A													
	PA-2400F	599.00	A													
	PA-2400Q	549.00	A													
	PA-2000M	549.00	A													
	PA-2000	499.00	A													
	PA-700	399.00	A													
	PA-600	299.00	A													
	PA-400	249.00	A													
	PA-200	149.00	A													
	EQ-4	299.00	P/E	4	18											
	TUNEQ	299.00	E	9	24											
MTX	MTA 225	549.95	A													
	MTA 250	649.95	A													
NAKAMICHI	PA-304	529.00	A													
	PA-302	529.00	A													
	PA-301	549.00	A													
	PA-202	329.00	A													
	PA-102	139.00	A													
	CA-101	595.00	P/E	3	12											
ORION	220 GT	169.95	A													
	240 GX	349.95	A													
	280 GX	499.95	A													
	2150 GX	739.00	A													
	225 HCCA	559.00	A													
	250 HCCA	839.00	A													
	2100 HCCA	1749.00	A													
	222 SX	309.00	A													
	250 SX	459.00	A													
	2250 SX	1599.00	A													
	2150 SX	800.00	A													
	300 PRQ	209.00	P/E	3	10											
	300 PHD		P/E	3	15											
600 EQM	314.00	E	6	12												
500 PMQ	449.00	E	5	15												
PANASONIC	CY-SA50	89.00	A													
	CY-SA60	185.00	A													
	CY-SA100	279.00	A													
	CY-SG55	99.00	A/E	5	12											
	CY-SG60	125.00	A/E	7	12											
PHASE LINEAR	PLA15	100.00	A													
	PLT150	270.00	A													
PHILIPS	DAP 900	599.95	A													
	DAP 600	499.95	A													
	DAP 300	299.95	A													
	DEQ 900	299.95	E	9	12											
	AP 165	299.95	E	7	12											
	AP 170	449.95	E	9	12											
	AP 364	289.95	A/E	7	12											
	AP 363	224.95	A/E	7	12											
	AP 270	449.95	A													
	AP 265	329.95	A													
	AP 264	159.95	A													
AP 210	399.95	A														
AP 282	119.95	A														
PHOENIX GOLD	MQ-430	529.95	A													
	MS-250	399.95	A													
	MS-2100	529.95	A													
	MS-2250	799.95	A													
	MPS-2220	469.95	A													
MPS-2500	849.95	A														
MPH-6300	13,500.	A/E	9	18												

# AMPS/EQUALIZERS

MANUFACTURER	Model	Price, \$	Preamp (P)	Amplifier (A)	Equalizer (E)	Number of EQ Bands	Boost/Cut Range, ±dB	S/N Ratio, -dB, A-Weighted	Watts/Channel into 4 Ohms, Per EA-400	Full-Power Bandwidth, Hz to kHz	THD at Rated Output, % per EA-400	Input Level, Preamp (P), Sweater (S)	Fader Control?	Includes Active Crossover?	RCA Input Jacks?	Dimensions, inches	Notes
PIONEER	GM-4000	550.00	A	†	†	104	100	10-50	0.002	P/S	No		Yes	11 1/2 x 2 1/2 x 9 1/2	†Selectable bass boost.		
	GM-3000	480.00	A			103	40 x 4	10-50	0.005	P/S	No		Yes	11 1/2 x 2 1/2 x 9 1/2	Bridges to two channels; adjustable gain.		
	GM-2000	330.00	A	†	†	102	50	10-50	0.05	P/S	No		Yes	10 1/2 x 1 1/2 x 9 1/2	Selectable impedance; adjustable gain.		
	GM-1000	250.00	A	†	†	101	30	10-50	0.05	P/S	No		Yes	10 1/2 x 1 1/2 x 8 1/2			
	GM-800	140.00	A			91	25 x 4	20-30	0.03	P/S	No		Yes	7 1/2 x 1 1/4 x 5 1/2	Selectable low- and high-cut filters; adjustable gain.		
	GM-42A	80.00	A			93	30	20-50	0.02	P/S	No		Yes	5 1/2 x 1 x 5 1/2			
	BP-880	200.00	A/E	7	12	85	8 x 4	25-30	0.5	P/S	Yes	No	Yes	7 x 1 x 5 1/2			
	BP-650	155.00	A/E	7	12	85	12 x 4	20-30	0.3	P/S	Yes	No	Yes	7 x 1 x 5 1/2			
	BP-450	125.00	A/E	7	12	85	12 x 4	20-30	0.3	S	No	No	No	7 x 1 x 5 1/2			
	EQ-6000	240.00	E	9	12	101			0.05		Yes	Yes	Yes	7 1/2 x 1 x 5 1/2	High-pass filter for front and rear channels, low-pass filter for subwoofer output.		
EQ-4000	160.00	E	9	12	101			0.05		Yes	No	Yes	7 1/2 x 1 x 5 1/2				
PRECISION POWER	PP12030M	232.00	A			102	30	10-50	0.02	P/S	No	No	Yes	8 x 2 1/2 x 8 1/2	Bridgeable.		
	PP12050M	335.00	A			102	50	10-50	0.02	P/S	No	No	Yes	8 x 2 1/2 x 10	As above.		
	PP12075M	475.00	A			102	75	10-50	0.02	P/S	No	No	Yes	8 x 2 1/2 x 12	As above.		
	PP12150M	625.00	A			102	150	10-50	0.02	P/S	No	No	Yes	8 x 2 1/2 x 16	As above.		
	PP12200M	790.00	A			102	200	10-50	0.02	P/S	No	No	Yes	8 x 2 1/2 x 18	Dual mono.		
	PP12300M	945.00	A			102	300	10-50	0.02	P/S	No	No	Yes	8 x 2 1/2 x 24	As above.		
	PP14200M	500.00	A			102	50 x 4	10-50	0.02	P/S	No	No	Yes	8 x 2 1/2 x 12	Bridgeable.		
	PP12350DM	1850.00	A			102	350	10-50	0.02	P/S	No	No	Yes	8 x 2 1/2 x 13	As above; pulse-width modulated and adaptive power supply.		
PP15075DX	900.00	A			102	50 x 2, 75 x 2	10-50	0.02	P/S	No	†	Yes	8 x 2 1/2 x 18	†Computer-controlled crossover.			
PEQ223	168.00	E	3	12	102			0.005	P	No	No	Yes	1 1/4 x 4 1/4 x 3 1/4	Shelving EQ.			
PAR224	365.00	E	4	18	110			0.002	P	Yes	No	Yes	1 1/2 x 4 1/4 x 4 1/4	Parametric EQ.			
PP1MOS2050	800.00	A			102	50	10-50	0.02	P/S	No	No	Yes	8 x 2 1/2 x 12	200 watts/channel into 1 ohm.			
PREOATOR	M10	315.00	A			100	50	20-20	0.02	P	No	No	Yes	2 1/4 x 8 x 9	Bridgeable; adjustable sensitivity; MOS-FET.		
	M15	449.00	A			100	75	15-20	0.02	P	No	No	Yes	2 1/4 x 8 x 9	As above.		
	M20	529.00	A			100	100	15-20	0.02	P	No	No	Yes	2 1/4 x 8 x 12	As above.		
PROFILE	AMP 120	139.95	A			80	60	20-20	0.05				Yes	7 x 2 1/2 x 4 1/2	Bridgeable.		
	AMP 250	179.95	A			80	125	20-20					Yes	7 x 2 1/2 x 7 1/4	As above.		
	AMP 500	319.95	A			80	250	20-20					Yes	10 1/2 x 2 1/4 x 9 1/2	As above.		
	AEQ 10	79.95	A/E	10			50	20-20			Yes		Yes				
	AEQ 7	69.95	A/E	7			50	20-20			Yes		Yes				
AEQ 100	199.95	A/E	7			25 x 4	20-20			Yes		Yes					
PROTON	CA490	599.00	A			90	†	20-20	0.05	P/S	No	No	Yes	10 x 3 1/2 x 15 1/2	†Two-channel operation, 60 watts x 1 and 120 watts x 1; three-channel, 30 watts x 2 and 120 watts x 1 (or 60 watts x 3); four-channel, 30 watts x 2 and 60 watts x 2.		
	CA250	349.00	A			90	50	20-20	0.05	P/S	No	No	Yes	10 x 3 1/2 x 10	Bridgeable.		
	CA212	89.00	A			90	12	20-20	0.05	P/S	No	No	Yes	7 x 1 1/2 x 2 1/4			
	D275	319.00	A			90	75	20-20	0.05	P/S	No	No	Yes	7 1/2 x 2 x 11 1/2	As above.		
	D230	199.00	A			90	30	20-20	0.05	P/S	No	No	Yes	7 1/2 x 2 x 6 1/2			
	222	129.00	A			90	22	20-20	0.05	P/S	No	No	Yes	7 1/2 x 1 1/2 x 5 1/2			
	CQ273	349.00	P/E	7	10	90			0.03	P	Yes	Yes	Yes	7 x 1 x 6	Includes Aphex exciter circuit.		
	271	179.00	P/E	7	†	90			0.05	P	Yes	Yes	Yes	6 1/2 x 1 1/2 x 5 1/2	†±12 or ±18 dB.		
	PYLE	A60	245.95	A			100	25	10-50	0.09	P	No	No	Yes	2 x 8 x 7 1/2		
		A100	349.95	A			100	50	10-50	0.09	P	No	No	Yes	2 1/2 x 10 1/4 x 7 1/2	Bridgeable.	
A200		479.95	A			100	100	10-50	0.09	P	No	No	Yes	2 1/2 x 9 3/4 x 12	As above.		
A400		665.95	A			100	200	10-50	0.09	P	No	No	Yes	2 1/2 x 9 3/4 x 15 1/4	As above.		
A140/4		399.95	A			100	35 x 4	10-50	0.09	P	No	No	Yes	2 1/2 x 12 1/4 x 7 1/2			
PA1		249.95	P/E	4	12	100			0.01	P	Yes	No	Yes	1 1/2 x 5 1/2 x 4 1/2	Bi-FET; CD input jack.		
RADION	DAP-370	429.95	A			93	54 x 4	20-20	0.057	P			Yes	2 3/8 x 7 x 23 1/4	Bridgeable.		
	DAP-300	199.95	A			93	54	20-20	0.057	P			Yes	2 3/8 x 7 x 10 1/2	As above.		
	DAP-200	159.95	A			90	40	20-20	0.062	P			Yes	2 3/8 x 7 x 8 1/2	As above.		
	DAP-100	69.95	A			80	9	20-20	0.2	P/S			Yes	1 1/2 x 5 1/2 x 5 1/2			
	OEQ-600	99.95	P/E	7	12	93			0.05	P/S	Yes	Yes	Yes	1 x 7 x 6 1/2			
	DEQ-500	139.95	A/E	7	12	60	60	20-20	0.2	P/S	Yes	Yes	Yes	1 1/4 x 6 1/2 x 6 1/2			
	DEQ-400	89.95	A/E	7	12	60	9	20-20	0.2	P/S	Yes	Yes	Yes	1 x 7 x 6 1/2			
REALISTIC	12-1960	139.95	A			80	30	30-30		S	No		Yes	1 1/2 x 8 1/4 x 7 1/2			
	12-1959	79.95	A/E	7	12	80	30	60-15		P/S	Yes	Yes	Yes	1 1/8 x 7 1/2 x 6 1/4	CD input jack.		
	12-1956	99.95	A/E	7	12	85	40	60-15		P	Yes	Yes	Yes	1 1/2 x 7 x 6 1/2	As above.		
	12-1957	79.95	A				40	20-20		P/S			Yes	1 x 7 x 6 1/2			
	12-1867	39.95	E										Yes	2 x 5 1/2 x 4			
	12-1869	19.95	A				20			S			Yes	1 x 4 1/4 x 4 3/4			
	12-1958	119.95	A/E	7	12	85	15 x 2, 45 x 2	60-15		P/S	Yes	Yes	Yes	2 x 7 1/4 x 6 1/4			
	12-1952	39.95	A/E	5	12	80	20	60-12		P/S	No	Yes	Yes	1 1/4 x 5 x 6			
	12-1954	54.95	A/E	7	12	80	20	60-15		P/S	Yes	Yes	Yes	1 1/4 x 5 1/2 x 5 1/4			
	12-1955	59.95	A/E	7	12	85	20	60-15		P/S	Yes	Yes	Yes	1 1/4 x 6 1/2 x 5 1/2	As above.		
	ROADMASTER	EA400NII	60.00	A/E	5	12	79	25 x 4	15-20	10	S	Yes	No	No	4 1/2 x 1 1/2 x 4 1/2		
EA700NII		125.00	A/E	7	12	79	29 x 4	15-20	10	S	Yes	No	No	5 1/2 x 1 1/4 x 4 3/4			
EA1000			A/E	10	12	79	29 x 4	15-20	10	S	Yes	No	No	5 1/2 x 1 1/4 x 4 3/4			
PB500		35.00	A				25	20-15	10	S	No	No	No	4 1/4 x 1 1/2 x 4 1/2			
RA400		225.00	A			82	50	20-20	10	S	No	No	No	15 1/2 x 8 1/2 x 3 1/2			
ROCKFORD FOSGATE (Continued)	Punch 30	179.95	A	2		80	15	20-20	0.05	P	No	No	Yes	1 1/2 x 6 x 7	Simultaneous stereo and bridged mono output.		
	Punch 45	275.00	A	2		80	22.5 x 4	20-20	0.05	P	No	No	Yes	5 1/2 x 8 x 2	Bridges to two channels.		

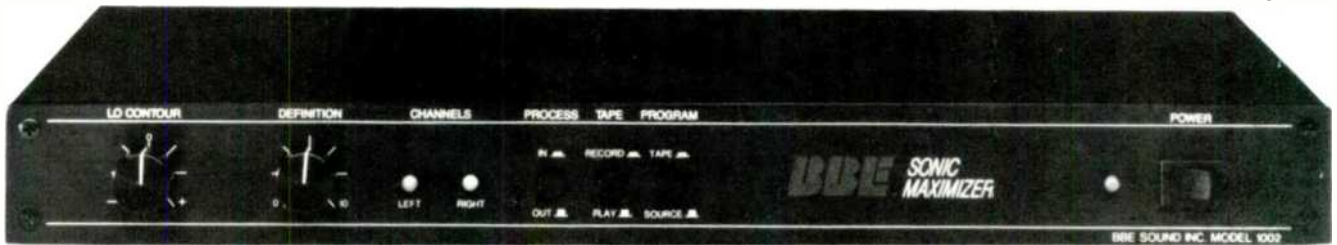
# AMPS/EQUALIZERS

MANUFACTURER	Model	Price, \$	Preamp (P)	Amp (A)	Equalizer (E)	Number of EQ Bands	Boost/Cut Range, ±dB	S/N Ratio, dB, A-Weighted	Watts Channel per ICA-480	Full-Power Bandwidth, Hz to kHz	THD at Rated Output, % per ICA-480	Input Level, Preamp (P)	Fader Control (S)	Includes Active Crossover?	RCA Input Jacks?	Dimensions, Inches	Notes
ROCKFORD FOSGATE (Continued)	Punch 75	395.00	A	2		80	37.5 x 4	20-20	0.05	P	No	No	Yes	6 1/2 x 8 x 2		As above.	
	Punch 150	515.00	A	2		80	75 x 4	20-20	0.05	P	No	No	Yes	8 1/2 x 8 x 2		As above.	
	Power 300	999.00	A	2		80	50 x 4	20-20	0.05	P	No	Yes	Yes	14 1/4 x 8 1/2 x 2 1/2		Two-, three-, or four-channel operation.	
	Power 650	1575.00	A			80	125 x 4	20-20	0.05	P	No	Yes	Yes	18 3/8 x 8 1/2 x 2 1/2		As above.	
	Power 1000	2625.00	A			80	150 x 4	20-20	0.05	P	No	No	Yes	26 1/8 x 7 3/8 x 3 3/8		As above.	
	DEQ-1	315.00	E	9	9		90					No	No	Yes	4 3/4 x 8 5/8 x 1 1/4		
PA-1	369.00	P/E	3	12		90				P	Yes	No	Yes	6 3/4 x 3 1/2 x 1 1/4			
PA-1HD	369.00	P/E	3	12		90				P	Yes	No	Yes	6 3/4 x 1 x 3 3/8			
RDOEK	RA230E	199.95	A			85	30	20-20	0.05	P	No	No	Yes	2 1/2 x 10 5/8 x 3 7/8		Bridgeable; has tone control.	
	RA250E	299.95	A			89	50	20-20	0.05	P	No	No	Yes	2 1/2 x 10 5/8 x 6 1/2		As above.	
	RA280E	379.95	A			95	80	20-20	0.05	P	No	No	Yes	2 1/2 x 10 5/8 x 8 5/8		As above.	
	RA2150	599.95	A			98	150	20-20	0.05	P	No	No	Yes	2 1/2 x 10 5/8 x 14 1/4		Bridgeable.	
	RA2300	899.95	A			101	300	20-20	0.05	P	No	No	Yes	2 1/2 x 10 5/8 x 16		As above.	
	RA450	579.95	A			88	50 x 4	20-20	0.05	P	No	Yes	Yes	2 1/2 x 10 5/8 x 11 7/8		Bridges to two channels.	
	RA4100	849.95	A			96	100 x 4	20-20	0.05	P	No	Yes	Yes	2 1/2 x 10 5/8 x 14		As above.	
RA1125	399.95	A			96	125 x 1	20-20	0.05	P	No	No	Yes	2 1/2 x 10 5/8 x 6 1/2		Monoblock.		
SANSUI	SM-2400	639.95	A			100	35 x 6	20-20	0.05	P	No	No	Yes	14 x 2 1/8 x 8		Three-, four-, five-, or six-channel operation.	
	SM-800	299.95	A			100	35	20-20	0.05	P	No	No	Yes	5 x 2 1/8 x 8		Bridgeable.	
	SM-A807	399.95	A			100	80	20-20	0.03	P	No	No	Yes	11 1/8 x 2 1/2 x 8 3/8		Bridges to 150 watts.	
	SM-6000	1149.95	A			100	300	20-20	0.05	P	No	No	Yes	24 x 2 1/8 x 8			
	SM-4000	649.95	A			100	75 x 4	20-20	0.05	P	No	No	Yes	12 x 2 1/8 x 8		Bridges to two channels.	
	SM-3000	559.95	A			100	150	20-20	0.05	P	No	No	Yes	12 x 2 x 8		Bridgeable.	
	SM-1500	329.95	A			100	75	20-20	0.05	P	No	No	Yes	8 x 2 x 8		As above.	
SG-E300	149.95	E	7	12		80		20-20	0.06		Yes	Yes	7 1/8 x 1 x 5 1/4		Subwoofer output level control.		
SANYO	PA 7020	99.99	A			100	20	20-20	0.05	P/S	No	No	Yes	8 1/2 x 2 x 6 5/8			
	PA 7050	189.99	A			100	50	20-20	0.05	P/S	No	No	Yes	11 5/8 x 3 x 7 5/8			
	PA 7520	219.99	A			100	50 x 2, 20 x 2	20-20	0.05	P/S	No	No	Yes	11 x 2 3/8 x 9			
EQM 5	169.99	E	7	12						P	Yes	No	Yes	7 x 1 x 5 1/2			
SAS BAZODKA	T62A	299.00	A				40 x 1	20-250 Hz	0.05	P/S		Yes	Yes	18 3/4 x 6 3/4 x 8		Includes Model T62 subwoofer (see "Speakers").	
SENTREK	SPA 075	44.95	A			75	12	20-20	1	P/S			Yes	4 1/8 x 1 x 5 1/2			
	SPA 100	69.95	A			75	16	30-20	1	P/S			Yes	5 1/2 x 4 3/8 x 1 1/4			
	SPA 135	79.95	A			75	18	80-20	1	P/S		Yes	Yes	3 x 2 1/2 x 8 3/8		Adjustable front and rear input sensitivity.	
	SPA 140	89.95	A				16 x 4	30-20	1	P/S			Yes	4 1/2 x 1 5/8 x 8 3/8		Bridgeable.	
	SPA 185	119.95	A			80	28	80-20	1	P/S		Yes	Yes	5 1/8 x 2 1/2 x 8 3/8		†Two-channel operation, 100 watts x 2; three-channel, 36 watts x 2 and 100 watts x 1. Selectable crossover frequency.	
	SPA 330	209.95	A			86	50	20-20	0.5	P/S		Yes	Yes	14 x 8 3/4 x 2 3/8			
	SPA 450	349.95	A				†	20-20	0.5	P/S		Yes	Yes	14 x 8 3/4 x 2 3/8			
	SAQ 1410	59.95	A/E	7	12	84	12	80-20	1	S	Yes	Yes	Yes	5 1/2 x 1 1/4 x 3 7/8			
	SAQ 1709	74.95	A/E	7	12	84	14	80-20	1	P/S	Yes	Yes	Yes	4 3/4 x 1 1/4 x 5 1/2			
	SAQ 2009	89.95	A/E	10	12	84	14	80-20	1	P/S	Yes	Yes	Yes	7 x 1 1/4 x 5 1/2		Includes spectrum analyzer.	
	SAQ 2309	109.95	A/E	7	12	84	14	80-20	1	P/S	Yes	Yes	Yes	7 x 1 x 5 1/2		As above; CD input jack.	
	SAQ 2500	119.95	A/E	7	12	84	14	80-20	1	P/S	Yes	Yes	Yes	7 x 1 x 5 1/2			
	SAQ 4000	169.95	A/E	7	12	84	14	80-20	1	P/S	Yes	Yes	Yes	7 1/2 x 2 x 7		Automatic EQ; built-in pink-noise generator and mike; CD input jack.	
	SAQ 7400	199.95	A/E	7	12	84		80-20	0.1	P/S	Yes	Yes	Yes	7 x 2 x 7 1/4		Includes spectrum analyzer.	
SEQ 800	87.95	E	7	12	90					P/S	Yes	Yes	Yes	7 x 1 x 5 1/2		IMX dimensional enhancement system.	
SEQ 900	109.95	E	7	12	90					P/S	Yes	Yes	Yes	7 x 1 x 5 1/2			
SHERWOOD	GA-1072BP	299.95	A			90	50 x 4			P/S		No	Yes	8 5/8 x 13 x 3 3/8		Two-, three-, or four-channel operation.	
	GA-1071BP	269.95	A			90	30 x 4			P/S		No	Yes	8 5/8 x 11 3/8 x 3 3/8		As above.	
	GA-1052BP	239.95	A			90	70			P/S		No	Yes	7 7/8 x 10 x 3 1/4		Bridgeable.	
	GA-1051BP	149.95	A			90	40			P/S		No	Yes	7 7/8 x 9 x 3 1/4		As above.	
	XA-1041	89.95	A			85	16 x 4			P/S		No	Yes	7 1/2 x 5 3/8 x 1 1/2			
	XQ-1023	139.95	A/E	7	10	85	15 x 4			P	Yes	No	Yes	7 1/8 x 6 x 1		Two surround-sound settings.	
	XQ-1022	119.95	A/E	7	10	85	15 x 4			P	Yes	No	Yes	7 1/8 x 6 x 1		Line- and speaker-level outputs.	
	XQ-1021	99.95	A/E	7	10	85	15			P	Yes	No	Yes	7 1/8 x 6 x 1		As above.	
	SCP-802BP	269.95	A			90	30 x 4			P/S		No	Yes	2 7/8 x 8 1/8 x 12		Two-, three-, or four-channel operation.	
	SCP-1002BP	299.95	A			90	50 x 4			P/S		No	Yes	2 7/8 x 9 x 12 1/4		As above.	
	XA-2104BP	149.95	A			90	40			P/S		No	Yes	2 7/8 x 8 1/8 x 12		Bridgeable.	
	XA-2105BP	239.95	A			90	70			P/S		No	Yes	2 7/8 x 8 1/8 x 12 1/4		As above.	
	EQA-280	79.95	A/E	7	10	85	20				P	Yes	No	Yes	1 x 7 x 6		Three user EQ presets, two factory set; includes spectrum analyzer and surround-sound circuitry.
	XQ-1101	199.95	E	7	12	85					P	Yes	Yes	Yes	1 x 7 x 6		
	SDNY	XE-70	129.95	E	7	12	95			0.005	P/S	Yes	No	Yes	7 1/8 x 1 x 5 3/4		
		XE-90 MkII	219.95	E	9	12	95			0.005	P/S	Yes	Yes	Yes	7 1/8 x 1 x 5 3/4		
		XE-75	249.95	E	†	12	95			0.005	P/S	Yes	Yes	Yes	7 1/8 x 1 x 5 3/4		†Five front bands, seven rear.
XE-8 MkII		329.95	E	7	12	105			0.005	P/S	Yes	Yes	Yes	7 1/8 x 1 x 5 3/4			
XE-700		549.95	E	10	12	105			0.005	P/S	Yes	No	Yes	7 1/8 x 2 x 5 3/4			
XM-2020		99.95	A			95	20	20-20	0.5	P/S			Yes	5 1/8 x 1 1/4 x 3 1/4		Bridges to 75 watts.	
XM-601		139.95	A			85	14 x 4	30-20	0.8	P/S			Yes	9 1/2 x 1 1/4 x 6 1/2		Bridges to 120 watts.	
XM-3520		219.95	A			100	35	20-20	0.08	P/S			Yes	10 1/4 x 1 3/4 x 5 1/8		†Two-channel operation, 70 watts x 2; three-channel, 30 watts x 2 and 70 watts x 1; four-channel, 30 watts x 4.	
XM-5520		299.95	A			100	55	20-20	0.08	P/S			Yes	12 1/4 x 2 1/4 x 7 7/8		Bridgeable.	
XM-3040		329.95	A			100	†	20-20	0.08	P/S			Yes	12 1/4 x 2 1/4 x 7 7/8		†Four-channel operation, 30 watts x 2 and 70 watts x 1; six-channel, 30 watts x 6.	
XM-801		449.95	A			108	80	20-20	0.5	P/S		Yes	Yes	7 1/8 x 2 3/8 x 13 1/8			
XM-3060		549.95	A			100	†	20-20	0.08	P/S		Yes	Yes	14 1/4 x 2 1/4 x 9 7/8			
XM-5540		599.95	A			100	†	20-20	0.08	P/S		Yes	Yes	14 1/4 x 2 1/4 x 9 7/8		†Two-channel operation, 120 watts x 2; three-channel, 55 watts x 2 and 120 watts x 1; four-channel, 55 watts x 4.	



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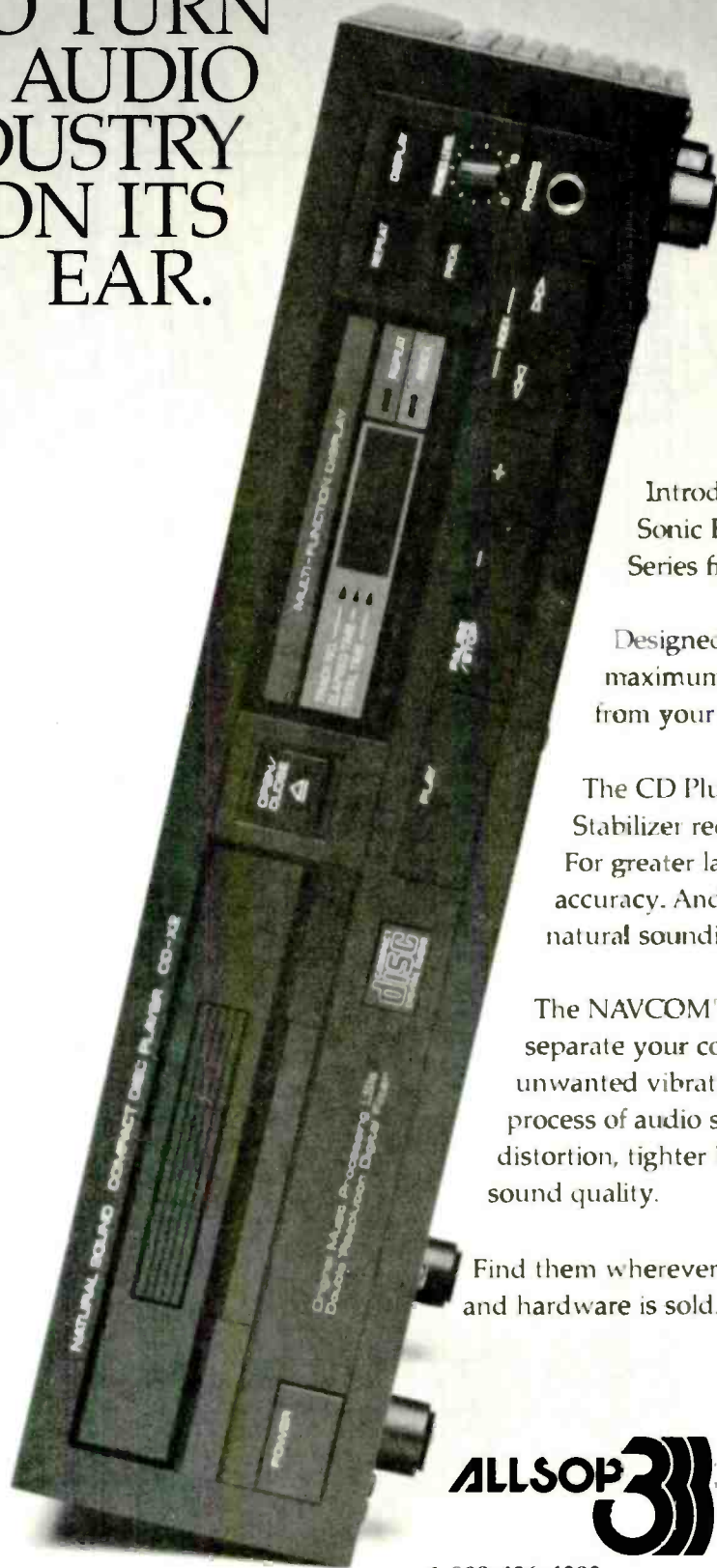
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# AMPS/EQUALIZERS

MANUFACTURER	Model	Price, \$	Preamp (P), Amp (A), Equalizer (E)	Number of EQ Bands	Boost/Cut Range, ±dB	S/N Ratio, -dB, A-Weighted	Watts/Channel into 4 Ohms, per CHA-50	Full-Power Bandwidth, Hz to MHz	THD at Rated Output, % per EIA-400	Input Level: Preamp (P), Speaker (S)	Fader Control?	Includes Active Crossover?	RCA Input Jacks?	Dimensions, inches	Notes
SOUNDSTREAM	D-60 II	198.00	A			110	30	20-20	0.1	P/S	No	Yes	4 3/8 x 7 7/8 x 2 1/8	Bridgeable. As above. As above. As above. As above. Two-, three-, or four-channel operation. As above.	
	D-100 II	339.00	A			110	50	20-20	0.1	P/S	No	Yes	6 x 7 7/8 x 2 1/8		
	Q-200 II	499.00	A			110	100	20-20	0.1	P/S	No	Yes	11 x 7 7/8 x 2 1/8		
	Class A 50 II	395.00	A			110	25	20-20	0.1	P/S	No	Yes	6 x 7 7/8 x 2 1/8		
	Class A 100 II	575.00	A			110	50	20-20	0.1	P/S	No	Yes	11 x 7 7/8 x 2 1/8		
	MC 140	429.00	A			110	35 x 4	20-20	0.1	P/S	No	Yes	8 x 7 7/8 x 2 1/8		
	MC 300	795.00	A			110	75 x 4	20-20	0.1	P/S	No	Yes	14 1/4 x 10 x 2 5/8		
MC 500	1295.00	A			110	125 x 4	20-20	0.1	P/S	No	Yes	19 1/4 x 10 3/4 x 3 5/8			
SPARKOMATIC	SBE7	54.99	A/E	7	12	55	20	20-20	5		Yes	No	1 3/8 x 5 1/8 x 5		
	GE50	39.99	A/E	5	12	55	20	20-20	5		Yes	No	1 3/8 x 4 3/4 x 4 3/4		
	LC52	21.99	A			55	20	20-20	5		No	No	1 1/4 x 4 1/4 x 4 1/4		
	AMP 8000	89.99	A			100	45	10-30	1	P/S	No	Yes	2 1/2 x 7 1/2 x 6 3/4		
SPECO	EPB-150A	124.95	A/E	10	12	87	27.5	20-18	0.05	S	Yes	No	5 1/8 x 1 1/8 x 6 5/8	Bridgeable. As above.	
	HPA-200A	229.95	A			70	100	20-20	0.05	P/S	No	Yes	8 x 2 3/4 x 8		
	HPA-300A	349.95	A			70	150	20-20	0.05	P/S	No	Yes	11 x 2 3/8 x 8		
TARGA	A-990	499.95	A			93	53 x 4	20-20	0.057	P		Yes	2 3/8 x 7 x 23 1/4	Bridgeable. As above. As above.	
	A-970	249.95	A			93	53	20-20	0.057	P		Yes	2 3/8 x 7 x 10 7/8		
	A-950	199.95	A			90	39	20-20	0.062	P		Yes	2 3/8 x 7 x 8 7/8		
	A-930	79.95	A			80	9	20-20	0.2	P/S		Yes	1 3/8 x 5 1/2 x 5 1/2		
	HT-7200	164.95	A/E	7	12	60	60	20-20	0.2	P/S	Yes	Yes	1 3/4 x 6 3/8 x 6 1/2		
	E-800	89.95	A/E	7	12	60	9	20-20	0.2	P/S	Yes	Yes	1 x 7 x 6 1/2		
	E-900	119.95	P/E	7	12	93			0.05	P/S	Yes	Yes	1 x 7 x 6 1/2		
TECHNICS	CY-EQ14	229.00	E	14	12					P	Yes	Yes	7 x 1 x 5 1/8	†Seven front EQ bands, seven rear.  Two-, three-, or four-channel operation. Includes mounting bracket for preamps. As above.	
	CY-EQ77	209.00	E	†	12					P	Yes	No	7 x 1 x 5 1/8		
	CY-M50	115.00	A			90	12.5	40-30	0.2	P	No	No	5 1/2 x 1 3/8 x 4		
	CY-M120	175.00	A			100	20	20-20	0.09	P	No	Yes	10 1/8 x 2 1/4 x 4 3/4		
	CY-M200	259.00	A			100	40	20-20	0.09	P	No	Yes	10 1/8 x 2 1/4 x 7 1/8		
	CY-M400	519.00	A			100	40 x 4	20-20	0.09	P	No	Yes	11 1/8 x 2 7/8 x 9 7/8		
	CY-AM01	65.00	P							P					
	CY-AM50	79.00	A				8 x 4			P/S					
CY-AM100	79.00	A				25 x 4			S						
TOSHIBA	TP820	369.95	A			90	50		0.25	P/S		No	Yes	10 1/8 x 2 5/8 x 5 3/8	Bridgeable. As above. Includes spectrum analyzer; subwoofer output.
	TP840	289.95	A			95	75		0.25	P/S		No	Yes	10 1/8 x 2 5/8 x 5 3/8	
	TP850	229.95	A			95	100		0.25	P/S		No	Yes	12 7/8 x 2 1/2 x 7 3/8	
	TP870	199.95	A			95	150		0.25	P/S		No	Yes	12 7/8 x 2 1/2 x 8 3/8	
	TQ220	299.95	E	7	12	85			0.1	P/S	Yes	No	Yes	7 x 1 x 6 1/2	
ULTIMATE SOUND	PA1200	247.95	A			93	50	20-25	1	P/S		Yes	4 x 9 3/8 x 9 1/2	Bridgeable. As above. As above.	
	PA2000	326.95	A			94	80	20-30	1	P/S		Yes	4 x 10 3/8 x 9 1/2		
	PA2500	427.95	A			95	110	20-30	1	P/S		Yes	4 x 14 3/8 x 9 1/2		
VECTOR RESEARCH	VMA-90	199.95	A			85	45	20-20	0.05	P/S	No	Yes	8 1/4 x 2 1/2 x 8 1/4	Balanced transformerless speaker output; MDS-FET; bridgeable. As above.	
	VMA-170	349.95	A			85	85	20-20	0.05	P/S	No	Yes	8 1/4 x 2 1/2 x 11		
YAMAHA	YST-CA500	345.00	A/E			100	80	20-20	0.03	P/S		Yes	Yes	11 7/8 x 1 7/8 x 9 7/8	For use with YST-CS80W servo subwoofer (see "Speakers"). †Two-channel mode, 120 watts x 2; three-channel, 55 watts x 2 and 120 watts x 1; four-channel, 55 watts x 4. Preamp output jack for additional amps. †Two-channel mode, 70 watts x 2; three-channel, 35 watts x 2 and 70 watts x 1; four-channel, 35 watts x 4. Bridges to 150 watts; selectable stereo, mono, or summed mono input. Bridges to 90 watts.  Bridges to two channels.  †Subwoofer crossover. AUX input.  Six crossover frequencies.
	YPA-1000	529.00	A			115	†	10-100	0.1	P/S		Yes	Yes	17 3/4 x 2 1/2 x 9	
	YPA-700	369.00	A			105	†	10-100	0.1	P/S		No	Yes	11 7/8 x 2 x 8 1/2	
	YPA-600	299.00	A			90	50	30-20	0.01	P/S	Yes	Yes	8 3/8 x 3 x 9 5/8		
	YPA-300	219.00	A			105	40	10-100	0.1	P/S	No	Yes	11 3/4 x 2 x 5 1/4		
	YPA-200	139.00	A			100	18	30-30	0.1	P/S	No	Yes	8 1/4 x 1 5/8 x 6 1/2		
	YPA-240	159.00	A			100	18 x 4	20-20	1.0	P/S	No	No	Yes	10 x 1 1/2 x 4 3/4	
	YPA-100	89.00	A			100	12	20-20	1.0	P/S	No	No	Yes	7 x 1 1/4 x 3 3/4	
	YGE-420	219.00	P/E	7	12	100			0.02	P/S	Yes	†	Yes	7 x 1 x 5 1/2	
	YGE-400	179.00	P/E	7	12	100			0.02	P/S	Yes	Yes	Yes	6 1/2 x 1 1/2 x 5 3/4	
YEC-400	129.00	P			115			0.01	P	Yes	Yes	Yes	8 1/4 x 1 5/8 x 6 1/2		
ZAPCD	Z-220H System 200A	782.00	A			110	115	20-20	0.01	P	No	No	Yes	13 7/8 x 8 1/2 x 3	Bridges to 275 watts. †Amp, 5 1/4 x 5 7/8 x 3 3/4; power supply, 7 x 3 3/8 x 2 1/8; ESM (Energy Storage Module), 5 1/2 x 3 x 1 1/2. Bridges to 225 watts. Bridges to 120 watts. Mono subwoofer amp; selectable crossover slope.  †EQ, 7 x 5 x 2; power supply, 5 1/2 x 3 1/2 x 1 1/4. †Nine bands with separate controls for left and right channels.
	Z-150	435.00	A			110	75	20-20	0.02	P	No	No	Yes	11 1/2 x 6 x 2 1/2	
	Z-100	365.00	A			106	50	20-20	0.02	P	No	No	Yes	8 3/8 x 6 1/4 x 2	
	Z-100MVX	285.00	A			100	100 x 1	20-500 Hz	0.02	P	No	Yes	Yes	8 3/8 x 6 1/4 x 2	
	Z-50 PX	189.00	A			100	12.5 x 4	20-20	0.05	P	No	No	Yes	7 x 6 x 2 1/2	
	PEQ	632.00	E	4	20	105			0.004	P	No	Yes	Yes	†	

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# CD PLAYERS

MANUFACTURER	Model (RI) = Remote Included, (RD) = Remote Optional	Price, \$	Frequency Response, Hz to kHz, ±dB	Dynamic Range, dB	THD, %, at 1 kHz	Filtering: Analog Only (A), Digital + Analog (D)	Multi-Disc?	AUX Input?	Repeat Functions: Entire Disc (D), Track (T), Entire Program (E)	Audible Fast Search?	Auto Scan: Disc (D), Tuner (T)	TUNER				Built-in Amp Power: Watts Channel (W)	Thet. Protectin.: Pull-Out (P), Server Code (S)	RCA in Out Jacks?	
												FM Sensitivity, dB (For 30-dB Quieting)	Alternate-Channel Selectivity, dB	FM Mono S/N Ratio, -dB	Total Number of Station Presets				
AIWA	CDC-R5	700.00	5-20 +0, -3	85	0.02	D	No	No	T	Yes	D/T	15.2 (R) 50 dB	80	67	18		P	Yes	
ALPINE	5903	500.00	5-20 ±1.0	95	0.03	D	No	Yes	D/T	Yes	D						P	Yes	
	7903	550.00	5-20 ±1.0	95	0.03	D	No	No	D/T	Yes	D	16.3	80	60	18		P	Out	
	7904	500.00	5-20 ±1.0	95	0.03	D	No	No	D/T	Yes	D	16.3	80	60	18		P	Out	
	7800	630.00	5-20 ±1.0	92	0.03	D	No	No	D/T	Yes	D/T	16.3	80	60	24	16	P	Out	
	5952 Changer	650.00	5-20 ±1.0	95	0.03	D	No	6	D/T/E	Yes	D						P	Out	
	5953 Controller	250.00							D/T/E	Yes	D							P	Yes
	1390 Tuner (For 5953 Controller)	250.00							D/T/E	Yes	D	16.3	80	60	24			P	Yes
5954 Controller	200.00							Yes	Yes									Yes	
5955 Controller (w/FM Modulator)	200.00							D/T	Yes									No	
7909 (Also controls 5952 Changer)	1200.00	5-20 ±1.0	100	0.002	D	No; 6 Dpt.	No	D/T	Yes	D	16.3	80	60	24		P	Out		
BLAUPUNKT	Atlanta SCD 09	599.95	5-20 ±1	90	0.005	D	No	No	D/T	Yes	O/T	13	75	70	20		P	Yes	
	New Orleans SCD 09	699.95	5-20 ±1	90	0.005	D	No	No	E	Yes	D/T	13	75	75	36		P/S	Yes	
	CDC 01 Changer	629.95	5-20 ±1	90	0.005	D	12	No	D/T/E	Yes	D						P/S	Yes	
	CDC 01 Controller	249.95																P	
	New York SCD 08	799.95	20-20 ±0.3	90	0.005	D	No	No	D/T/E	Yes	D/T	13	85	75	36		P/S	Out	
CDC 01	549.95	20-20 ±0.3	90	0.005	D	No	No	D/T/E	Yes	D						P	Out		
CLARION	Audia 6100 Changer	649.95				D	6	Yes	D/T/E		D								Yes
	Audia 6110 Controller	199.95				D			D/T/E	No	D								Yes
	5670CD	589.95	5-20	90		D			D/T/E	Yes	D/T	12	70	70	20	25	P	Yes	
5631CD	529.95	5-20	90		D			D/T/E	Yes	D/T	12	70	70	20	25	No	Yes		
CONCORD	CD1R(RI) Changer	949.95	5-20 ±1	90	0.005	A	12	No	E	Yes	D	12	70	70	6		P	Yes	
	CD2	649.95	5-20 ±3	90	0.005	D	No	No	E	No	No							Yes	
	CD1(RI) Changer	949.95	5-20 ±1	90	0.005	A	12	Yes	E	Yes	D							Yes	
COUSTIC	CO-3	599.95	4-20	90	0.05	D	No	No	D/T/E	Yes	D/T	12	70	60	30	15	P	Yes	
DENON	DCC-8970	700.00	5-20 ±1.0	90	0.007	D	No	Yes	D/T	Yes	D	14.8	70	70	24		P	Out	
	DCC-1570(RD) Changer	600.00	5-20 ±1.0	90	0.005	D	10	No	D/T	Yes	D							Out	
	DCX-70 Controller	140.00							No	No	D							P	
	DCR-7870 Head Unit	700.00						Yes	D/T	Yes	D/T	14.8	70	60	24		P	Out	
DCR-7270 Head Unit	400.00						Yes	D/T	Yes	D/T	14.8	70	60	24		P	Out		
ECLIPSE	ECD-310	649.95	5-20	90		D	No	Yes	D/T	No	D				24		P	Yes	
	ESD-330 Changer	699.95	5-20 ±3	90		D	10	No	D	No	No							No	
	ESD-230	639.95	5-20 ±3	90	0.007	D	No	No	D/T	No	D							No	
JVC	XL-G3500	629.95	5-20	90	0.005	D	No	No	D/T	Yes	D/T	16.3 @ 50 dB			20	22 x 4	P	Out	
	XL-G2500	599.95	5-20	90	0.015	D	No	No	D/T	Yes	O/T				24		P	4-Ch. Out	
	XL-MK1200 Changer	729.95	5-20	95	0.005	D	12	No	D/T/E	Yes	D							Out	
	KS-RM12 Controller	249.00																P	
KS-C1200 Head Unit	599.95										16.3 @ 50 dB	65	60	24			P	Yes	
KENWOOD	KDC-C200 Changer	599.00	5-20 ±1	90	0.05	D	10		E	Yes	D/T							No	
	KCA-R200 Controller	299.00						Yes	E			15.2 @ 50 dB	80	75	20				
	KTC-C100 Tuner	199.00																P	
KDC-93R	499.00	5-20	90	0.005	D	No	No	T	Yes		12.0 @ 50 dB	70	73	30			Out		
KDC-83	499.00	5-20	90	0.005	D	No	No	T	Yes		12.0 @ 50 dB	70	73	30			Out		
KRACO	KCD-3000	799.95	5-20 ±3	90	1.0	D	No	No	T	Yes	T	15	53	60	18	20	P	Yes	
MGT	CD-5(RI) Changer	799.95	5-20	90	0.02	O	5	Yes	E	Yes	D							Yes	
MITSUBISHI	R-706	649.95	20-20	85	0.01	D	No	No	D/T/E	No	D/T	14	90	60	18		P	4-Ch. Out	

# The Concord CD2. Performance without compromise.

**N**ot all CD players are created equal. Some sound better than others — a fact some would like to forget as they race to build ever cheaper CD players. Concord takes a more realistic view. If you want a CD player, you want great performance. You want the Concord CD2.  Concord's high performance digital technology starts with quadruple oversampling and MASH (Multi-Stage Noise Shaping)



to shift residual noise far above the audible range. From there, Concord uses 1-bit Pulse Width Modulated D/A converters — the first to operate completely in the digital domain. The performance improvements over old-fashioned analog D/A converters are just what you might expect. Less noise. Less distortion. Better sound.  Of course, digital technology isn't the only reason to buy the Concord CD2. Its SmartTuner™ noise reduction maintains excellent FM reception in spite of changing multipath conditions. And its pull-out design and friendly ergonomics make the CD2 as enjoyable to use as it is to hear. So, if you're ready for performance without compromise, get Concord.

**CONCORD®**  
*Anything else is a compromise.*

**Oversampling:** By sampling at 4 times the normal rate, the digital noise spectrum shifts far above the audible range and steep analog filters are no longer required. **MASH (Multi-Stage Noise Shaping):™** Using complex mathematic algorithms, MASH evaluates digital noise components and shifts them even further from the audible spectrum. While the overall noise level remains unchanged, the residual noise occurs at far less troublesome frequencies. **1-Bit PWM D/A Converters:** Old-fashioned DAC's work by generating a series of voltages representing 16-bit digital "words". Accuracy depends on the

precision of 16 resistors which add together to generate 65,000 possible voltages. In the real world, these resistor values change with temperature, humidity, and age. Even the best conventional DAC's produce subtle errors: cheap ones produce gross

distortion. The Concord "bitstream" D/A converters simplify the task by processing one bit at a time. Only one voltage is needed, eliminating the need for complex resistor networks. Accuracy is determined not by the value of the voltage, but by it's duration. Thus 1-bit DAC performance is determined by a relentlessly accurate digital clock-rate. **Dual D/A Converters:** Unlike lesser CD players, Concord uses a separate D/A converter for each channel. This further reduces any chance for conversion errors. **2-Stage AGC Front End:** An expensive FM design that optimizes RF gain. Particularly effective in handling both extremely weak and extremely strong signals.

# CD PLAYERS

MANUFACTURER	Model (R) = Remote Included, (RO) = Remote Optional	Price, \$	Frequency Response, Hz to kHz, ± dB	Dynamic Range, dB	THD, % at 1 kHz	FM Filter: Analog On (A), Digital + Analog (D)	Multi-Disc?	AUX Input?	Repeat Functions: Entire Disc (D), Track (T), Entire Program (E)	Audible Fast Search?	Auto Scan: Disc (D), Tuner (T)	TUNER				Built-in Amp Power, Watts Channel (if Applicable)	Tape Protection: Pull-Out (P), Serial Code (S)	RCA In/Out Jacks?	
												FM Sensitivity, dB (For 30-dB Quieting)	Alternate Channel Selectivity, dB	FM Mono S/N Ratio, -dB	Total Number of Station Presets				
NAKAMICHI	CD-660	1095.00	5-20 ± 0.5	96	0.004	D	No	Yes	D/T/E	Yes	D/T	17	65	60	18		P	Yes	
	CD-640	850.00	5-20 ± 0.5	96	0.005	D	No	No	D/T/E	Yes	D/T	17	65	60	18		P	Out	
	CD-760	1295.00	5-20 ± 1	95	0.03	D	No	No	D/T/E	Yes	O/T	17	65	60	18		P	Out	
	CDC-101 Changer DAC-101 D/A Converter	895.00 495.00	5-20 ± 1 5-20 ± 0.5	93 98	0.05 0.002	D D	10	No		Yes	D							Out	
PANASONIC	CX-DP15 Changer	599.00	5-20 ± 1	90	0.005	D	12	No			D						P	Yes	
	CQ-E850	549.00	5-20	90	0.008	D	No	No			D/T	15.2@ 50 dB	75		24			P	Out
PHILIPS	DC 984	1995.95	20-20 +1, -3	80	0.01	D	No		D/T/E	Yes	D/T				36	25 x 4	P/S		
	DC 085	799.95	20-20 ± 1	80	0.01	D	No		D	No	D								
	DC 789/084/282 (Includes Tape Player)	1297.95	20-20			D	No		D	No	D		50	20		20 x 2, 30 x 2, 7 x 4			
	DC 759/084 (Includes Tape Player)	1097.95				D	No		D	No	D								
PIONEER	DEH-55	600.00	5-20 ± 1	87		D	No		D/T	Yes	D/T	12	70	85	24	20		Yes	
	CDX-4	400.00	5-20 ± 1	90		D	No	Yes	D/T	Yes	D			92				No	
	CDX-M70 Changer	600.00	5-20 ± 1	87		D	6		D/T/E		D			85				No	
RADION	DCD-7000 Changer	999.95	50-20 ± 1	90	0.003	D	5	No	D/T/E	Yes	D						P	Yes	
SANSUI	CD-R807	849.95	5-20 ± 1	95	0.03	D	No	No	D/T/E		D/T	12.0			18	25	P	Yes	
	CD-61	729.95	5-20	90	0.03	D	No											Yes	
SANYO	ECD4000	549.99	5-20 ± 3	90	0.05	A	No	No	D/T/E	Yes	D	19.2	65	65	12	25	P	Yes	
	ECD8000	649.99	5-20 ± 3			D	No	No	D/T/E	Yes	D/T	14.0	65		30			Yes	
SONY	CDX-6020	449.95	5-20	85	0.015	D	No	Yes	D/T	Yes	D/T	15.0	75	68	24			Yes	
	CDX-7540	549.95	5-20	90	0.015	D	No	Yes	D/T	Yes	D/T	15.0	75	68	24			Yes	
	CDX-7580	599.95	5-20	90	0.015	D	No	Yes	D/T	Yes	D/T	15.0	75	68	24		P	Yes	
	CDX-8560	849.95	5-20	95	0.008	D	No	Yes	D/T	Yes	D/T	15.0	75	68	24		P	Yes	
	CDX-A30 Changer	599.95	5-20	90	0.05	O	10		E	Yes	D								
	CDX-A100 Changer	999.95	5-20	105	0.003	D	10		E	Yes	D								
	CDX-A2001 Changer	1499.95	5-20	110	0.003	D	10		E	Yes	D								
	For Changers Above: RM-X1 Controller	129.95						No		No									Yes
	RM-X2 Controller/Preamp	229.95						Yes	E	Yes	D/T								Yes
	RM-X2001 Controller/Preamp	499.95						Yes	E	Yes	D/T								Yes
	XT-20 Tuner	179.95										15.0	75	68	20				Yes
	XR-7070 Head Unit	429.95										16.3	75	67	24		13 x 4	P	Yes
	XR-7280 Head Unit	549.95										15.0	75	68	24		13 x 2, 8 x 4	P	Yes
XR-7400 Head Unit	549.95										15.0	75	68	24			P	Yes	
XR-7500 Head Unit	649.95										15.0	75	68	24			P	Yes	
SPARKOMATIC	SR600	399.99	20-20	85	0.05	D	No	No	D/T/E	Yes	O/T	17	60	60	18	18		Yes	
TARGA	CCD-5 Changer	999.95	5-20 ± 1	90	0.03	D	5	No	D/T/E	Yes	D						P	Yes	
TECHNICS	CX-DP11 Changer CQ-R9550 Head Unit	649.00 649.00	5-20 ± 1	90	0.005	A	12				T	15.2@ 50 dB	75	70	24	25		Yes No	
TOSHIBA	TX930	759.00	5-20 ± 3	90	0.05	D	No	No	D/T/E	Yes	D/T	10	50	60	18	25		Yes	
	TX910	609.95	5-20 ± 3	90	0.05	D	No	No	D/T/E	Yes	D	10	50	60	18	25		Yes	
	TX900	709.95	5-20 ± 3	90	0.05	D	No	No	D/T/E	Yes	O/T	10	50	60	18	25		Yes	
YAMAHA	YCDT-720	549.00	5-20	110	0.006	D	No	Yes	D/T/E	Yes	D	15	75	90	30		P	Yes	
	YCDC-90(RO) Changer YCT-925 Head Unit	649.00 599.00	5-20	95	0.015	D	10	No	D/T/E	Yes	D	15	75	70	24			No Out	

# SERIOUS REALISM.



*Engineered for the sophisticated audio enthusiast, the Cooustic CD-3 represents a remarkable achievement in advanced mobile audio technology and system design.*



... a sound investment.

4260 Charter Street  
Vernon, CA 90058-2596  
1-213-582-2832

# RADIOS/TAPE PLAYERS

MANUFACTURER	Model (RI) = Remote Included, (RD) = Remote Optional	Price, \$	Average Watts Channel, Per EIA-490	THD at Rated Output, % per EIA-490	AMPLIFIER						TUNER						TAPE					
					Output Level: Preamp (P), Speaker (S)	Number of Taps or EQ Controls	FM Sensitivity dBf (For 30-dB Dulling)	Alternate Channel Selectivity, dB	FM Mono S/N Ratio, -dB	Total Number of Station Presets	Local/Distant Control: Manual (M), Automatic (A)	AM Stereo Capable?	Frequency Response, Hz to kHz, ±dB	Noise-Reduction Circuit? See Code (With N if applicable)	Auto Reverse?	Program Search?	Tape EQ Switch?	In-Dash (I), DIN In-Dash (DI), ISO Out, Push-Out (PO), Screen-Then Code (S)	RCA In/Out Jacks?			
																				14.2@ 50 dB	65	61
AIWA	CT-S2300	260.00	10	1	P/S	2	14.2@ 50 dB	65	61	12	A	M	No	50-15 ±3	B	Yes	No	Yes	I/J	Out		
	CT-X3400	260.00	4	1	P/S	2	12.7@ 50 dB	65	63	18	C	M	No	40-16 ±3	B	54	Yes	No	Yes	D/J	Out	
	CT-X3600	340.00	10	1	P/S	2	12.7@ 50 dB	65	63	18	C	M	No	40-16 ±3	B	64	Yes	No	Yes	D/J	Out	
	CT-X4500	450.00	10	1	P/S	2	12.7@ 50 dB	65	63	18	C	M	No	40-16 ±3	B	64	Yes	Yes	Yes	J/P	Out	
	CT-X5400	500.00	50	0.8	S		17.2@ 50 dB	80	67	18	C	M	Yes	40-16 ±3	B	64	Yes	Yes	Yes	J/P	Yes	
	CT-X7000	550.00	8 x 4	1	P/S	2	17.2@ 50 dB	80	70	24		M		30-15 ±0.2	B/C	76	Yes	Yes	Auto	J/P	2 In, 4 Out	
	CT-X8000(RI)	650.00	12 x 4	1	P/S	2	17.2@ 50 dB	80	70	24		M		30-15 ±0.2	B/C	76	Yes	Yes	Auto	J/P	2 In, 4 Out	
ALPINE	7167	200.00	6		S	2	16.3	80	60	18	A	M/A	No	40-18 ±3	No	55	Yes	No	Auto	I	No	
	7168	250.00	6		P/S	2	16.3	80	60	18	A	M/A	No	40-18 ±3	B	64	Yes	Yes	Auto	D/P	Out	
	7192	330.00	6		P/S	2	16.3	80	60	24	C	M/A	No		B	64	Yes	Yes	Auto	D/P	Out	
	7235	500.00	16		P/S	2	16.3	80	60	18	A	M/A	No	30-20 ±3	B	64	Yes	Yes	Auto	I	Out	
	7269	300.00	16		P/S	2	16.3	80	60	18	A	M/A	No	40-18 ±3	B	64	Yes	Yes	Auto	I	Out	
	7292	380.00	16		P/S	2	16.3	80	60	24	C	M/A	No		B	64	Yes	Yes	Auto	D/P	Out	
	7288	500.00	16		P/S	2	16.3	80	60	24	A	M/A	No	30-20 ±3	B	64	Yes	Yes	Auto	D/P	Out	
	CD Controller 7294	550.00	16		P/S	2	16.3	80	60	24	C	M/A	No	20-22 ±3	B/C	72	Yes	Yes	Auto	D/P	Yes	
	CD Controller 7380	350.00			P	2	16.3	80	60	24	A	M/A	No	20-20 ±3	B	64	Yes	Yes	Auto	D/P	Out	
	7390(RD) CD Controller 7293	600.00			P	2	16.3	80	60	24	A	M/A	No	20-22 ±3	B/C	72	Yes	Yes	Auto	D/P	Out	
430.00	16	0.8	P/S	2	16.3	80	60	24	C	M/A	No	30-20 ±3	B	64	Yes	Yes	Auto	D/P	Out			
AUDIOVDX	AV-949	180.00	5	10	S	1	16	60	60	18	C	A	No	50-10		50	No	No	No	I	No	
	AV-952	180.00	3	10	S	1	16	60	60	12	A	M	No	50-10		50	No	No	No	I	No	
	AV-954	225.00	5	10	S	1	16	60	60	18	C	A	No	50-10		50	Yes	No	No	I	No	
	AV-933	215.00	5	10	S	1	16	60	60	0	M	No	50-10		50	Yes	No	No	I	No		
	AV-936	312.50	5	10	S	1	15	65	65	18	B	M	No	50-10		50	Yes	No	No	I	No	
	AV-939	425.00	20	10	S	2	15	65	65	18	B	M	No	40-12.5	B	59	Yes	No	Yes	I	No	
	AV-985	167.50	5	10	S	3	16	60	60	0	M	No	50-10		50	No	No	No	I	No		
	AV-988	275.00	15	10	S	5	15	65	65	18	B	A	No	50-10		50	No	No	No	I	No	
	AV-215	230.00	3	10	S	1	15	65	60	12	A	M	No	50-10		50	No	No	No	D	No	
	AV-216	375.00	3	10	S	1	15	65	60	12	A	M	No	50-10		50	No	No	No	P	No	
	AV-225	387.50	5	10	P/S	2	15	65	65	18	C	A	No	50-10		50	Yes	No	No	O	Yes	
	AV-226	437.50	5	10	P/S	2	15	65	65	18	C	A	No	50-10		50	Yes	No	No	P	Yes	
	AV-235	525.00	15	10	S	5	15	65	65	18	C	M	No	50-12.5	B	59	Yes	No	Yes	O	No	
	AV-236	600.00	15	10	S	5	15	65	65	18	C	M	No	50-12.5	B	59	Yes	No	Yes	P	No	
	AV-934	300.00	5	10	S	1	16	60	60	12	A	M	No	50-10		50	Yes	No	No	I	No	
	AV-932	225.00	3	10	S	1	16	60	60	12	A	M	No	50-10		50	No	No	No	I	No	
	AV-929	225.00	5	10	S	1	16	60	60	12	A	M	No	50-10		50	No	No	No	I	No	
AV-686	212.50	15	10	S	5	16	60	65	0	M	No	50-10		50	No	No	No	I	No			
AV-3000	115.00	5	10	S	1	16	60	60	0	M	No	50-10		50	No	No	No	I	No			
AURA DYNAMICS	DR101	249.95	12	1	P/S	2	15	80	65	18	C	A	No	40-14 ±3	D	58	Yes	No	Yes	D	Yes	
	DR301	309.95	12	1	P/S	2	15	80	65	24	C	A	No	40-14 ±3	B	62	Yes	Yes	Yes	D	Yes	
	DR501	369.95	12 x 4	1	P/S	2	12	80	65	30	C	A	Yes	30-16 ±3	B/C	72	Yes	Yes	Yes	D/P	Yes	
AUTOTEK	900 GX	220.00	6	10	P/S	2	16.9	65	55	24	C	A	No	50-14.5 ±3		55	Yes	Yes	Yes	I	Yes	
	910 GX	240.00	20	10	P/S	2	16.9	65	55	24	C	A	No	50-14.5 ±3		55	Yes	Yes	Yes	I	Yes	
	920 GXI	290.00	20	10	P/S	2	16.9	65	55	24	C	A	No	50-16.5 ±3	B	60	Yes	Yes	Yes	I	Yes	
	950 GX	299.00	20	10	P/S	2	16.9	65	55	24	C	M	No	50-14.5 ±3		55	Yes	Yes	Yes	P	Yes	
	970 GXI	360.00	20	10	P/S	2	16.9	65	55	24	C	M	No	50-16.5 ±3	B/C	65	Yes	Yes	Yes	P	Yes	
BLAUPUNKT	Washington SQR 49	649.95	20 x 2, 7.5 x 4	1	P/S	2	15	85	70	36	C	A	No	30-20 ±3	B/C/D	72	Yes	Yes	Auto	D/J/ P/S	Yes	
	Philadelphia SQR 49	539.95	20 x 2, 7.5 x 4	1	P/S	2	15	85	70	30	C	A	No	30-20 ±3	B/C/D	73	Yes	Yes	Auto	D/J/ P/S	Yes	
	Tampa SQR 29	249.95	7.5	1	P/S		13	70	70	15	A	M	No	30-16 ±3		55	Yes	No		D/J/ P/S	Out	
	Newport SQR 29	249.95	7.5	0.05	P/S	2	13	70	65	24	C	A	No	40-15 ±0.3	D	60	Yes	Yes	Yes	I/S	Out	
	Boston SQR 49	299.95	25 x 2, 7.5 x 4	0.05	P/S	2	13	70	65	30	C	A	No	40-15 ±0.3	B	63	Yes	Yes	Yes	I/S	Out	
	Phoenix SQR 29	289.95	7.5	0.05	P/S	2	13	70	65	24	C	M	No	40-15 ±0.3	D	60	Yes	Yes	No	D/J/ P/S	Out	
	San Francisco SQR 28	399.95	7.5	0.05	P/S	2	13	75	70	12	C	A	No	30-16 ±0.3	B/D	63	Yes	No	Yes	D/J/ P/S	Out	
	Los Angeles SQR 48	429.95	20 x 2, 7.5 x 4	0.05	P/S	2	13	75	70	12	C	A	No	30-16 ±0.3	B/D	63	Yes	No	Yes	D/J/ P/S	Out	
	Lexington SQR 48	499.95	20 x 2, 7.5 x 4	0.05	P/S	2	13	75	70	12	C	A	No	30-16 ±0.3	B/C/D	73	Yes	Yes	Yes	D/J/ P/S	Out	
	Berlin TQR 07	999.95		0.1	P	2	13	78	65	96	C	A	Yes	35-18 ±3	B/C	67	Yes	Yes	Yes	D/S	Out	
	Houston SQR 06(RI)	769.95		0.03	P	2	13	80	70	24	C	A	No	30-20 ±3	A/B/ C/D	67	Yes	Yes	Yes	D	Yes	
	Tucson SQR 06	649.95		0.03	P	2	13	80	70	24	C	A	No	30-20 ±3	B/C/D	67	Yes	No	Yes	D	Out	
	Portland SQR 28	349.95	7.5	1	P/S	2	13	75	70	12	A	A	No	30-16 ±3	D	60	Yes	Yes	Yes	D/J/ P/S	Out	
	Dallas SQM 88 (Stalk Mount) Tape Player for Above Model: CCP 08	389.95	20 x 4	1	P/S	2	13	80	70	20	C	A	Yes									Yes
279.95													30-16 ±3	B/C	67	Yes	Yes	Yes	D/J/P	Out		



# RADIOS/TAPE PLAYERS

MANUFACTURER	Model (R) = Remote Included, (RD) = Remote Optional	Price, \$	AMPLIFIER										TUNER					TAPE				
			Average Watts Channel, Per EIA-490	THD at Rated Output, % per EIA-490	Output Level: Preamp (P), Speaker (S)	Number of Tone or EQ Controls	FM Sensitivity, dB <sub>F</sub> (For 30-dB Quieting)	Alternate Channel Selectivity, dB	FM Mono S/N Ratio, -dB	Total Number of Station Presets	Tuning: Seek (A), Scan (B), Both (C)	Local/Distance Control: Manual (M), Automatic (A)	AM Stereo Capable?	Frequency Response, Hz to kHz, -dB	Noise-Reduction Circuit? See Code	Type S/N Ratio, -dB, A-W-Weighted (Only with applicable)	Auto Reverse?	Program Search?	Tape EQ Switch?	In-Dash (D), Out-In-Dash (O), ISO (I), Full-Op (F), Secret-Mesh Code (S)	RCA In-Out Jacks?	
CARRERA	CS-1000	159.95	25	1	P/S	2	17	65	60	24	B	A	No	40-14		50					D/P	Yes
	CS-2000	199.95	25	1	P/S	2	16.3	65	65	24	B	A	No	40-15		52	Yes	Yes			D/P	Yes
CLARION	9772RT	349.95	12 x 4	1	P/S	3	12	70	20	C	A	No	30-18 ± 3	B	66	Yes	Yes	Yes	Yes	D/P	Yes	
	9771RT	389.95	12	1	P/S	3	12	70	18	C	A	No	30-18 ± 3	B	66	Yes	Yes	Yes	Yes	D/P	Yes	
	9731RT	319.95	12 x 4	1	P/S	3	12	70	20	C	A	No	30-18 ± 3	B	66	Yes	Yes	Yes	Yes	D	Yes	
	9701RT	299.95	12	1	P/S	3	12	70	18	C	A	No	30-18 ± 3	B	66	Yes	Yes	Yes	Yes	I	Yes	
	8703RT	249.95	3.2	1	P/S	3	12	70	18	C	A	No	50-19	B	66	Yes	Yes	Yes	Yes	I	Yes	
	Audia 3000 (w/CD Changer Controller)	1099.95				3	12	70	18	C	A	No	30-23	B/C	74	Yes	Yes	Yes	Yes	I	Yes	
	8403RT	199.95	3.2	1	P/S	3	12	70	18	C	A	No	50-15		56	Yes	No	Yes	I	Yes		
	8203RT	179.95	3.2	1	P/S	3	12	70	18	C	A	No	50-14		53	Yes	No	No	I	Yes		
	2001RT	239.95	3.2	1	P/S		12	70	12	C	A	No	30-15		56	Yes	No	Yes	D	Yes		
	2002RT	319.95	12 x 2, 6 x 4	1	P/S		12	70	12	C	A	No	30-16	B	66	Yes	Yes	Yes	D	Yes		
3970RC (w/CD Changer Controller)	589.95	10 x 4	1	P/S	3	12	70	20	C	A	No	30-20 ± 3	B/C	74	Yes	Yes	Auto	D/P	Yes			
3770RC (w/CD Changer Controller)	469.95	10 x 4	1	P/S	3	12	70	20	C	A	No	30-18 ± 3	B	66	Yes	Yes	Yes	D/P	Yes			
CONCORD	CX10x	219.95	4.5 x 4	1	P/S	2	18	60	70	18	A	A	No	30-18 ± 3	B	57	Yes	No	Yes	I	Out	
	CX20x	299.95	4.5 x 4, 12.5 x 2	1	P/S	2	18	60	70	18	A	A	No	30-18 ± 3	B	67	Yes	Yes	Yes	I	Out	
	CX30x	399.95	4.5 x 4, 12.5 x 2	1	P/S	2	18	60	70	18	C	A	No	30-19 ± 3	B/C	77	Yes	Yes	Yes	I	1 In, 2 Out	
	CX40x	349.95	4.5 x 4, 12.5 x 2	1	P/S	2	18	60	70	18	A	A	No	30-18 ± 3	B	67	Yes	Yes	Yes	D/J	Out	
	CX50x	399.95	4.5 x 4, 12.5 x 2	1	P/S	2	18	60	70	24	A	A	No	30-18 ± 3	B	67	Yes	Yes		D/J/P	1 In, 2 Out	
	CX60x	449.95	4.5 x 4, 12.5 x 2	1	P/S	2	18	60	70	24	C	A	No	30-19 ± 3	B/C	77	Yes	Yes	Yes	D/J/P	1 In, 2 Out	
	CX70x	499.95	4.5 x 4, 12.5 x 2	1	P/S	2	18	60	70	24	C	A	No	30-19 ± 3	B/C	77	Yes	Yes	Yes	D/J/P	1 In, 2 Out	
	CX50	499.95	4.5 x 4	0.08	P/S	2	11.3	65	18	C	A	No	30-19 ± 3	B	60	Yes	Yes	Yes	P	Yes		
	CX60	599.95	4.5 x 4, 12 x 2	0.08	P/S	2	11.3	65	18	C	A	No	30-19 ± 3	B/C	68	Yes	Yes	Yes	P	Yes		
CX70	699.95	4.5 x 4, 12 x 2	0.08	P/S	2	11.3	65	18	C	A	No	30-19 ± 3	A/B/C	78	Yes	Yes	Yes	P	Yes			
COUSTIC	RX-738	429.95	15 x 2, 5 x 4	0.09	P/S	2	17	70	60	18	C	A	No	30-18 ± 3	B/C	70	Yes	Yes	Yes	D/J/P	Yes	
	RX-735	369.95	15 x 2, 5 x 4	0.09	P/S	2	17	70	60	18	C	A	No	30-18 ± 3	B/C	50	Yes	Yes	Yes	D/J/P	Yes	
	RX-728	299.95	25	0.9	P/S	2	24	60	62	12	A	A	No	20-25 ± 5	B	70	Yes	Yes	Yes	I	Yes	
	RX-726	269.95	25	0.9	P/S	2	24	60	62	12	A	A	No	20-25 ± 5	B	60	Yes	Yes	Yes	I	Yes	
	RX-721	219.95	25	0.9	P/S	2	24	60	62	12	A	A	No	20-25 ± 5	B	50	Yes	Yes	Yes	I	Yes	
RX-720	189.95	8	0.9	P/S	2	24	60	62	12	A	A	No	20-25 ± 5	B	50	Yes	Yes	Yes	I	Yes		
CRAIG	T736	144.95	4	5	S	2	12	60	60	12	B	A	No	50-15 ± 3		50				I	Yes	
	T737	189.95	4	5	P/S	2	12	60	60	18	C	A	No	50-15 ± 3		54	Yes			I	Yes	
	T738	209.95	4	5	P/S	2	12	60	60	18	C	A	No	50-15 ± 3		54	Yes	Yes	Yes	I	Yes	
	T739	239.95	4	5	P/S	2	11	60	60	18	C	A	No	50-15 ± 3	B	54	Yes	Yes	Yes	I	Yes	
	T861	249.95	4	5	P/S	2	11	60	65	18	C	M	No	50-15 ± 3		56	Yes	Yes	Yes	P	Yes	
	T862	289.95	15		P/S	5	11	60	65	18	C	M	No	50-15 ± 3	B	56	Yes	Yes	Yes	I	Yes	
	AG101	64.95	4	5	S	1	15	50	60			A	No	50-15 ± 3		50				I	Yes	
	AG102	87.95	4	5	S	1	15	50	60			A	No	50-15 ± 3		50				I	Yes	
	AG120	109.95	4	5	S	2	15	50	60			M	No	50-15 ± 3		50	Yes			I	Yes	
	AG130	129.95	4	5	S	1	15	60	60	18	B	A	No	50-15 ± 3		50				I	Yes	
	AG140	154.95	4	5	S	1	15	60	60	18	B	A	No	50-15 ± 3		50	Yes			I	Yes	
CUSTOM AUTOSOUND	USA-01	219.00	3 x 4	1	P	2	12		45	12	C	A	No	40-18 ± 3	No	45	Yes	No	Auto	I	Yes	
	USA-03	179.00	3 x 4	1		3	12		40		M	M	No	40-15 ± 3		45	Yes	No	Auto	I	No	
	USA-02	149.00	7	1		1	12		40		M	M	No	40-15 ± 3		45	No	No	Auto	I	No	
DENDN	OCR-7870	700.00			P	2	14.8	70	60	24	C	M	No	30-18 ± 3	B/C	72	Yes	Yes	Auto	D/J/P	Out	
	DCR-7270	400.00			P	2	14.8	70	60	24	C	M	No	40-16 ± 3	B	62	Yes	Yes	Yes	D/J/P	Out	
	DCR-5520	630.00	12	1.0	P/S	2	14.8	70	60	24	C	M	No	30-1E ± 3	B/C	72	Yes	Yes	Auto	D/P	Out	
	DCR-5470	500.00	18 x 2, 9 x 4	10.0	P/S	2	14.8	70	60	24	C	M	No	30-1E ± 3	B/C	72	Yes	Yes	Auto	D/J/P	Out	
	DCR-5370	420.00	18 x 2, 9 x 4	10.0	P/S	2	14.8	70	60	24	C	M	No	30-1E ± 3	B/C	70	Yes	Yes	Auto	D/J/P	Out	
	DCR-5270	330.00	18 x 2, 9 x 4	10.0	P/S	2	14.8	70	60	24	A	M	No	40-1E ± 3	B	62	Yes	Yes	Yes	D/J/P	Yes	
	DCR-5170	270.00	14 x 2, 9 x 4	10.0	P/S	2	14.8	70	60	24	A	M	No	40-1E ± 3		52	Yes	No	Yes	D/J	Out	
	DCR-4270	320.00	18 x 2, 10 x 4	10.0	P/S	2	14.8	70	60	24	A	M	No	40-1E ± 3	B	62	Yes	Yes	Yes	I	Yes	
OCR-4170	260.00	14 x 2, 8 x 4	10.0	P/S	2	14.8	70	60	24	A	M	No	40-1E ± 3		52	Yes	No	Yes	I	Out		
EARTHQUAKE SOUND	SF-2000	250.00	25 x 4		P/S	2	20.5		12	10	C	A	No	40-18 ± 3	B	63	Yes	Yes		P	CD	
	SF-2100E	299.00	25 x 4		P/S	5	20.5				C	A	No	40-18 ± 3	B	63	Yes	Yes		P	CD	





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# RADIOS/TAPE PLAYERS

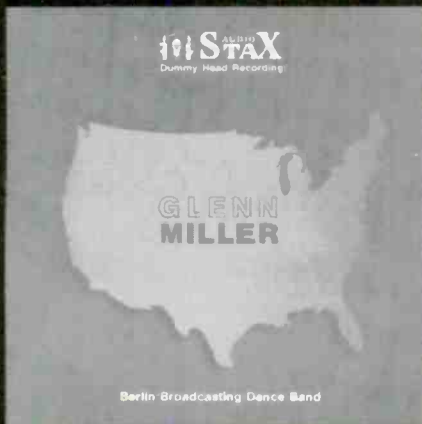
MANUFACTURER	Model (RI) = Remote Included (RO) = Remote Optional	Price, \$	AMPLIFIER										TUNER					TAPE									
			Average Watts Output per EIA-490		THD at Rated Output, % per EIA-490	Output Levels: Preamp (P), Speaker (S)		Number of Tone or EQ Controls		FM Sensitivity, dB (For 20-dB Quieting)		Alternate-Channel Selectivity, dB		FM Mono S/N Ratio, dB		Total Number of Station Presets	Tuning: Seek (A), Scan (B), Both (C)	Local Obscure Channels: Manual (M), Automatic (A)	AM Stereo Capable?	Frequency Response: Hz to kHz, ±dB	Noise-Reduction Circuit? See Code	Type S/N Ratio, dB A-Weighting	Auto Reverse?	Program Search?	Tape EQ Switch?	In-play (I), Out-of-play (O), ISO (J), Full-Out (P), Secret Theft Code (S)	RCA In/Out Jacks?
			8 x 2, 3 x 2	0.8		P/S	2	16.3@50 dB		24	C	M	No	40-20	B												
JVC (Continued)	KS-RG5	429.95	8 x 2, 3 x 2	0.8	P/S	2	16.3@50 dB		24	C	M	No	40-20	B	60	Yes	Yes	Auto	D/J/P	Yes							
	KS-RG9	549.95	12 x 2, 3 x 2	0.8	P/S	2	16.3@50 dB		24	C	M	No	40-20	B/C	68	Yes	Yes	Auto	D/J/P	Yes							
	KS-RX710 (For GM and Chrysler cars)	479.95	12	0.8	P/S	5	18.8@50 dB	65 60	20	C	M	No	40-15 ± 3	B	60	Yes	Yes	Yes	I	Yes							
	KS-RX190	299.95	8 x 2, 3 x 2	0.8	P/S	2	18.8@50 dB	65 60	20	C	No	No	50-15 ± 3	B	60	Yes	Yes	Yes	I	Out							
	KS-R150	249.95	3	0.8	P/S	2	19.5@50 dB	65 60	20	C	No	No	50-13	B	60	Yes	Yes	No	I	Out							
	KS-R130	199.95	3	0.8	S	2	19.5@50 dB	65 60	20	C	No	No	50-13		52	Yes	No	No	I	No							
	KS-C1200	599.95			P	2	16.3@50 dB	65 60	24	C	M	No	50-15 ± 3	B/C	68	Yes	Yes	Auto	D/J/P	Yes							
	KS-RX2020	429.95	12 x 2, 3 x 2	0.8	P/S	2	16.3@50 dB	65 60	24	C	M	No	40-15 ± 3	B/C	68	Yes	Yes	Auto	I	Yes							
	KS-RX1010	349.95	8 x 2, 3 x 2	0.8	P/S	2	16.3@50 dB	65 60	20	C	No	No	50-15 ± 3	B	60	Yes	Yes	Yes	I	Yes							
KENWOOD	KRC-910	549.00	15	1	P/S	2	12.0@50 dB	100 73	30		A	No	30-20 ± 3	B/C	73	Yes	Yes	Auto	D/J/P	Yes							
	KRC-810	499.00			P	2	12.0@50 dB	100 73	30		A	No	30-20 ± 3	B/C	73	Yes	Yes	Auto	D/J/P	Yes							
	KRC-710	449.00	15	1	P/S	2	12.0@50 dB	100 73	24		A	No	30-20 ± 3	B	66	Yes	Yes	Auto	D/J/P	Yes							
	KRC-610	399.00	20	1	P/S	2	12.0@50 dB	100 73	24	B	A	No	30-18 ± 3	B	65	Yes	Yes	Yes	D/J/P	Yes							
	KRC-510	349.00	20	1	P/S	2	12.0@50 dB	100 73	24		A	No	30-18 ± 3	B	65	Yes	Yes	Yes	D/J/P	Yes							
	KRC-410	299.00	15	1	P/S	2	12.0@50 dB	100 73	18	A		No	30-16	B	63	Yes	Yes	Yes	D/J/P	Yes							
	KRC-310	259.00	4	1	P/S	2	12.0@50 dB	100 73	18	A		No	30-16		54	Yes	Yes	Yes	D/J/P	Yes							
	KRC-5003	369.00	4 x 2, 15 x 2	1.0	P/S	2	15.2@50 dB	70 70	18	A	A	No	30-16 ± 3	B	63	Yes	Yes	Yes	I	Yes							
	KRC-4003	319.00	15	1.0	P/S	2	15.2@50 dB	70 70	18	A	A	No	30-16 ± 3	B	63	Yes	Yes	Yes	I	Yes							
	KRC-3003	279.00	15	1.0	P/S	2	15.2@50 dB	70 70	18	A	A	No	30-16 ± 3		54	Yes	Yes	Yes	I	Yes							
	KRC-2003	249.00	4	1.0	P/S	2	15.2@50 dB	70 70	18	A	A	No	30-16 ± 3		54	Yes	Yes	Yes	I	Yes							
	KRC-1003	199.00	4	1.0	S	2	15.2@50 dB	70 70	18	A	A	No	30-16 ± 3		54	Yes	No	Yes	I	No							
	KRACO	KF-1108	289.95	33	0.09	S	2	9	55 60	15	C	A	No	47-13 ± 3	No	62	Yes	No	No	P	No						
ETR-1084		319.95	33	0.09	S	5	9	53 60	12	C	A	Yes	47-15 ± 3	D	60	Yes	No	No	I	No							
ETR-808-B		289.95	33	0.09	S	2	9	53 60	10	C	M	No	50-12 ± 3	No	60	Yes	No	No	I	No							
ETR-1082		169.95	10	0.10	S	1	9	55 58	15	C	M	No	50-10 ± 3	No	59	Yes	Yes	No	I	No							
ETR-1080		169.95	10	0.10	S	3	7	53 55	18	C	A	No	50-10 ± 3	No	60	No	No	No	I	No							
KGE-8018		159.95	32	0.10	S	5	9	45 55	0		M	No	40-10 ± 3	No	60	No	No	No	I	No							
ETR-1079		159.95	10	0.10	S	1	7	50 58	10	A		No	50-10 ± 3	No	55	No	No	No	I	No							
LED-600		119.95	8	0.10	S	3	9	50 55	0		M	No	50-12 ± 3	No	55	No	No	No	I	No							
KID-588B		99.95	8	0.10	S	1	9	45 60	0		M	No	50-10 ± 3	No	55	Yes	No	No	I	No							
KGE-601		99.95	8	0.10	S	3	9	50 55	0		M	No	50-12 ± 3	No	50	No	No	No	I	No							
KID-581		69.95	8	0.10	S	1	9	45 55	0		M	No	50-8 ± 3	No	50	No	No	No	I	No							
LA SOUND	LA 105	39.00	3.5	1.0	S	1		50			A	No						No	No	No	I	No					
	LA 115	59.00	3.5	1.0	S	1		50			M	No						No	No	No	I	No					
	LA 215	99.00	3.5	1.0	P/S	1		52	15	A	M	No						No	No	No	I	Yes					
	LA 220	109.00	3.5	1.0	S	1		55	18	C	A	No						No	No	No	I	No					
	LA 225	129.00	3.5	1.0	P/S	2		52	15	A	M	No						Yes	No	No	I	Yes					
	LA 230	149.00	3.5	1.0	P/S	2		55	18	C	A	No						Yes	No	No	I	Yes					
	LA 315	169.00	14	10	S	2		55	24	A	M	No						No	No	No	I	No					
	LA 325	199.00	14	10	P/S	2		55	24	A	M	No						No	No	No	I	Yes					
	LA 515	189.00	14	10	S	3		55	18	C	A	No						No	No	No	I/P	Yes					
	(w/Removable Control Panel)																										
	LA 525	219.00	14	10	P/S	3		55	18	C	A	No						Yes	No	No	I/P	Yes					
	(w/Removable Control Panel)																										
	LA 555	239.00	14	10	P/S	2		55	24	A	A	No						Yes	No	No	I/P	Yes					
	(w/Removable Control Panel)																										
LA 505	159.00	14	10	P/S	1		55	20	A	A	No						Yes	No	No	D/P	Yes						
LA 575	179.00	14	10	P/S	1		55	18	A	M	No						Yes	No	No	D/P	Yes						
LA 715	199.00	14	10	P/S	2		55	18	A	A	No						Yes	No	No	D/P	Yes						
LA 725	219.00	14	10	P/S	2		55	24	A	M	No						Yes	No	No	D/P	Yes						
LA 735	249.00	14	10	P/S	5		55	18	C	A	No						Yes	No	No	D/P	Yes						
LA 745	249.00	14	10	P/S	2		55	30	A	M	No						Yes	Yes	Auto	D/P	Yes						
MAJESTIC	MCR1700AN	139.95	6		S	3	10	55			M	No	60-10 ± 0.3		50	Yes	No	No					No				
	MCR3700AN	179.95	6		P/S	3	10	55	10	A	M	No	60-10 ± 0.3		50	Yes	No	No					Yes				
	MCR1100	79.95	6		S	3	10	45			M	No	60-10 ± 0.3		50	No	No	No					No				
	MCR1100F	89.95	12		S	3	10	45			M	No	60-10 ± 0.3		50	No	No	No					No				
	MCR1500BT	129.95	6		S	3	10	60			M	No	60-10 ± 0.3		50	Yes	No	No					No				
	MCR84-400	139.95	6		P/S	3	15	50			M	No	50-10 ± 0.3		50	Yes	Yes	Yes		Yes			Yes				
	MCR2650	149.95	25		S	3	15	50			M	No	60-10 ± 0.3		50	Yes	Yes	Yes		Yes			No				
	MCR3500	149.95	5		P/S	2	15	50	12	C	M	No	60-10 ± 0.3		50	No	No	No					Yes				
(Continued)	MCR3400	149.95	7		P/S	2	10	60	18	C	A	No	40-10 ± 0.3		55	No	No	No					Yes				



Mozart Edition Vol. 1 Symphonies



With a Song in My Heart/Radio Dance String



Glen Miller And Other Big-Band-Favorites



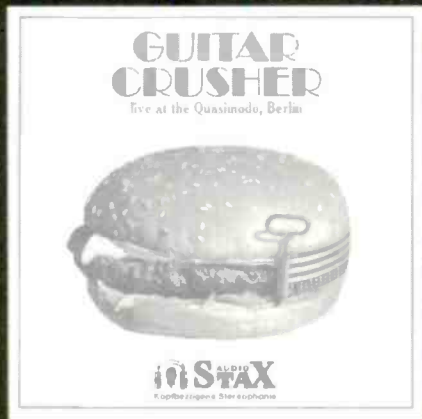
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Rundfunk-Jugendchor Wernigerode Live



Guitar Crusher Live in Berlin



Romantik/Romanticism

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Ken Kessler  
Hi Fi News & Record Review

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STAX Binaural recordings are available from STAX electrostatic earspeaker dealers or by direct mail. Send check or money order for \$39.95 each or \$275.00 for the entire set of eight (add 6.75% tax in CA) to:

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940 E. Dominguez Street  
Carson, CA 90746

# RADIOS/TAPE PLAYERS

MANUFACTURER	Model (RI) = Remote Included (RO) = Remote Optional	Price, \$	AMPLIFIER				TUNER						TAPE								
			Average Watts/Channel, per EIA-499	THD at Rated Output, % per EIA-499	Output Level: Preamp (P), Speaker (S)	Number of Taps or EQ Controls FM Sensitivity, dB (For 30-dB Quieting)	Alternate Channel Selectivity, dB	FM Mono S/N Ratio, -dB	Total Number of Station Presets	Tuning: Seek (A), Scan (B), Both (C)	Local/Remote Control: Manual (M), Automatic (A)	AM Stereo Capable?	Frequency Response, Hz to kHz, -dB	Noise-Reduction Circuit? See Code (With NR 1, Available)	Auto Reverser?	Program Search?	Tape EQ Switch?	Inches (I), D in Dash 1/2 (L), 1/4 (C), 1/8 (R) Secret Their Code? (D)	RCA In/Out Jacks? (S)		
MAJESTIC (Continued)	MCR3600	169.95	7		P/S	3	10	60	18	C	A	No	40-10 ±0.3		55	Yes	No	No	I	Yes	
	MCR3900A	169.95	5		P/S	2	20	50	12	C	M	No	40-10 ±0.3		40	Yes	No	No	I	Yes	
	MCR4100	179.95	5		P/S	3	15	50	12	C	M	No	40-10 ±0.3		50	Yes	No	No	I	Yes	
	MCR5300	159.95	5		P/S	3	10	55	12	C	A	No	60-10 ±0.3		40	No	No	O	Yes		
	MCR4650	189.95	25		P/S	6	10	55	12	A	M	No	60-10 ±0.3		50	Yes	No	I	Yes		
	MCR6200	229.95	5 x 4		P/S	3	10	50	18	A	A	No	60-10 ±0.3		50	Yes	No	D/P	Yes		
	MCR90-101	199.95	5.5 x 2, 4 x 4		P/S	3	14	60	24	A	M	No	60-10 ±0.3		51	Yes	Yes	Yes	I	Yes	
	MCR90-202	249.95	25 x 2, 9 x 4		P/S	3	14	60	24	A	M	No	60-14 ±0.3	B	51	Yes	Yes	Yes	I	Yes	
	MCR90-303	229.95	15 x 2, 9 x 4		P/S	3	16	50	24	A	M	No	60-14 ±0.3		50	Yes	No	Yes	D	Yes	
	MCR90-404	269.95	15 x 2, 9 x 4		P/S	3	16	50	24	C	M	No	60-14 ±0.3	B	50	Yes	Yes	Yes	D	Yes	
MCR90-505	269.95	5.5 x 2, 4 x 4		P/S	3	16	50	24	C	M	No	60-14 ±0.3		50	Yes		Yes	D/P	Yes		
MCR-90-606	299.95	15 x 2, 9 x 4		P/S	3	16	50	24	C	M	No	60-14 ±0.3	B	50	Yes	Yes	Yes	D/P	Yes		
MARANTZ	701	599.00	12 x 4	1	P/S	(2)	12.6	70	70	18	C	M	Yes	40-18 ±3	A/B/C	83	Yes	Yes	Yes	D/S	Yes
	501	499.00	12 x 4	1	P/S	7	12.6	70	70	18	C	M	No	40-18 ±3	B	65	Yes	Yes	Yes	D/S	Yes
MEI	CX2250	179.95	2.7	0.8	S	1		63	12	C	M	No	50-15 ±3		50	Yes	No	Yes	I	No	
	CX2450	199.95	2.7	0.8	P/S	2		62	12	C	M	No	50-15 ±3		46	Yes	No	Yes	I	Out	
	CX2770	259.95	12.5	0.8	P/S	2		61	24	C	M	No	30-16 ±3	B	60	Yes	Yes	Yes	I	Out	
	CX2900	459.95	12.5x2, 4.5x2	0.8	P/S	2		60	24	B	M	No	30-17 ±3	B	62	Yes	Yes	Yes	P	Out	
	CX2800	269.95	2.7	0.8	S	2	15.5	55	60	12	C	A	No	40-15.5 ±3	No	52	Yes	No	Yes	D/P	No
	CX2680 (For GM and Chrysler cars)	259.95	12.5	0.8	P/S	2	17.5	52	58	12	C	M	No	40-16 ±3	No	52	Yes	Yes	Yes	I	Out
	CX2880	369.95	12.5	0.8	P/S	5	15.5	55	61	12	C	A	No	40-15.5 ±3	B/C	70	Yes	Yes	Yes	D/P	Out
	CX2420	209.95	2.8	0.8	P/S	2	15.5	52	58	12	A	M	No	40-15 ±3	No	50	Yes	No	Yes	I	Out
	CX154E	239.95	18	8	S	5	20	52	54	10	A	M	No	40-15 ±3	No	54	Yes	No	Yes	I	No
	CX2350	209.95	5	8	P/S	2	15.5	52	60	10	A	M	No	40-15 ±3	No	50	Yes	No	Yes	I	No
	CX2650	249.95	5	8	P/S	2	15.5	52	60	10	C	A	No	40-15 ±3	No	50	Yes	No	Yes	D	No
	CXR158E	269.95	5	8	P/S	2	15.5	55	58	12	C	A	No	40-15 ±3	No	52	Yes	No	Yes	D/P	No
	CXR168E	369.95	18	8	P/S	5	15.5	52	64	12	A	M	No	30-19 ±3	B/C	53	Yes	Yes	Yes	D/P	Yes
	CX135E	149.95	5.5	8	S	1	19.5	50	54	12	A	M	No	40-12 ±3		40	No	No	Auto	I	No
	CX152E	159.95	5.5	8	S	1	19.5	50	54	12	A	M	No	40-12 ±3		40	No	No	Auto	I	No
	CX143E	179.95	5.5	8	S	1	15.5	52	60	12	A	M	No	60-12.5 ±3		55	Yes	No	Yes	I	No
	CX148E	199.95	5.5	8	P/S	2	15.5	52	60	12	A	M	No	40-15 ±3		50	Yes	No	Yes	I	No
	CX2700	279.95	18	8	P/S	2	17.5	52	62	12	A	M	No	40-15 ±3	B	50	Yes	Yes	Yes	I	No
	CX117M	89.95	5.5	8	S	1	16	70	60	10	A	M	No	40-20 ±3		46	No	No	Auto	I	No
	CX118M	74.95	5.5	8	S	1	16	70	59	10	A	M	No	80-10 ±3		50	No	No	Auto	I	No
CX119M	79.95	5.5	8	S	1	16	70	59	10	A	M	No	80-10 ±3		50	No	No	Auto	I	No	
CX127M	119.95	5.5	8	S	1	17	58	60	10	M	M	No	80-10 ±3		53	Yes	No	Yes	I	No	
CX1650	109.95	5.5	8	S	1	17	70	59	10	M	M	No	80-10 ±3		50	No	No	Yes	I	No	
CX1800	139.95	5.5	8	S	1	17	58	60	10	M	M	No	80-10 ±3		53	Yes	No	Yes	I	No	
METRO SOUND	MX 215	80.00	5	1	S	1		55	18		M	No				Yes	No	No	I	No	
	MX 500	110.00	5	1	P/S	1		55	18	A	A	No				No	No	Auto	I	Yes	
	MX 520	120.00	14	10	P/S	2		55	18	A	A	No				No	No	Auto	I	Yes	
	MX 600	140.00	5	1	P/S	2		55	18	A	A	No				Yes	No	Auto	I	Yes	
	MX 660i	190.00	14	10	P/S	2		55	18	A	A	No				Yes	Yes	Auto	I	Yes	
	MX 615	170.00	5	1	P/S	2		55	18	A	A	No				Yes	No	Auto	I	Yes	
	MX 665i	220.00	14	10	P/S	2		55	18	A	A	No				Yes	Yes	Auto	I	Yes	
	MXD 505	120.00	5	1	P/S	2		55	12	C	A	No				No	No	Auto	D	Yes	
	MXD 610	150.00	14	10	P/S	2		55	12	C	A	No				Yes	No	Yes	D	Yes	
	MXD 510AT	150.00	14	10	P/S	2		55	12	C	A	No				No	No	Auto	D/P	Yes	
	MXD 640AT	170.00	5	1	P/S	2		55	18	C	A	No				Yes	No	Auto	D/P	Yes	
	MXD 670 ATI	210.00	14	10	P/S	2		55	18	C	A	No				Yes	No	Yes	O/P	Yes	
	MXD 690ATI	250.00	14	10	P/S	2		55	30	C	A	No				Yes	Yes	Yes	D/P	Yes	
	MXD 710ATI	270.00	14	10	P/S	2		55	30	C	A	No				Yes	Yes	Auto	D/P	Yes	
MXD 750 ATI	320.00	14	10	P/S	2		55	30	A	M	No				Yes	Yes	Yes	D/P	Yes		
MGA	LT-35X	179.95	8	1.0	P/S	2	14	60	60	12	A	M	No	40-13.5	B	55	Yes	No	Yes	I	Out
	LT-50X	229.95	8	1.0	P/S	2	14	60	60	12	A	M	No	40-14	B	60	Yes	Yes	Yes	I	Out
	LT-70X	279.95	13	1.0	P/S	2	14	60	60	12	A	M	No	40-15	B/C	70	Yes	Yes	Yes	I	Out
	LT-80X	339.95	13	1.0	P/S	2	14	60	60	12	C	A	No	40-15	B/C	70	Yes	Yes	Yes	I/D/P	Out
MGT	CST-220	129.95	25	10	S	1		60	60	0	A	M	No	60-10 ±3	No	50	Yes	No	Yes	I	No
	CST-330	199.95	7	5	P/S	2		60	60	12	C	M	No	60-10 ±3	No	60	Yes	No	Yes	I	Yes
	CST-440	259.95	25	5	P/S	2		70	60	12	C	M	No	60-10 ±3	D	60	Yes	Yes	Yes	I	Yes
	CST-550	329.95	25	5	P/S	2		70	60	12	A	M	No	60-10 ±3	O	60	Yes	Yes	Yes	I	No
MITSUBISHI	R-300	189.95	4	1.0	S	2	14	65	60	12	A	A	No	40-14		55	Yes	No	Yes	I	No
	R-301	239.95	4	1.0	P/S	2	14	65	60	12	A	A	No	40-16	B	62	Yes	Yes	Yes	I	Out
	R-302	289.95	13	1.0	P/S	2	14	65	60	12	A	A	No	40-16	B	62	Yes	Yes	Yes	I	Out
	R-503	349.95	13	1.0	P/S	2	14	65	60	18	C	M	No	40-16	B	62	Yes	Yes	Yes	D/J/P	Out
	R-504	399.95	13 x 2, 4 x 4	1.0	P/S	2	14	65	60	18	C	M	No	40-18	B/C	70	Yes	Yes	Yes	D/J/P	Out

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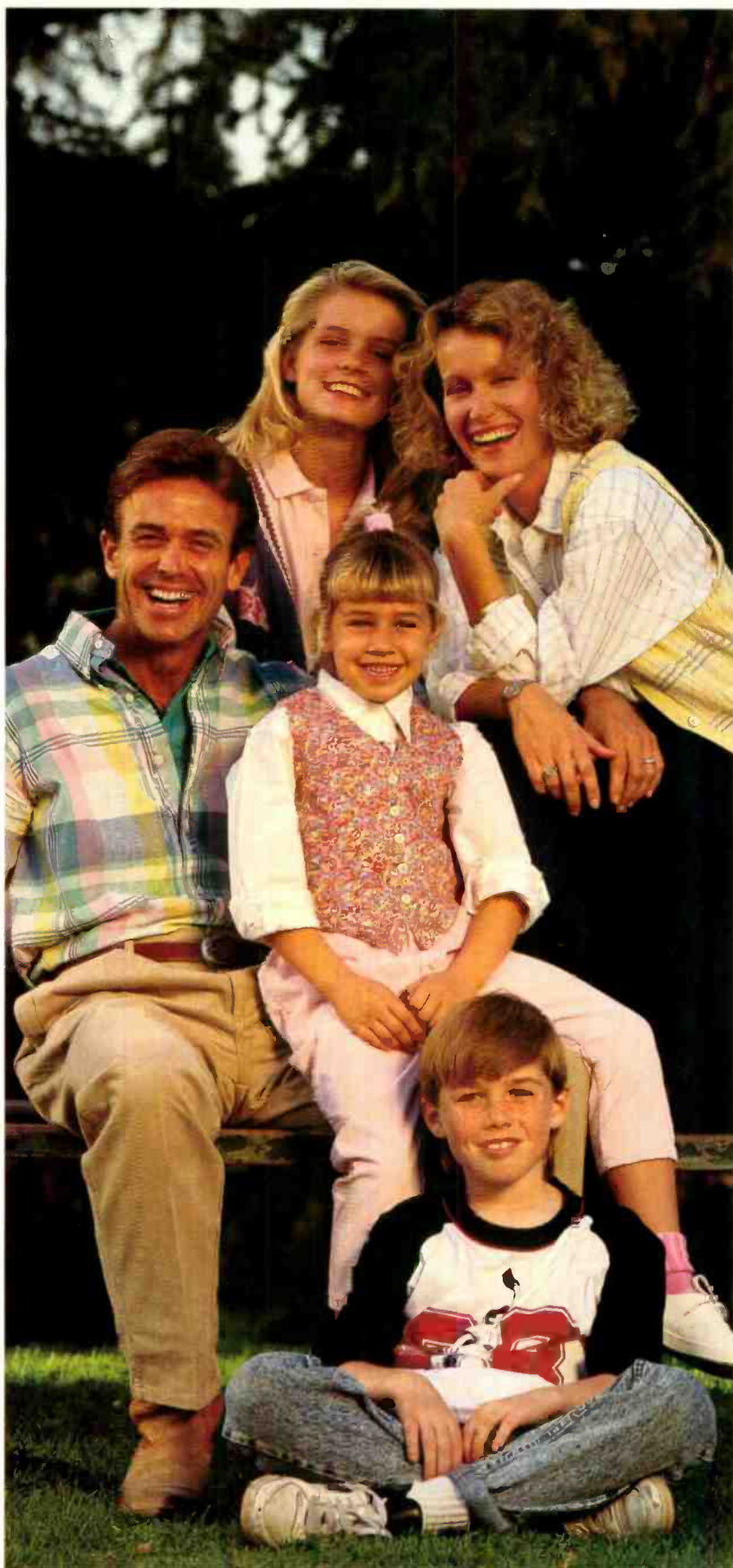
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# RADIOS/TAPE PLAYERS

MANUFACTURER	Model (R) = Remote Included (RO) = Remote Optional	Price \$	Average Watts Channel, per EIA-480	THD at Rated Output, % per EIA-480	AMPLIFIER					TUNER					TAPE						
					Output Level: Preamp (P), Speaker (S)	Number of Tone or EQ Controls	FM Sensitivity, dB (For 30-dB Quieting)	Alternate-Channel Selectivity, dB	FM Mono S/N Ratio, -dB	Total Number of Station Presets	Tuning: Seek (A), Scan (B), Both (C)	Local/Distance Control: Manual (M), Automatic (A)	AM Stereo Capable?	Frequency Response, Hz to kHz, ±dB	Noise-Reduction Circuit? See Code	Tape S/N Ratio, dB (With NR if Available)	Auto Reverse?	Program Search?	Tape EQ Switch?	In Dash (D), DIN in Dash (DI), Pushbutton (P), Secret (S), Herf Code (H)	RCA In/Out Jacks?
NAKAMICHI	RD-460	549.00	12 x 2, 4 x 4	0.5	P/S	2	17	65	60	18	A	M	No	30-18 ± 3	B/C	70	Yes	Yes	Yes	D/P	Yes
	RD-360	429.00	4 x 4	0.5	P/S	2	17	65	60	18	A	M	No	30-18 ± 3	B	64	Yes	Yes	Yes	D/P	Yes
	RD-260	329.00	4 x 4	0.5	P/S	2	17	65	60	12	A	A	No	30-17 ± 3	B	63	Yes	Yes	Yes	D/P	Yes
	TD-560	895.00			P	2	17	65	60	18	A	M	No	20-20 ± 3	B/C	70	Yes	Yes	Yes	D/P	Yes
	TD-1200H	1595.00			P	3	17	60	65	10	A	A	No	20-22 ± 3	B/C	70	No	No	Yes	D	Yes
	TD-700	995.00			P	3	17	65	65	12	B	M	No	20-21 ± 3	B/C	70	No	No	Yes	D	Yes
	TD-500	795.00			P	3	17	65	65	10	B	M	No	20-21 ± 3	B/C	70	No	No	Yes	D	Yes
TD-540	695.00			P	2	17	65	60	18	A	M	No	20-18 ± 3	B/C	70	Yes	Yes	Yes	D/P	Yes	
OPTIMUS	12-1938	259.95	15		S	2				30	C	M	No	50-15	B		Yes	Yes	Yes	I	
PANASONIC	CQ-L40	649.00	25	1.0	P	2	17.2@50 dB		60	24	A	A	No	30-18 ± 0.3	B/C	72	Yes	Yes	Auto	D	Yes
	CQ-L30	549.00	25	1.0	P	2	17.2@50 dB		60	24	A	A	No	30-17 ± 0.3	B	62	Yes	Yes	Auto	D	Yes
	CQ-A301	165.00	3	3.0	S		15.2@50 dB	75		15	C	A	No	35-12.5		52	Yes		No	I	Out
	CQ-A322	179.00	3	3.0	S		15.2@50 dB	75		15	C	A	No	35-12.5		52	Yes		No	I	Out
	CQ-A323	199.00	9	3.0	S		15.2@50 dB	75		15	C	A	No	35-16		52	Yes		Yes	I	Out
	CQ-A351	215.00	3	3.0	P/S		15.2@50 dB	75		15	C	A	No	35-17		52	Yes	Yes	Yes	I	Out
	CQ-A361	229.00	3	3.0	P/S		15.2@50 dB	75		15	C	A	No	35-17	B	62	Yes	Yes	Yes	I	Out
	CQ-A391	269.00	9	3.0	P/S		15.2@50 dB	75		15	C	A	No	35-17	B	62	Yes	Yes	Yes	I	Out
	CQ-H17	249.00	12	3.0	P/S		15.2@50 dB	75		18	C	A	No	30-17	B	62	Yes	No	Yes	D	Out
	CQ-G23	359.00	12 x 4	1.0	S		13.2@50 dB	75		24	C	A	No	30-17		52	Yes	No	Yes	D/P	
	CQ-G27	389.00	12 x 4	1.0	S		13.2@50 dB	75		24	C	A	No	30-17	B	62	Yes	Yes	Yes	D/P	
	CQ-H05	239.00	5	3.0	P/S		15.2@50 dB	75		24	C	A	No	30-17		52	Yes	No	Yes	D/P	Out
	CQ-H07	279.00	12	3.0	P/S		15.2@50 dB	75		24	C	A	No	30-17	B	62	Yes	No	Yes	D/P	Out
	CQ-506	99.00	2	3.0	S	1	19@50 dB	55				A	No	80-10 ± 3		50	Yes	No	No	I	No
PHILIPS	DC774R	749.95	20			2			50	16	C		Yes	40-20	B/C		Yes	Yes		D/P/S	
	DC888	499.95	20			2			50	20			Yes	40-14	B		Yes	Yes		O/P/S	
	DC699	399.95	25 x 4			5			30	30			Yes	40-16	D	58	Yes	Yes		D/P/S	
	DC681	549.95	20			2			50	25			Yes	40-14	B		Yes	Yes		D/P/S	
	DC789	279.95	20			2			50	20			No	40-14			Yes	No		D	
	DC599	379.95	30 x 4			2			50	20			No	40-14	B		Yes	No		O	
	DC668F	229.95	5 x 4			1			15	15	A		Yes	40-14			Yes	No		O	
	DC568	199.95	7			1			15	15	A		Yes	40-14			Yes	No		O	
	DC490	239.95	7 x 4			5			15	15			Yes	40-14	B		Yes	No		O	
	DC480	219.95	20			5							Yes		B		Yes	No		O	
	DC470	139.95	6			1							Yes				Yes	No		O	
	AC769	219.95	7 x 4			2				15			Yes	40-14			Yes	No		O	
	AC658	109.95				1							Yes				Yes	No		O	
	AC648	89.95				1							Yes				Yes	No		O	
PIONEER	KEH-M500QR	600.00	25 x 4		P/S	2	11	80	24	C	A	No	30-19 ± 3	B	66	Yes	Yes	Auto	D/P	Yes	
	KEH-8100QR	480.00	25 x 2, 15 x 4		P/S	2	11	70	24	C	A	No	30-19 ± 3	B	66	Yes	Yes	Auto	D/P	Yes	
	KEH-6100QR	370.00	25 x 2, 15 x 4		P/S	2	11	70	24	C	A	No	40-17 ± 3	B	66	Yes	Yes	Yes	D/P	Yes	
	KEH-5100QR	340.00	25 x 2, 15 x 4		P/S	2	11	70	24	C	A	No	50-17 ± 3	B	66	Yes	Yes	Yes	D/P	Yes	
	KE-3600QR	300.00	3.2		P/S	2	11	70	24	C	A	No	50-17 ± 3	B	63	Yes	Yes	Yes	D/P	Yes	
	KE-2600QR	270.00	3.2		P/S	2	11	70	24	C	A	No	50-14 ± 3		52	Yes	Yes	No	O/P	Yes	
	KE-1600QR	240.00	3.2		P/S	2	11	70	24	C	A	No	50-14 ± 3		52	Yes	Yes	No	O/P	Yes	
	KEH-6070TR	530.00	10		P/S	2	11	70	24	C	A	No	50-14 ± 3	B	60	Yes	Yes	No	D/P	Yes	
	KE-1550	220.00	3.2		P/S	2	11	70	24	C	A	No	50-14 ± 3		52	Yes	Yes	No	O	No	
	KEH-8686	350.00	10		P/S	2	12	70	24	C	A	No	50-17 ± 3	B	60	Yes	Yes	Yes	I	Yes	
	KEH-5656	330.00	10		P/S	2	11	70	24	C	A	No	50-17 ± 3	B	60	Yes	Yes	Yes	I	Yes	
	KEH-4646	280.00	10		P/S	2	17	70	18	C	A	No	50-17 ± 3	B	60	Yes	Yes	Yes	I	Yes	
	KE-5757	270.00	3.2		P/S	2	11	70	24	A	A	No	50-17 ± 3	B	63	Yes	Yes	Yes	I	Yes	
	KE-4747	230.00	3.2		P/S	2	11	70	24	A	A	No	50-14 ± 3		52	Yes	Yes	No	I	Yes	
	KE-3737	200.00	3.2		S	2	11	70	24	A	A	No	50-17 ± 3		52	Yes	No	No	I	No	
	KE-2424	200.00	3.2		S	1	15	70	15	A	A	No	50-14 ± 3		52	Yes	No	No	I	No	
	KE-1414	180.00	3.2		S	1	15	70	15	A	A	No	50-14 ± 3		52	Yes	No	No	I	No	
	KEH-9696TR	390.00	10		P/S	2	11	70	24	C	A	No	50-14 ± 3	B	60	Yes	Yes	Yes	I	Yes	
KEH-7676TR	350.00	10		P/S	2	11	70	24	C	A	No	50-14 ± 3		52	Yes	Yes	No	I	Yes		
KP-4440	165.00	8.5		S	1	20.8	50				A	No	50-14 ± 3		52	Yes	No	No	I	No	
KP-2220A	150.00	8.5		S	1	20.8	50				A	No	50-14 ± 3		52	Yes	No	No	I	No	





# They're outwardly mobile, love music and drive a Ford JBL Audio System.

They see life as more of an adventure than a routine. They're on the go more often than not, and wherever they go, something very important goes with them, their music. That's why they drive a Ford JBL Audio System. The product of a joint design effort by Ford and JBL that has produced one of the highest levels of sound quality in automotive sound systems. You can hear it for yourself at your Ford or Lincoln-Mercury dealer. And be prepared for a sound experience of a lifetime. The optional Ford JBL Audio System, the Sound of Quality in selected Ford, Mercury and Lincoln vehicles.



The Sound of Quality

# RADIOS/TAPE PLAYERS

MANUFACTURER	Model (RM) = Remote Included, (RO) = Remote Optional	Price, \$	Average Watts Channel, per EIA-490	THD at Rated Output, % per EIA-490	AMPLIFIER					TUNER					TAPE							
					P/S	2	11	70	24	C	A	No	30-22 ± 3	B/C	72	Yes	Yes	Auto	P	Yes		
																					Output Level, Preamp (P)	Number of Tone or EQ Controls (For 30-dB Quietings)
PREMIER	KEH-M7000GR	650.00	11 x 4		P/S	2	11	70	24	C	A	No	30-22 ± 3	B/C	72	Yes	Yes	Auto	P	Yes		
	KEH-M800 (w/Removable Control Panel)	600.00			P	3	11	70	24	C	A	No	25-22 ± 3	B/C	73	Yes	Yes	Auto	P	Yes		
	KEH-700QR	530.00	10 x 2, 15 x 4		P/S	2	11	70	24	C	A	No	30-22 ± 3	B/C	72	Yes	Yes	Auto	P	Yes		
	KEH-500QR	380.00	10 x 2, 15 x 4		P/S	2	11	70	24	C	A	No	40-20 ± 3	B	66	Yes	Yes	Yes	P	Yes		
	KEH-300QR	280.00	3.2		P/S	2	11	70	24	C	A	No	50-17 ± 3	B	63	Yes	Yes	Yes	P	Yes		
	KE-400	260.00	3.2		P/S	2	11	70	24	C	A	No	50-20 ± 3	B	63	Yes	Yes	Yes	P	Yes		
KE-200	210.00	3.2		P/S	2	11	70	24	C	A	No	50-14 ± 3	B	52	Yes	Yes	Yes	No	I	Yes		
PROFILE	DN-928 (w/Removable Control Panel)	299.00	25					60	30	A	M	No						Yes		Yes		
	DN-924 (w/Removable Control Panel)	199.00	4.5					60	30	A	M	No						Yes		Yes		
	DN-915	349.95	25	10			19.2	60	30	C		No	63-10	B	62	Yes	Yes	Yes	Yes	D/P	Yes	
	DN-910A	319.95	25	5			19.2	60	18	B		No	63-10	B	62	Yes	Yes	Yes	Yes	D/P	Yes	
	DN-900	259.95		5			19.2	60	24	C		No	63-10	No	52	Yes	Yes	Yes	Yes	D/P	Yes	
	DN-911	199.95		5			19.2	60	12	C		No	63-10	No	52	Yes	Yes	Yes	Yes	D/P	Yes	
	DN-912	249.95		10			19.2	60	18	B		No	63-10	No	52	Yes	Yes	Yes	Yes	D/P	Yes	
	CS-901A	169.95		5			19.2	60	12	C		No	63-10	No	52	Yes	Yes	Yes	Yes	D/P	Yes	
	CS-902A	199.95		5			19.2	60	12	C		No	63-10	No	52	Yes	Yes	Yes	Yes	D/P	Yes	
	CS-903	149.95		5			19.2	60	12	C		No	63-10	No	40	No	No	No	No			
	CS-891	69.95		5			25.2	60				No	63-8		46	No	No	No	No			
	CS-892	99.95		5			25.2	60				No	63-8		46	No	No	No	No			
CS-893	119.95		5			25.2	60				No	63-8		46	Yes							
PROTON	CV-460	329.00	9	0.8	P/S	2	20.8 (or 50 dB)	60	62	18	C	M	No	30-16 ± 3	B	70	Yes	Yes	Yes	P	Yes	
	CV-262	279.00	9	0.8	P/S	2	20.8 (or 50 dB)	60	62	18	C	M	No	30-16 ± 3	B	70	Yes	Yes	Yes	P	Yes	
	CV-260	249.00	9	0.8	P/S	2	20.8 (or 50 dB)	60	62	18	C	M	No	30-16 ± 3	60	Yes	Yes	Yes	P	Yes		
RADION	D-4500	349.95	25	0.2	P/S	2	16	70	60	24	C	A	No	30-17.5 ± 3	B	55	Yes	Yes	Auto	P	Yes	
	D-4400	295.95	25	0.2	P/S	3	16	70	60	24	C	A	No	30-17 ± 3		55	Yes	Yes	P	Yes		
	D-4200	259.95	25	0.2	P/S	3	16	70	60	24	C	A	No	30-16.5 ± 3		55	Yes	Yes	P	Yes		
	D-3200	289.95	25	0.2	P/S	5	16	70	60	18	C	A	No	33-16 ± 3	D	55	Yes	Yes	P	Yes		
	D-3000	229.95	25	0.2	P/S	2	16	70	60	18	C	A	No	35-16 ± 3		55	Yes	Yes	P	Yes		
	D-2500	195.95	7	0.2	P/S	1	16	70	60	18	C	A	No	35-15 ± 3		55	Yes	Yes	O	Yes		
	D-2000	159.95	7	0.2	S	1	16	68	58	18	A	A	No	42-15 ± 3		54	Yes	Yes	I	Yes		
	D-1500	109.95	7	0.2	S	1	16	68	57	0	M	A	No	35-14.5 ± 3		51	Yes	Yes	I	Yes		
	D-1100	69.95	7	0.2	S	1	16	68	57	0	A	A	No	35-13 ± 3		51		Yes	I	Yes		
	D-4000	149.95	7	0.2	P/S	1	16	68	57	0	M	A	No	33-14 ± 3		51		Yes	I	Yes		
REALISTIC	12-1936	249.95	14		S	2			12	12	A	A	No	50-15	B		Yes	Yes	Yes	I	Yes	
	12-1937	179.95	14		S	2			12	12	A	A	No	50-10			Yes	Yes	Yes	I	Yes	
	12-1935	280.00	15	0.003	P/S	2		65	68	18	C	C	No	20-20	B		Yes	Yes	Auto	D/P	Yes	
	12-1924	99.95	8		S	1					C	A	No				Yes	Yes	No	I		
	12-1928	89.95	8		S	1					C	A	No				Yes	Yes	No	I		
	12-1927	49.95	8		S	1					C	A	No				Yes	Yes	No	I		
	12-1922	69.95	24		S						C	A	No				Yes	Yes	No	I		
	12-1931	179.95	15							12		A	A	No				Yes	Yes	No	I	
	12-1912	159.95	12							12		A	A	No				Yes	Yes	No	I	
	12-1930	149.95	12			5				12		A	A	No				Yes	Yes	No	I	
	12-1933	139.95	12							12		A	A	No				Yes	Yes	No	I	
12-1926	129.95	12							12		A	A	No				Yes	Yes	No	I		
ROADMASTER	RS1200	90.00	5	1	S		13	65	50	0		M	No	30-18 ± 3	No	56	No	No	No	I	No	
	RS1500	100.00	7.5	1	S		13	65	50	0		M	No	30-18 ± 3	No	56	No	No	No	I	No	
	RS1600	125.00	7.5	1	S		13	65	50	0		M	No	30-18 ± 3	No	56	No	No	No	I	No	
	RS1800	150.00	7.5	1	S		13	65	50	0		M	No	20-18 ± 3	No	56	Yes	No	No	I	No	
	RS2100	225.00	7.5	1	S		13	65	50	0		M	No	20-20 ± 3	No	56	No	No	No	I	No	
	RS2520	275.00	7.5	1	S		13	65	50	0	18	C	A	No	20-20 ± 3	No	56	Yes	No	No	I	No
	RS3310	200.00	14 x 4	1	S		13	65	50	0		M	No	20-20 ± 3	No	56	Yes	No	No	I	No	
	RS2000S	150.00	25	1	S	5	13	65	50	0		M	No	30-18 ± 3	No	56	Yes	No	No	I	No	
	(w/Speakers)																					
	RS1630S	175.00	25	1	S	1	13		50			M	No	30-18 ± 3		56	No	No	No	I	No	
	(w/Speakers)																					
	RS2050S	175.00	25	1	S	1	13		50			M	No	30-18 ± 3		56	No	No	No	I	No	
	(w/Speakers)																					
	RS2300S	200.00	25	1	S	1	13		50			M	No	30-18 ± 3		56	Yes	No	No	I	No	
	(w/Speakers)																					
RS2100S	225.00	25	1	S	1	13		50	12		M	No	30-18 ± 3		56	No	No	No	I	No		
(w/Speakers)																						
RS3300S	250.00	25	0.5	S	5	13		55			M	No	20-20 ± 3		56	Yes	No	No	I	No		
(w/Speakers)																						
RS2500NS	275.00	25	0.5	S	1	13		55	12		M	No	20-20 ± 3		56	Yes	No	No	I	No		
(w/Speakers)																						



# Power by Nakamichi

There are times when the sound of your car's engine is all the music you need to hear. Even Nakamichi Mobile Sound System engineers have been known to occasionally enjoy *Concerto for Tuned Exhaust*. But if you're contemplating the installation or upgrade of a car audio system, you should know that these same engineers have but one goal in life: to make sure that the sounds of the world's finest engines remain Nakamichi's only competition.

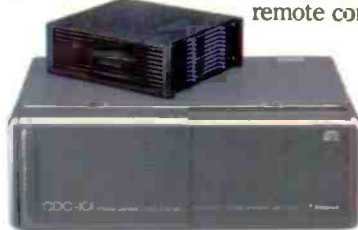


The new **CD-760 Mobile Tuner/Compact Disc Player**, for example, incorporates Nakamichi's superb glitch-free dual digital-to-analog (D/A) converters with a 4-times oversampling digital filter for uncannily smooth, natural CD reproduction. A dual-chassis design reduces noise interference and permits use of the highest quality discrete components throughout for compromise-free performance. The DIN-sized head unit has an anti-theft pull-out chassis.

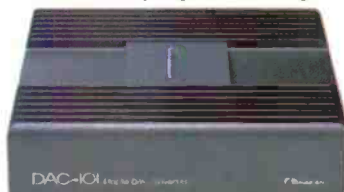


The **TD-560 Mobile Tuner/Cassette Deck** features Nakamichi's unrivaled 0.6 micron gap Crystalloy head with 2-way azimuth calibration and an ultra-precise auto-reverse transport to deliver 20-

20,000Hz response in both tape directions; Auto Dynamic Reception plus new multi-path suppression circuitry for exceptionally clean, noise-free FM; anti-theft pull-out chassis; *plus* a handheld wireless remote control.



With the **TD-560** in your dash, you can opt for the **CDC-101 Mobile Compact Disc Changer**, using the former to control the latter's large variety of disc and track access and programming features. The CDC-101 can be mounted almost anywhere, either vertically or horizontally, with an impressive multi-suspension system that assures virtually error-free CD tracking. It uses convenient 10-disc magazines, and its glitch-free 4-times oversampling dual D/A converters assure extraordinary reproduction quality.



And because the CDC-101 is the world's first mobile CD player with a direct digital output, you can connect it to another world's first: the **DAC-101 Mobile D/A Converter**. The DAC-101 employs four

D/A converter circuits in a unique "4 x 4" configuration that cancels out instabilities, glitches, and noise. This plus an 8-times oversampling digital filter result in a new standard of accuracy and definition in mobile sound. And auto-selection of 44.1kHz and 48kHz sampling frequencies make it ready for future digital-output-equipped car audio components, such as a DAT player.



Source components of this caliber deserve no less than the **PA-304 Mobile Power Amplifier**. It is lavishly constructed and endowed with state-of-the-art circuit design that uses no overall negative feedback whatsoever. It is a 4-, 3-, or 2-channel amplifier, depending on your needs. And its "over-designed" digital power supply and hand-picked discrete power output transistors result in sonic quality that will please the most critical ear.

As with the world's finest engines, words cannot adequately describe the actual behind-the-wheel Nakamichi experience. For that, you'll have to visit your nearest Nakamichi Mobile Sound System specialist for a demonstration.

**Nakamichi**  
 Nakamichi America Corporation  
 19701 South Vermont Avenue  
 Torrance, CA 90502 (800) 421-2313  
 In California: (800) 223-1521  
 Nakamichi Canada: (800) 663-6358

# RADIOS/TAPE PLAYERS

MANUFACTURER	Model (R) = Remote Included, (Rt) = Remote Optional	Price, \$	Average Watts Channel, per EIA-490	THD at Rated Output, % per EIA-490	AMPLIFIER				TUNER				TAPE								
					Output Levels, Preamp (P) Speaker (S)	Number of Taps or EQ Controls	FM Sensitivity, dB (For 30-dB Quieting)	Alternate Channel Selectivity, dB	FM Mono S/N Ratio, dB	Total Number of Station Presets	Tuning, Seek (A), Scan (B), Both (C)	Local/Quasi-Cont. Manual (M), Automatic (A)	AM Stereo Capable?	Frequency Response, Hz to kHz, ±dB	Noise-Reduction Circuit? See Code	Tape S/N Ratio, dB, A, New/Used (With Hi-Fi, If Applicable)	Auto Reverse?	Program Search?	Tape EQ Switch?	Hi-Deck (D), Dual in-Deck (DD), Dual in-Deck with Auto Reverse (DAR) (P)	RCA In/Out Jacks?
SANSUI	RX-5000	399.95	25		P	2			24	C		No	40-12	B		Yes	Yes	Yes	I/P	Yes	
	RX-4200	349.95	16		P	2		30	C		No	100-10	B		Yes	Yes	Yes	I/P	Yes		
	RX-2100	229.95	7		P	2	14.8	12	B	M	No	30-16			Yes	No	Yes	I/P	Yes		
	RX-1200	189.95	25		P	2	21.2	12	C	C	No	100-8			No	No	No	I	Yes		
	RX-3201	259.95	25		P	2	15.2	24	C	C	No	40-12.5	B		Yes	No	Yes	D	Yes		
	RX-2201	199.95	25		P	2	15.2	24	C	C	No	40-12.5			Yes	No	Yes	D	Yes		
	RX-1201	169.95	25		P	2	21.2	12	C	C	No	100-8			No	No	No	D	Yes		
	RX-400	329.95	25		P	2	17.2	24	C	C	No	63-10	B		Yes	Yes	Yes	I	Yes		
	RX-300	289.95	7		P	2	17.2	24	C	C	No	63-10	B		Yes	Yes	Yes	I	Yes		
	RX-200	229.95	12		P	2	17.2	24	C	C	No	63-10	B		Yes	No	Yes	I	Yes		
	RX-260	229.95	7		P	2	15.2	18	C	M	No	40-12.5	B		Yes	No	Yes	I	Yes		
	RX-222	219.95	7	0.1	P	2	15.2	12	B	M	No	40-15			Yes	No	Yes	I	Yes		
	RX-160	219.95	8		P	2	21.2	18	C	B	No	100-8			Yes	No	No	I	Yes		
	RX-50	119.95	5		P	2	17.2	18	B	B	No	40-12.5			Yes	No	Yes	I	Yes		
	RE-61	739.95	25	0.05	P/S	7	16.2	50	18	B	B	No	30-18 ±3	B	67	Yes	Yes	No	I	Yes	
SANYO	ER-100	119.99	3	0.10	S	1	17.0	45	50	24	A	M	No	63-12 ±3	50	No	No	No	I	No	
	ER-110	139.99	3	0.05	S	1	17.0	45	50	24	A	M	No	63-12 ±3	50	No	No	No	I	No	
	ER-200	159.99	3	0.05	S	1	17.0	45	50	24	A	M	No	50-14 ±3	50	Yes	No	No	I	No	
	ER-300	169.99	3	0.05	P/S	2	17.0	45	50	24	A	M	No	50-14 ±3	50	Yes	No	No	I	Yes	
	ER-500	219.99	3	0.05	P/S	2	14.0	55	50	24	A	M	No	50-14 ±3	60	Yes	No	Yes	I	Yes	
	ER-520	239.99	6	0.01	P/S	2	14.0	55	50	24	A	M	No	50-14 ±3	60	Yes	No	Yes	I	Yes	
	ER-550	259.99	9.5	0.01	P/S	2	14.0	55	50	24	A	M	No	50-14 ±3	65	Yes	No	Yes	I	Yes	
	ERD-800	279.99	3	0.05	P/S	2	14.0	55	50	24	A	M	No	50-14 ±3	65	Yes	No	Yes	D	Yes	
	ERD-840	319.99	9.5	0.01	P/S	2	14.0	55	50	24	A	M	No	40-18 ±3	65	Yes	No	Yes	D	Yes	
	ERF-900	379.99	9.5	0.01	P/S	2	10	10	55	50	18	C	M	No	40-18 ±3	65	Yes	Yes	Yes	D/P	Yes
SENTREK	SCR 096	65.00	4	0.02	S	1	23.3	60	60			M	No	50-12	45	No	No	No	I	No	
	SCR 110	75.00	4	0.02	S	1	23.3	60	60			M	No	50-12	45	Yes	No	No	I	No	
	SCR 146	105.00	4	0.02	S	1	23.3	60	60			M	No	50-14	45	No	No	No	I	No	
	SCR 165	140.00	4	0.02	P/S	2	23.3	60	60			M	No	40-16	45	Yes	Yes	Yes	I	Out	
	SCR 562	150.00	4	0.02	S	1	23.3	60	60	12	C	M	No	40-14	45	No	No	No	I	No	
	SCR 720	175.00	4	0.02	S	1	23.3	60	60	12	C	M	No	40-16	45	Yes	No	No	I	No	
	SCR 766	190.00	4	0.02	P/S	2	23.3	60	60	12	C	M	No	40-16	45	Yes	No	Yes	I	Dut	
	SCR 785	199.00	4	0.02	P/S	2	23.3	60	60	10	C	M	No	40-15	45	Yes	No	Yes	I	Dut	
	SCR 990	250.00	12	0.02	P/S	2	23.3	60	60	24	C	M	No	30-16	54	Yes	Yes	Yes	I	Dut	
	SCR 1075	150.00	4	0.02	S	1	23.3	60	60	12	C	M	No	40-14	45	No	No	Yes	D	No	
	SCR 1700	200.00	4	0.02	S	1	23.3	60	60	18	C	A	No	40-15	45	No	No	Yes	P	No	
	SCR 1901	260.00	12	0.02	P/S	2	23.3	60	60	18	C	A	No	40-16	45	Yes	No	Yes	P	Dut	
	SCR 1925	275.00	12	0.02	P/S	2	23.3	60	60	18	C	A	No	40-16	45	Yes	No	Yes	P	Dut	
	SCR 1980	290.00	12	0.02	P/S	2	23.3	60	60	18	C	A	No	40-16	54	Yes	Yes	Yes	P	Dut	
	SHARP	RG-8930	199.95	3.5	3.0	S	1	14.9	70	46	18	C	M	No	50-10 ±3	50	Yes	No	No	I	No
RG-8940		219.95	3.5	3.0	S	2	14.9	70	46	18	C	M	No	50-10 ±3	50	Yes	No	No	I	No	
RG-8950		249.95	11	1.0	P/S	2	14.9	70	46	18	C	M	No	50-10 ±3	60	Yes	No	No	I	Yes	
RG-8960		279.95	11	1.0	P/S	2	14.9	70	46	18	C	M	No	50-10 ±3	60	Yes	Yes	Yes	I	Yes	
RG-F830		399.95	11	1.0	P/S	2	14.9	70	46	18	C	M	No	50-14 ±3	60	Yes	No	Yes	P	Yes	
RG-F840		429.95	11 x 4	1.0	P/S	4	14.9	70	46	18	C	M	No	50-14 ±3	60	Yes	Yes	Yes	P	Yes	
SHERWOOD	GR4124P	299.95	14	0.5	P/S	2	80	80	30	C	A	No	30-18 ±3	B	63	Yes	Yes	Yes	D/P	Yes	
	GR4114	259.95	14	0.5	P/S	2	80	80	30	C	A	No	30-18 ±3	B	63	Yes	Yes	Yes	D	Yes	
	GR4417	259.95	14	0.5	P/S	2	80	80	30	C	A	No	30-18 ±3	B	63	Yes	Yes	Yes	I	Yes	
	GR3127	209.95	4	0.5	P/S	2	78	78	30	C	A	No	35-16 ±3	B	63	Yes	No	Yes	I	Yes	
	GR3117	179.95	4	0.5	P/S	2	78	78	30	C	A	No	30-16 ±3	D	53	No	Yes	Yes	I	Out	
	GR2117	129.95	4	0.5	S	2	75	75	18	C	A	No	35-16 ±3	D	53	No	No	Yes	I	No	
	XR2204P	219.95	6		S	2	20.7	65	60	30	C	A	No	50-12	55	No	No	Yes	D/P		
	XR2207	139.95	6		S	2	20.7	65	60	18	C	A	No	50-12	55	No	No	Yes	I		
	XR2304	249.95	20 x 2, 6 x 4		P/S	2	20.7	65	66	30	C	M	No	50-12	55	Yes		Yes	D	Out	
	XR2307	199.95	6		P/S	2	20.7	65	66	30	C	A	No	50-12	55	Yes		Yes	I	Dut	
	XR2507	279.95	20 x 2, 6 x 4		P/S	2	20.7	65	66	30	C	A	No	30-14	B	62	Yes	Yes	Yes	I	Dut
	XR2704	389.95	20 x 2, 6 x 4		P/S	2	20.7	65	66	30	C	A	No	30-17	B/C	71	Yes	Yes	Yes	D	Yes
	XR1304	269.95	20		P/S	2	20.7	60	62	18	C	M	No	50-12		51	Yes		Yes	D/P	Dut
XR1504	319.95	20 x 2, 6 x 4		P/S	2	20.7	60	62	18	C	M	No	30-17	B	63	Yes	Yes	Yes	D/P	Yes	
XR1604	409.95	20 x 2, 6 x 4		P/S	2	20.7	60	62	18	C	M	No	30-17	B/C	72	Yes	Yes	Auto	D/P	Yes	
SDNY	XR-6087	179.95	4 x 4	1.0	S	2	16.3	75	67	18	A	M	No	40-14		57	Yes	No	Yes	I	No
	XR-6180	259.95	4 x 4	1.0	P/S	2	16.3	75	67	18	A	M	No	40-14	B	66	Yes	Yes	Yes	I	Yes
	XR-6380	339.95	13 x 4	1.0	P/S	2	16.3	75	67	18	A	M	No	40-14	B	66	Yes	Yes	Yes	I	Yes
	XR-6500	419.95	13 x 2, 8 x 4	0.8	P/S	2	15.0	75	68	24	A	M	No	30-20	B/C	76	Yes	Yes	Yes	I	Yes
	XR-4147	229.95	13 x 2, 8 x 4	1.0	S	2	16.3	75	67	18	A	M	No	40-14		53	Yes	No	No	D/J	No
	XR-4157	259.95	13 x 2, 8 x 4	1.0	S	2	16.3	75	67	18	A	M	No	40-14		53	Yes	No	No	P	No
	XR-5500	329.95	13 x 2, 8 x 4	0.8	P/S	2	16.3	75	67	24	A	M	No	40-16	B	66	Yes	Yes	Yes	P	Yes
	XR-7087	379.95	13 x 4	0.8	P/S	2	16.3	75	67	18	A	M	No	40-16	B	66	Yes	Yes	Yes	D/J	Yes
XR-7180	439.95	13 x 2, 8 x 4	0.8	P/S	2	15.0	75	68	24	A	M	No	30-18	B/C	76	Yes	Yes	Yes	D/J/P	Yes	



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- 44.1 KHZ
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SEP-64X



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For More Information



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See the Krell Industries advertisement in this issue.



# RADIOS/TAPE PLAYERS

MANUFACTURER	Model (R) = Remote Included, (RD) = Remote Optional	Price, \$	Average Watts Channel, per EIA-490	THD at Rated Output, % per EIA-490	AMPLIFIER										TUNER					TAPE				
					Output Levels: Preamp (P), Speaker (S)	Number of Taps or EQ Controls	FM Sensitivity, dB (For 30-dB Quieting)	Alternate-Channel Selectivity, dB	FM Mono S/N Ratio, dB	Total Number of Station Presets	Tuning: Seek (A), Scan (B), Both (C)	Least-Distant Control: Manual (M), Automatic (A)	AM Stereo Capable?	Frequency Response, Hz to kHz, $\pm$ dB	Noise-Reduction Circuit? See Code	Type S.W. Ratio, dB A-Weighting	Auto Reverse?	Program Search?	Tape EQ Switch?	In-Dash (I), DIN In-Dash (D), ISO J4, Full-Depth (F), Serial Tech Code (S)	RCA In-Dash Jacks?			
SONY (Continued)	XR-7070 CD Controller	429.95	13 x 4	0.8	P/S	2	16.3	75	67	24	A	M	No	40-16	B	66	Yes	Yes	Yes	D/J/P	Yes			
	XR-7280 CD Controller	549.95	13 x 2, 8 x 4	0.8	P/S	2	15.0	75	68	24	A	M	No	30-18	B/C	76	Yes	Yes	Yes	D/J/P	Yes			
	XR-7400 CD Controller	549.95			P	2	15.0	75	68	24	A	M	No	30-20	B/C	76	Yes	Yes	Yes	D/J/P	Yes			
	XR-7500 CD Controller	649.95			P	2	15.0	75	68	24	A	M	No	20-20	B/C	76	Yes	Yes	Yes	D/J/P	Yes			
	XR-7500 CD Controller	649.95			P	2	15.0	75	68	24	A	M	No	20-20	B/C	76	Yes	Yes	Yes	D/J/P	Yes			
SOUNDSTREAM	TCA-20	269.00	4.5 x 4	0.8	P/S	2	16.0@50 dB	72	72	10	A	M	No	20-20		58	Yes	Yes	Yes	I	Yes			
	TCA-40	319.00	4.5 x 4	0.8	P/S	2	16.0@50 dB	72	72	10	A	M	No	20-20	B	64	Yes	Yes	Yes	I	Yes			
	TC-303	399.00	4.5 x 4	0.8	P/S	2	16.0@50 dB	72	72	12	B	A	No	20-20	B/C	71	Yes	Yes	Yes	D/P	Yes			
	TC-306	499.00			P	3	15.0@50 dB	75	70	12	B	A	No	20-20	B/C	68	Yes	Yes	Yes	D/P	Yes			
SPARKOMATIC	SR345	129.99	5	1	S	1	9	65	60	18	A	A	No	60-20 $\pm$ 3		65	No	No	No	I				
	SR338	109.99	5	1	S	1	9	50	60	10	C	A	No	70-12 $\pm$ 3		55	No	No	I					
	SR37	69.99	5	1	S	3	18	45	60		A	M	No	75-10 $\pm$ 3		35	No	No	I					
	SR35	54.99	5	1	S	1	20	40	50		A	M	No	100-9 $\pm$ 3		35	No	No	I					
	SR38	99.99	5	1	S	1	9	45	60		M	M	No	50-12 $\pm$ 3		65	No	No	D					
	SR37	199.99	20	1	S	5	9	65	60	10	C	C	No	20-20 $\pm$ 3	No	65	No	No	D					
	SR360	189.99	5	1	S	2	9	65	60	15	C	C	No	60-20 $\pm$ 3	D	65	Yes	No	I					
	SR350	154.99	5	1	S	1	9	65	60	15	C	C	No	60-20 $\pm$ 3		65	Yes	No	I					
	SR39	74.99	4	1	S	1	20.8	57	67		A	M	No	75-10 $\pm$ 3		55	Yes	No	I	Yes				
	SR39	74.99	4	1	S	1	20.8	57	67		A	M	No	75-10 $\pm$ 3		55	Yes	No	I					
	SR333	129.99	5	1	S	3	11.2	62	62	18	C	A	No	70-12 $\pm$ 3		55	No	No	I					
	TARGA	Q-850	549.95	7 x 2, 25 x 2	0.2	P/S	2	14	70	60	24	C	A	No	20-18 $\pm$ 3	B/C	60	Yes	Yes	Yes	P	Yes		
Q-830		449.95	7 x 2, 25 x 2	0.2	P/S	2	14	70	60	24	C	A	No	25-17 $\pm$ 3	B/C	55	Yes	Yes	Yes	P	Yes			
Q-820		399.95	7 x 2, 25 x 2	0.2	P/S	2	14	70	60	24	C	A	No	30-17 $\pm$ 3		55	Yes		Yes	P	Yes			
Q-750		534.95	7 x 2, 25 x 2	0.2	P/S	2	14	70	60	24	C	A	No	20-18 $\pm$ 3	B/C	55	Yes	Yes	Yes	D	Yes			
Q-730		411.95	7 x 2, 25 x 2	0.2	P/S	2	14	70	60	24	C	A	No	25-17 $\pm$ 3	B/C	55	Yes	Yes	Yes	D	Yes			
Q-720		374.95	7 x 2, 25 x 2	0.2	P/S	2	14	70	60	24	C	A	No	30-17 $\pm$ 3		55	Yes		Yes	D	Yes			
Q-690		359.95	25	0.2	P/S	2	14	70	60	24	C	A	No	25-17 $\pm$ 3	B	55	Yes	Yes	Yes	I	Yes			
Q-660		289.95	7	0.2	P/S	2	14	70	60	24	C	A	No	30-16.5 $\pm$ 3		55	Yes	Yes	Yes	I	Yes			
P-850		474.95	25	0.2	P/S	2	16	80	60	12	C	A	No	40-16 $\pm$ 3	B	55	Yes		Yes	P	Yes			
P-750		474.95	25	0.2	P/S	2	16	80	60	24	C	A	No	40-16 $\pm$ 3	B	55	Yes	Yes	Yes	P	Yes			
P-650		399.95	25	0.2	P/S	2	16	80	60	24	C	A	No	40-16 $\pm$ 3		55	Yes		Yes	P	Yes			
R-500A		319.95	7	0.2	P/S	2	15	70	59	12	A	M	No	30-16		54	Yes	Yes	Yes	P	Yes			
R-470		7	7	0.2	S	1	16	68	57	0	A	M	No	45-11 $\pm$ 3		50			Yes	P	Yes			
R-290A		7	7	0.2	P/S	1	15	70	59	18	A	A	No	30-16 $\pm$ 3		54	Yes		Yes	P	Yes			
R-190A		7	7	0.2	S	1	16	70	58	18	A	A	No	40-12.5 $\pm$ 3		50			Yes	I	Yes			
R-150	7	7	0.2	S	1	16	68	57	0	A	M	No	50-11 $\pm$ 3		51	Yes		Yes	I	Yes				
R-110	7	7	0.2	S	1	16	68	57	0	A	A	No	50-10 $\pm$ 3		50			Yes	I	Yes				
TECHNICS	CQ-ID90	799.00	25		P	2	12@50 dB	75		36	A	A	No	30-17 $\pm$ 0.3	B/C	62	Yes	Yes	Yes	D	Yes			
	CQ-R9300	359.00	8 x 4, 25 x 2	0.8	P	2	15.2@50 dB	75	70	18	C	M/A		30-17 $\pm$ 3	B	62	Yes	Yes	Auto	D	No			
	CQ-R9550	649.00	25	0.8	P	2	15.2@50 dB	75	70	24	C	M/A			B	62	Yes	Yes	Auto	D	No			
TOSHIBA	TX590(RI)	799.95	25 x 4 Ext.		P/S	7	16	65	68	24	C	A	No		B/C	76	Yes	Yes	Yes	P	Yes			
	TX560(RI)	729.95	25 x 4		P/S	7	16	65	68	24	C	A	No		B/C	76	Yes	Yes	Yes	P	Yes			
	TX550	539.95	25 x 4		P/S	2	16	65	68	24	C	A	No		B/C	76	Yes	Yes	Yes	P	Yes			
	TX440	479.95	25 x 4		P/S	2	16	65	68	24	C	A	No		B/C	76	Yes	Yes	Yes	P	Yes			
	TX520	379.95	25		P/S	2	17	65	67	24	C	A	No		B	66	Yes	Yes	Yes	P	Yes			
	TX410	259.95	25		P/S	2	17	65	67	24	C	A	No		B	66	Yes	No	Yes	O	Yes			
	TX320	289.95	25		P/S	2	17	65	67	24	C	A	No		B	66	Yes	Yes	Yes	I	Yes			
	TX310	259.95	25		P/S	2	17	65	67	24	C	A	No		B	66	Yes	No	Yes	I	Yes			
	TX510	289.95	25		P/S	2	18	58	65	18	C	M	No		B	66	Yes	No	Yes	P	Yes			
	TX500	249.95	25		P/S	2	18	58	65	18	A	M	No		B	56	Yes	No	Yes	P	Yes			
	TX400	199.95	25		P/S	2	18	58	65	18	A	M	No		B	56	Yes	No	Yes	D	Yes			
	TX300	169.95	25		P/S	2	18	58	65	18	C	M	No		B	56	Yes	No	Yes	I	Yes			
VECTOR RESEARCH	VM-120P	249.95	20	1	P/S	2	16.2	65	65	24	A	M	No	30-16.5 $\pm$ 3		54	Yes	No	Yes	D/P	Out			
	VM-220P	329.95	20	1	P/S	2	15.5	70	70	24	A	A	No	30-17.5 $\pm$ 3	B	62	Yes	Yes	Auto	D/P	Out			
	VM-210	249.95	20	1	P/S	2	15.5	70	70	24	C	M	No	30-17.5 $\pm$ 3	B	62	Yes	Yes	Yes	I	Out			
YAMAHA	YCT-925	599.00		0.003	P	3	15	75	70	24	C	M	No	30-15	B/C	76	Yes	No	Auto	D/P	Out			
	YCR-705	499.00	20 x 4		P/S	3	15	75	70	24	C	M	No	30-15	B/C	76	Yes	No	Yes	D/P	Out			
	YCR-340	269.00	20		P/S	2	15	75	70	15	C	M	No	30-15	B	64	Yes	No	Yes	I	Out			
	YCR-240	229.00	7.5		P/S	2	15	75	70	15	C	M	No	30-15		57	Yes	No	Yes	I	Out			
	YCR-420	359.00	20 x 4	8	P/S	3	16.3	75	70	6	C	A	No	40-16 $\pm$ 3	B	67	Yes	Yes	Yes	Out	Out			
	YCR-305	359.00	20 x 4	8	P/S	2	16.3	75	70	24	C	A	No	40-16 $\pm$ 3	B	67	Yes	Yes	Yes	D/P	Out			
	YCR-405	399.00	8 x 4	8	P/S	2	16.3	75	70	24	C	A	No	40-16 $\pm$ 3	B	67	Yes	Yes	Yes	D/P	Out			
	YCR-505	449.00	20 x 4	8	P/S	3	16.3	75	70	24	C	A	No	40-16 $\pm$ 3	B	67	Yes	Yes	Yes	D/P	Out			
	YCT-605	399.00			P	3	16.3	75	70	24	C	M	No	40-16 $\pm$ 3	B	67	Yes	Yes	Yes	D/P	Yes			

*"For once, an add-on subwoofer actually delivers true subwoofer bass with high quality and high quantity at the same time."*

Larry Greenhill  
*Stereophile, Vol. 12. No. 10. Oct. 1989*

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*"Other subwoofers had not moved much air and certainly hadn't coupled with the room. ... Not so with the Velodyne—I was there!"*

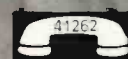
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# SPEAKERS

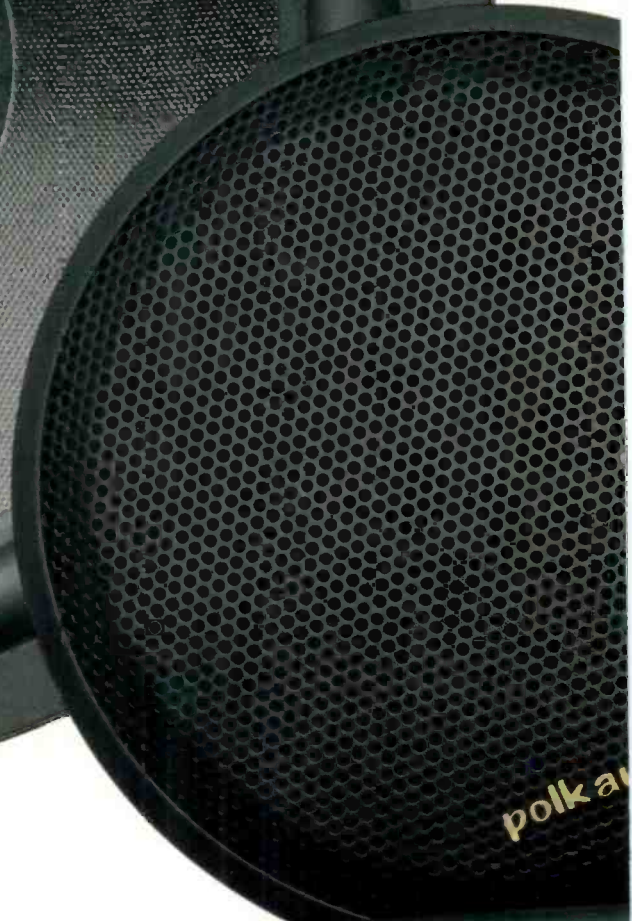
MANUFACTURER	Model	Price, \$ (If Sold Individually)	Price, \$ (If Sold in Pairs)	Recommended Maximum Power, Watts				Sensitivity, dB SPL (1 Watt/1 Meter)	Impedance, Ohms	Frequency Response, Hz to kHz, ±dB	DRIVERS										Notes
				1	2	4	8				Subwoofer Only (S), Woofer Only (W), Midrange Only (M), Tweeter Only (T)	Woofer Size, Inches	Whizzer (W), 2-Way (2), 3-Way (3), 4-Way (4)	Applied Tweeters = A, Pointable Tweeters = P	Separately Mounted Drivers?	Flush Mount (F), Surface Mount (S), Convertible (C), Pole (P)	Maximum Required Mounting Depth, Inches	Weatherproofed?			
A/D/S/	300i/s		360.00	100	92	4	50-20 ±3		5 1/4	2				F, P	1 1/2	Yes	Tweeter level control.				
	320i/s		570.00	100	91	4	50-20 ±3		5 1/4	2	P	Yes	F	1 1/2	Yes	As above.					
	400i/s			100	91	4	42-20 ±3		6 1/2	2			F	3 1/2	Yes	As above.					
	200i		260.00	80	88	4	120-20 ±3		4	2		No	F	1 1/2	Yes	Includes separate crossover with tweeter level control; fits 4 x 6-inch holes.					
	L200cc	110.00	330.00	60	88	4	85-20 ±3		4	2		No	S		Yes	Cabinet enclosure.					
	L300cc		430.00	80	90	4	68-20 ±3	S	5 1/4	2		No	S		Yes	As above.					
	S7			100	91	4	30-85 Hz		7 1/4					2 3/4	Yes						
	S6.2i		170.00	100	92	4	30-85 Hz	S	(2)6 1/2				F, P	2 7/8	Yes						
S10	220.00	150	90	4	20-85 Hz	S	10				F, S	3 1/8	Yes								
SB7	360.00	200	90	4	30-85 Hz	S	(2)7 1/2				S		Yes	As above.							
SB10	470.00	400	90	4	20-85 Hz	S	(2)10				S		Yes	As above.							
AIWA	SC-X6500		120.00	60	89	4	50-22		6 1/2	2		No	F	2 1/4	Yes						
	SC-X6900		150.00	100	91	4	45-21		6 x 9	2		No	F	2 7/8	Yes						
	SC-X5250		110.00	45	90	4	65-21		5 1/4	2		No	F	1 7/8	Yes						
	SC-X4600		100.00	40	90	4	65-20		4 x 6	2		No	F	1 7/8	No						
	SC-X4000		80.00	40	90	4	65-20		4			No	F	1 1/2	No						
	SC-X3500		60.00	30	89	4	75-20		3 1/2			No	F	4 3/8	No						
AKUPULSE	AA-6T		289.99	65	92	4	50-3	S	6 1/2					6	No	For pickup trucks.					
	AA-8		288.90	100	91.5	4	45-3	S	8					11	No	Bass reflex enclosure.					
	AA-10		399.78	100	92	4	40-2	S	10					13	No	As above.					
	AA-10C		419.00	200	93	2	38-2	S	10					13	No	Competition version of model above.					
	AA-12		269.90	75	90	4	50-2	S	12					15	No	Dual voice-coils.					
	AA-12D		470.00	120	92.5	4	38-2	S	12					15	No	Bass reflex enclosure; for large cars, vans, and off-road vehicles.					
	AA-12DC		530.79	220	92	2	30-2	S	12					17	No	Competition version of model above.					
	AA-10FS		499.78	200	93.4	4	38-22		10	3		No		14	No	Bass reflex enclosure; dual voice-coil woofers.					
AA-8FS		348.78	100	92.7	4	45-22		8	2		No		12	No	Bass reflex enclosure.						
ALPHASONIK	ITX-1	32.00		60	100	4	4k-22k ±3	T			A		P		No	Dual tweeters; includes crossover.					
	IMX-5	35.00		60	97	4	800-6 ±3	M					F	1 3/4	No	Sealed-back midrange; includes crossover.					
	XL-8	150.00		175	92	4	35-2 ±3	S	8				F	4 3/8	No						
	XL-10	225.00		250	92	4	25-1.7 ±3	S	10				F	5	No						
XL-12	300.00		350	92	4	20-1.5 ±3	S	12				F	5 1/2	No							
ALPINE	6560		400.00	150	87	4	50-22		5 1/4	2	Na	Yes	†	2 1/4	No	†Flush mount woofer, convertible tweeter.					
	6022	150.00 350.00 150.00 400.00 190.00	170.00	450	91	8	1k-30k	T			No		F	1 1/2	No						
	6011		180.00	150	88	4	2k-22k	T			No		F	5/8	No						
	6041		130.00	180	87	4	100-17	M					F	1 7/8	No						
	6051		130.00	180	87	4	75-15	M					F	2 1/8	No						
	6062		270.00	300	86	4	50-5	W	6 1/2				F	2 1/2	Yes						
	6061		180.00	180	87	4	50-8	W	6 1/2				F	2 7/8	No						
	6482		250.00	150	89	4	40-20		8	2			S		Yes	Box enclosure; for trucks.					
	6180		220.00	200	89	4	30-6	S	8				S		4 3/8	No					
	6013			300	89	4	22-1.2	S	10				S		4 3/8	No					
	6012			800	95	4	40-800 Hz	S	12				S		5 1/4	No					
	6002			600	92	6	40-2	S	12				S		6 1/2	No					
	6015			800	96	4	35-300 Hz	S	15				S		6	No					
	6005			600	97	6	40-1.5	S	15				S		6 1/2	No					
	6256		110.00	90	89	4	50-22		5 1/4	2			No		2 1/8	No					
	6258		80.00	60	90	4	50-21		5 1/4	2			No		1 1/2	Yes					
	6248		90.00	60	90	4	60-21		4	2			No		1 3/4	Yes					
	6210		140.00	90	90	4	50-22		4 x 10	2			No		2 5/8	No					
	6204		90.00	60	90	4	75-22		4 x 6	2			No		1 3/4	No					
	6660		200.00	150	89	4	47-22		6 1/2	2			No		2 7/8	No					
	6366		180.00	120	89	4	50-21		6 1/2	3			No		2 5/8	No					
	6368		160.00	90	87	4	50-20		6 1/2	3			No		2	Yes					
	6203		90.00	60	90	4	60-20		6 1/2	2			No		2	No					
	6960		230.00	150	89	4	44-22		6 x 9	2			No		3 1/4	No					
	6396		240.00	150	93	4	45-21		6 x 9	3			No		3 1/2	No					
	6398		160.00	90	94	4	45-21		6 x 9	3			No		3 1/2	Yes					
	6205		130.00	90	92	4	45-21		6 x 9	2			No		3 1/2	No					
	6010		100.00	120	91	4		T							S	No					
	6056		230.00	120	89	4			5 1/4	2			Yes		†	2	No	†Flush-mount woofer, surface-mount tweeter.			
	6137		42.00						3 1/2	W					F						
6147	55.00							4	W					F							
6267	70.00						6 1/2	2			No		F								
6297	100.00						6 x 9	2			No		F								
ALTEC LANSING	ALS6.9		180.00	80	93	4	35-21 ±3		6 x 9	3			C, P	3 3/4	Yes						
	ALS5		100.00	60	91	4	60-20 ±3		5	2			C, P	1 7/8	Yes						
	ALS4		70.00	40	90	4	80-20 ±3		4	2			C, P	1 7/8	Yes						
	ALS693		300.00	120	93	4	50-22 ±3		6 x 9	3		No	C	3 1/2	Yes	Biamp capable.					
	ALS692		200.00	120	93	4	50-22 ±3		6 x 9	2		No	C	3 1/2	Yes	As above.					
	ALS62		200.00	100	91	4	60-22 ±3		6 1/2	2		No	C	3	Yes	As above.					
	ALS40		120.00	50	90	4	100-20 ±3		4	W			C		Yes						
ALS525		300.00	100	89	4	60-22 ±3		5 1/4	2		Yes	C	2 1/8	Yes	As above.						







**MM 1025**  
10 inch subwoofer



**MM 6503**  
6 1/2 inch 3-way  
2-piece system



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**CAR STEREO REVIEW**

November/December 1989



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# SPEAKERS

MANUFACTURER	Model	Price \$ (If Sold Individually)	Price \$ (If Sold in Pairs)	Recommended Maximum Power, Watts	Sensitivity, dB SPL (1 Watt / 1 Meter)	Impedance, Ohms	Frequency Response, Hz to kHz, ±dB	DRIVERS										Notes	
								Supwoofer Only (S), Woofer Only (W), Midrange Only (M), Tweeter Only (T)	Woofer Size, Inches	Woofer (W) 2-Way (2), 3-Way (3), 4-Way (4)	Angled Tweeters = A, Pivotal Tweeters = P	Separately Mounted Drivers?	Flush Mount (F), Stray Mount (S), Conceivable (C), Pile (P)	Maximum Required Mounting Depth, Inches	Weatherproof?				
BRAVO SPEAKERS (Continued)	BS-826-1.5	70.00	80	88	4/8	40-3	W	8									Yes	As above.	
	BS-826D-1.5	75.00	80	88	4/8	40-3	W	8									Yes	As above; dual voice-coils.	
	BS-826-2	80.00	80	88	4/8	40-3	W	8									Yes	Enclosure as above.	
	BS-6920-1.5	67.00	75	88	4/8	43-3.5	W	6 x 9									Yes	As above.	
	BS-6926-1.5	72.00	75	89	4/8	43-3.5	W	6 x 9									Yes	As above.	
	BS-620-1.5	57.00	75	87	4/8	50-3.5	M										Yes	As above but 0.15 to 0.5 cubic foot.	
	BS-5.10	34.00	50	87	4/8	75-6	M										Yes	Requires box enclosure.	
	BS-510	20.00	50	87	4/8	75-6	M										Yes	As above.	
	JP-1210		369.00	150	93	4	33-2	S	12									No	Box enclosure.
	BJ-150		285.00	80	92	4	54-24		6 1/2		2							No	As above.
	BJ-5100		269.00	80	90	4	54-3	S	6 1/2									No	As above.
	RB-250		320.00	100	93	4	40-24		8		2							No	As above.
	RB-1050		360.00	125	94	4	35-24		10		2							No	As above.
	RB-1250		400.00	150	95	4	33-24		12		2							No	As above.
	JP-100		269.00	100	90	4	40-3	S	8									No	As above.
	JP-1010		319.00	125	91	4	35-2.5	S	10									No	As above.
	SR-150		395.00	100	93	4	35-24		8		2							No	Vented enclosure.
	SR-1050		439.00	100	94	4	30-24		10		2							No	As above.
	BE-100		349.00	100	93	4	40-24		8		3							No	Box enclosure.
	BE-1010		369.00	125	94	4	35-24		10		3							No	As above.
BE-1212		429.00	150	95	4	33-24		12		3							No	As above.	
B & W	LM1-PM		550.00	40	85	4	95-25 ± 4		5		2						Yes	As above.	
	LM1		600.00	40	85	4	95-25 ± 4		5		2						Yes	As above.	
	LM50		249.00	40	90	4	45-15 ± 4	†	5 1/4								Yes	Can be used as woofer or midrange (with external crossover) or as full range (with supplied equalizer).	
	LT40		249.00	20	90	8	3k-25k ± 2	T				A					Yes	Without grille and spacers, Model LD50, \$199.00 per pair.	
	LT30		129.00	20	90	8	3k-22k ± 2	T									Yes	External crossover required.	
	LXT10		129.00	10	90	8	3k-20k ± 3	T								Yes	As above.		
	LS20		279.00	50	89	4	30-2 ± 3	S	8								Yes	Includes high-pass filter.	
CANTON	HC100 Pullman	495.00	295.00	35	87.2	4	48-30		4		2						No	As above.	
	Set 200		295.00	50	89.9	4	45-30		4		3						Yes	Console for rear deck.	
	Set 300		395.00	60	89.4	4			4		2						Yes	Tweeter can be surface-mounted.	
	Set 400		349.00	50	89.7	4			4		2						Yes	As above.	
	Set 500		395.00	70	92.1	4			5		2						Yes	As above.	
	Set 600		595.00	80	93.4	4			7		3						Yes	As above.	
	CX 160		349.00	50	91.8	4			7		2						Yes	As above.	
	TI 25		125.00				2.5k-30k	T	5		2							Yes	As above.
	M 120		125.00				150-2.5	M										Yes	External crossover required.
	W 160		150.00					W	6									Yes	As above.
	W 205		250.00					W	8									Yes	As above.
	W 280	200.00						W	10									Yes	As above.
	Sub 280	295.00						S	10									Yes	Dual voice-coils; includes crossover.
	CERWIN VEGA	CS-9		279.00	150	94	4	40-20 ± 3		6 x 9		2						Yes	H.I. overload protected.
		CS-6		229.00	80	94	4	60-20 ± 3		6 1/2		2						Yes	As above.
MW-6			179.00	80	92	4	60-4 ± 3	M									Yes	As above.	
XL8S		119.00		150		4	40-800 Hz ± 3	S	8									Yes	As above.
XL8D		119.00		†	†		40-800 Hz ± 3	S	8									Yes	†Dual voice-coils, 75 watts and 4 ohms per coil.
XL10S		139.00		250	94	4	30-800 Hz ± 3	S	10									Yes	As above.
XL10D		139.00		†	94	†	30-800 Hz ± 3	S	10									Yes	†Dual voice-coils, 125 watts and 4 ohms per coil.
XL12S		149.00		250	98	4	20-500 Hz ± 3	S	12									Yes	As above.
XL12D		149.00		†	98	†	20-500 Hz ± 3	S	12									Yes	†As above.
XL15S		199.00		300	101	4	20-400 Hz ± 3	S	15									Yes	As above.
XL15D		199.00		†	101	†	20-400 Hz ± 3	S	15									Yes	†Dual voice-coils, 150 watts and 4 ohms per coil.
XL18S		399.00			103	4	18-250 Hz ± 3	S	18									Yes	As above.
CMT-5			199.95	100	92	4	40-20 ± 3		6 1/2		2							Yes	H.I. overload protected.
SPL8-3			499.00	125	94	8	30-20 ± 5		8		3							Yes	Carpeted enclosure.
FR12-3		399.00		125	95	4	30-20 ± 5		12		3							Yes	As above.
MSE-12		349.00		125	98	4	30-110 Hz ± 5	S	12									Yes	As above; includes crossover.
CS-18A			199.95	150	98	4	40-20 ± 3		6 x 9		2							No	H.I. overload protected.
CS-17			159.95	100	96	4	50-20 ± 4		6 x 9		2							No	As above.
LE 8D		104.95		150	92	4	40-800 Hz ± 2	S	8									No	Dual voice-coils.
LE 10D		109.95		150	94	4	30-800 Hz ± 2	S	10									No	As above.
LE 12D	119.95		250	98	4	20-500 Hz ± 2	S	12									No	As above.	
LE 15D	199.95		250	101	4	20-400 Hz ± 2	S	15									No	As above.	

(Continued)

# SPEAKERS

MANUFACTURER	Model	Price, \$ (If Sold Individually)	Price, \$ (If Sold in Pairs)	Recommended Maximum Power, Watts	Sensitivity, dB SPL (1 Watt, 1 Meter)	Impedance, Ohms	Frequency Response, Hz to kHz, ±dB	DRIVERS										Notes
								Superwoofer Only (S) Woofer Only (W) Tweeter Only (T)	Woofer Size, Inches	Woofer (W) 2-Way (2) 3-Way (3) 4-Way (4)	Amplifier Tweeters (A) Point-to-Point Tweeters (P)	Separately Mounted Drivers?	Flange Mount (F) Surface Mount (S) Convertible (C) Pole (P)	Maximum Required Mounting Depth, Inches	Weatherproofed?			
CERWIN-VEGA (Continued)	LE 8S	104.95		150	92	4	40-800 Hz ±2	S	8					F	3 1/2	No		
	LE 10S	109.95		150	94	4	30-800 Hz ±2	S	10					F	4 1/2	No		
	LE 12S	119.95		250	98	4	20-500 Hz ±2	S	12					F	5 1/2	No		
	LE 15S	199.95		250	101	4	20-400 Hz ±2	S	15					F	6 1/4	No		
	LE 18S4	359.95		300	103	4	18-250 Hz ±2	S	18					F	7 1/2	No		
CLARION	SE3152		39.95	45	89	4	130-16		3 1/2				F	1 1/2	No			
	SE3252		54.95	45	89	4	130-20		3 1/2				F	1 1/2	No			
	SE4163		54.95	45	90	4	60-18		3 3/4				F	1 3/8	Yes			
	SE4265		79.95	45	90	4	90-20		3 3/4				F	1 3/8	Yes			
	SE4361		89.95	45	90	4	90-20		3 3/4				F	1 3/8	Yes			
	SE5163		54.95	45	90	4	80-20		4 1/4				F	1 3/4	Yes			
	SE5267		89.95	60	90	4	80-21		4 1/4				F	1 3/4	Yes			
	SE5361		99.95	60	90	4	70-22		4 1/4				F	1 3/4	Yes			
	SE6164		64.95	60	90	4	50-20		5				F	1 3/4	Yes			
	SE6264		84.95	90	91	4	60-22		5				F	1 3/4	Yes			
	SE6273		124.95	160	92	4	50-21		5				F	2 1/8	Yes			
	SE6365		139.95	140	91	4	50-21		5				F	2 1/8	Yes			
	SE6374		189.95	180	91	4	40-22		5				F	2 1/8	Yes			
	SE9251		109.95	120	91	4	45-21		6 x 9				F	2 1/2	Yes			
	SE9351		144.95	140	93	4	40-23		6 x 9				F	2 3/8	Yes			
	SE9372		229.95	200	93	4	40-23		6 x 9				F	3	Yes			
	SE9451		199.95	170	93	4	40-23		6 x 9				S		Yes			
	SE4266		69.95	45	90	4	110-20		4 x 6				S		Yes			
	SE4252		124.95	120	92	4	60-22		4 x 10				F	2 1/2	Yes			
	SE1070		89.95	150	90	4	1.5k-25k	T					F	1/2	Yes			
SE1071			300	90	4	1.5k-30k	T					F	1/2	Yes				
SEM505		89.95	150	92	4	100-5	M					F	1 1/8	Yes				
SEW805			200	93	4	30-8	W	8				F	3 3/8	Yes				
SEW105			300	94	4	25-8	W	10				F	4	Yes				
SEW125			400	96	4	20-8	W	12				F	4	Yes				
CL820		329.95	150	92	4	40-20		8		2		S		Yes	Box enclosure; for trucks.			
CL821			150	92	4	40-20		8		2		S		Yes	Box enclosure; for hatchbacks.			
CL102		399.95	175	93	4	30-20		8		3		S		Yes	Box enclosure; for trucks.			
CONCORO	COMP 1200	189.95		150	89	4/8	20-500 Hz ±3	S	12				C		Yes			
	COMP 1000	169.95		150	89	4/8	20-500 Hz ±3	S	10				C		Yes			
	COMP 800	149.95		150	88	4/8	20-500 Hz ±3	W	8				C		Yes			
	COMP 690	159.95	100	89	4	40-8 ±3	W	6 x 9					C	3 1/4	Yes			
	COMP 600	149.95	100	88	4	70-8 ±3	W	6					C	2 3/8	Yes			
	COMP 691	199.95	100	89	4	40-20 ±3		6 x 9		2		No	C	3 1/8	Yes			
	COMP 610	169.95	100	88	4	60-20 ±3		6		2		No	C	2 3/8	Yes			
	COMP 510	159.95	80	88	4	70-20 ±3		5 1/4		2		No	C	2 1/4	Yes			
	COMP 500	139.95	80	88	4	70-8 ±3	M						C	2 1/4	Yes			
	COMP 400	89.95	60	89	4	90-18 ±3		4		W			C	1 1/4	Yes			
	COMP 300	49.95	40	89	4	100-18 ±3		3		W			C	1 1/4	Yes			
	COMP 20T	169.95	100	92	4	2.5k-20k ±3	T						C		Yes			
	COMP 10T	99.95	60	92	4	3.5k-20k ±3	T						S		Yes			
	CS141	69.95	40	91	4	70-20		4		2		No	F	1 1/4	Yes			
	CS153	79.95	40	98	4	60-20		5 1/4		2		No	F	1 3/8	Yes			
	CS261	89.95	50	95	4	40-20		6 1/2		2		No	F	2	Yes			
CS264	119.95	90	96.5	4	40-18		6 x 9		2		No	F	3 1/4	Yes				
CCS1T	99.95	150	90	6	3k-20k ±3	T						F	1 1/8	Yes				
CCS5M W	99.95	150	93	4	50-3	M						F	2 1/2	Yes				
CCS8W	89.95	300	93	4	30-3	W	8					F	4 3/8	Yes				
CCS10W	114.95	300	93	4	25-3	W	10					F	5 1/8	Yes				
CCS12W	139.95	300	93	4	20-3	W	12					F	5 3/4	Yes				
COUSTIC	HT-601		32.95	40	92	4	2k-20k ±3	T					F	3/4	Yes			
	HT-615	214.95	400	95	4	25-1 ±3	S	15					F	6 1/8	Yes			
	HT-612	129.95	300	95	4	28-1.5 ±3	S	12					F	5 1/4	Yes			
	HT-610	82.95	200	93	4	30-2 ±3	S	10					F	4 1/8	Yes			
	HT-608	54.95	150	92	4	35-3 ±3	S	8					F	3 1/4	Yes			
	HT-606	69.95	60	92	4	55-10 ±3	W	6					F	2 1/4	Yes			
	HT-605	59.95	50	90	4	65-12 ±3	W	5 1/4					F	2 1/2	Yes			
	HT-604	49.95	50	90	4	90-12 ±3	M						F	1 7/8	Yes			
	HT-603	32.95	30	89	4	130-16 ±3	M						F	1 1/4	Yes			
	HT-602	37.95	15	92	4	3k-25k ±3	T				P		S		Yes			
	HT-600	27.95	15	92	4	3k-25k ±3	T						S	5/8	Yes			
	HT-623	64.95	30	89	4	130-25 ±3		4 x 6		2			S		Yes			
	CS-8866S	119.95	100	90	4	80-20 ±5		4		2		P	No	S	Yes			
	CS-8822S	94.95	60	90	4	80-20 ±5		4		2		P	No	S	Yes			
CRAIG	SG410		43.95	50	90	4	40-16 ±3		6 x 9	W			F	3 1/4	No			
	SG420		52.95	70	91	4	40-20 ±3		6 x 9	2			F	3 1/2	No			
	SG430		59.95	80	91	4	40-22 ±3		6 x 9	3			F	3 1/2	No			
	SP420		87.95	150	92	4	35-21 ±3		6 x 9	2			F	3 3/8	Yes			
	SP430		94.95	150	92	4	35-23 ±3		6 x 9	3			F	3 3/8	Yes			
	SX430		124.95	150	93	4	30-26 ±3		6 x 9	3			F	2 1/8	Yes			
	SG310		32.95	40	90	4	50-16 ±3		6 1/2	W			F	1 7/8	No			
	SG330		47.95	70	90	4	50-21 ±3		6 1/2	3			F	2 1/8	No			



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# SPEAKERS

MANUFACTURER	Model	Price \$ (If Sold Individually)	Price \$ (If Sold in Pairs)	Recommended Maximum Power, Watts	Sensitivity, dB SPL (1 Watt/1 Meter)	Impedance, Ohms	Frequency Response, Hz to kHz, ±dB	DRIVERS										Notes
								Subwoofer Dia. (D) (in.)	Woofer Dia. (W) (in.)	Midrange Dia. (M) (in.)	Tweeter Dia. (T) (in.)	Woofer Stroke, Inches	Woofer (W), 2-Way (2); 3-Way (3), 4-Way (4)	Amplified Tweeters = A; Potentially Tweeters = P	Separately Mounted Drivers?	Flush Mount (F); Surface Mount (S); Convertible (C); Pairs (P)	Maximum Required Mounting Depth, Inches	
CRAIG (Continued)	SP320		54.95	80	91	4	40-22 ±3		6 1/2	2				F	2 1/8	Yes		
	SP330		64.95	80	91	4	40-23 ±3		6 1/2	2				F	2 1/8	Yes		
	SX320		64.95	80	91	4	35-23 ±3		6 1/2	2				F	1 1/4	Yes		
	SG110		24.95	30	90	4	110-16 ±3		4	W				F	1 1/4	No		
	SP110		32.95	40	90	4	70-16 ±3		4	W				F	1 1/4	Yes		
	SP120		42.95	50	91	4	70-21 ±3		4	W				F	1 1/4	Yes		
	SX110		41.95	50	90	4	50-18 ±3		4	W				F	1 1/4	Yes		
	SX120		49.95	50	90	4	50-23 ±3		4	W				F	1 1/4	Yes		
	SP101		24.95	25	90	4	100-18 ±3		3 1/2	W				F	1 1/8	No		
	SG210		24.95	25	90	4	80-16 ±3		5	W				F	1 1/8	No		
	SP220		44.95	40	91	4	50-21 ±3		4 x 6	W				F	1 1/4	Yes		
	SP530		82.95	100	91	4	40-20 ±3		4	3				S		No		
	SP540			100	91	4	40-25 ±3		4	4				S		No		
	SW110	43.95	150	94	4	30-8 ±3		8							3 3/8	No		
	SW120	59.95	200	95	4	25-7 ±3		10							4 1/8	No		
SW130	87.95	250	95	4	20-5 ±3		12							4 3/4	No			
CRUNCH	ISD-66	289.00		150	90	4	42-400 Hz ±3	S	(2)6 1/2					S		Yes	Compound tube enclosure; QB3 alignment. As above.	
	ISD-88	319.00		175	90	4	38-200 Hz ±3	S	(2)8					S		Yes	As above.	
	ISD-1010	369.00		250	91	4	32-150 Hz ±3	S	(2)10					S		Yes	As above.	
	DTS6		300.00	120	91	4	45-1 ±3	S	6 1/2					S		Yes	Tube enclosure. As above.	
	DTS8		400.00	150	92	4	40-1 ±3	S	8					S		Yes	As above.	
	DTS10		500.00	200	92	4	35-1 ±3	S	10					S		Yes	As above.	
	DT1200		279.00	120	92	4	60-25 ±3		8					S		Yes		
	DT620		249.00	100	92	4	45-25 ±3		6	2	A	No	No	S		Yes		
	DT3200		380.00	160	94	4	35-25 ±3		10	2	A	No	No	S		Yes		
	DT2200		329.00	120	93	4	45-25 ±3		8	2	A	No	No	S		Yes		
	DT4200		440.00	165	94	4	30-25 ±3		12	2	A	No	No	S		Yes		
	DT3210		370.00	160	93	4			12	2	A	No	No	S		Yes		
	DT7100	469.00	220	94	4	28-25 ±3		12	2	A	No	No	No	S		Yes		
	DT6100	399.00	175	94	4	30-25 ±3		12	2	A	No	No	No	S		Yes		
	CR1530	600.00	300	96	4			(2)15	3	A	No	No	No	S		Yes	Rear-ported enclosure for corner loading; biamp capable.	
	DT7300	550.00	220	95	4	28-25 ±3		12	3	A	No	No	No	S		Yes		
	CR210	400.00	200	93	4	35-2 ±3		(2)10						S		Yes		
	CR212	450.00	250	94	4	28-2 ±3		(2)12						S		Yes		
	CRMB5K			249.00	120	92	4	100-5 ±3	M					F	2 3/4	Yes		
	CR152		69.00	300	94	4	34-25k ±3	T			P			F	1 1/4	Yes		
	CR12PRD	250.00	300	94	4	32-1 ±3		S	12					F	5	Yes		
	CR15PRD	300.00	400	95	4	27-1 ±3		S	15					F	6	Yes		
	CR18PRD	450.00	500	96	4	24-1 ±3		S	15					F	7	Yes		
	CR10WTP	150.00	200	93	4	34-1 ±3		S	10					F	4	Yes		
	CR12WTP	175.00	250	94	4	30-1 ±3		S	10					F	4 3/4	Yes		
	CR15WTP	225.00	300	95	4	28-1 ±3		S	15					F	5 3/4	Yes		
	CR8WTP	90.00	120	92	4	40-3 ±3		S	8					F	3 1/4	Yes		
	CR6WTP	75.00	100	91	4	45-4.5 ±3		S	6					F	3	Yes		
	CRM3TP		140.00	60	90	4	450-5 ±3	M						F	1 3/4	Yes		
	CRM5TP		150.00	90	90	4	400-3.5 ±3	M						F	2 1/2	Yes		
CR1ND		199.00	100	92	4	1.5k-25k ±3	T						F	1 1/4	Yes			
CR1SD		119.00	80	92	4	1.5k-20k ±3	T						F	1 1/2	Yes			
CR1HD		119.00	80	96	4	1.5k-20k ±3	T						F	2	Yes			
CR1TD		129.00	100	94	4	1.2k-25k ±3	T						F	1 1/2	Yes			
CUSTOM AUTOSOUND	SAGT-24	54.00	30		3.5		50-20		4		P	No	F	1 1/2	No		For 1964-1967 GTDs, Tempests, and Le Mans.	
	KEN SASU-33	34.00	30		4		50-20		3 1/2		P	No	F	1 1/2	No		For rear speaker area of 1961-1966 Sludebakers.	
	KEN SASU-1	34.00	30		4		50-20		3 1/2		P	No	F	1 1/2	No		For front speaker area of 1961-1966 Sludebakers.	
	KEN SAFA-1	34.00	30		4		50-20		3 1/2		P	No	F	1 1/2	No		For 1966-1970 Falcons.	
	KEN SAFA-45	34.00	30		4		50-20		3 1/2		P	No	F	1 1/2	No		For 1964-1965 Falcons.	
	KEN SANV-667	54.00	30		4		70-20		4		P	No	F	1 1/2	No		For 1966-1967 Chevy IIs and Novas.	
	KEN SACA-1	54.00	30		4		70-20		4		P	No	F	1 1/2	No		For 1967-1969 Camaros and 1968-1972 Chevy IIs and Novas.	
	KEN SA-667	54.00	30		4		70-20		4		P	No	F	1 1/2	No		For 1966-1967 Chevelles.	
	KEN SA667A	79.00	30		4		50-20		3 1/2		P	No	F	1 1/2	No		For air-conditioned 1966-1967 Chevelles.	
	KEN SACA-2	79.00	30		4		50-20		3 1/2		P	No	F	1 1/2	No		For air-conditioned 1967-1968 Camaros and Firebirds.	
	KEN SA-645	54.00	30		4		70-20		4		P	No	F	1 1/2	No		For 1964-1965 Chevelles.	
	KEN SA-689	54.00	30		4		70-20		4		P	No	F	1 1/2	No		For 1968-1969 Chevelles.	
	KEN SACV-24	44.00	30		4		70-20		4		P	No	F	1 1/2	No		For 1958-1967 Corvettes.	
	KEN SACV-24A	44.00	30		4		50-20		3 1/2		P	No	F	1 1/2	No		For air-conditioned 1963-1967 Corvettes.	
	KEN SAEC-24	44.00	30		4		70-20		4		P	No	F	1 1/2	No		For 1955-1958 Chevrolets.	
	KEN SAMS-33	34.00	30		4		50-20		3 1/2		P	No	F	1 1/2	No		For 1969-1970 Mustangs, top of dash.	
	KEN SAMS-3	34.00	30		4		50-20		3 1/2		P	No	F	1 1/2	No		For 1967-1968 and 1971-1973 Mustangs.	
	KEN SAMS-2	44.00	30		4		70-20		4		P	No	F	1 1/2	No		For 1964-1966 Mustangs.	
	KEN SAMS-1	34.00	30		4		50-20		3 1/2		P	No	F	1 1/2	No		As above, for top of dash.	
	KEN SAEV-24	44.00	30		4		50-20		3 1/2		P	No	F	1 1/2	No		For 1953-1957 Corvettes.	
KEN SAGA-24	34.00	30		4		50-20		3 1/2		P	No	F	1 1/2	No		For 1963-1964 Ford Galaxies.		
KEN SATB-80	34.00	30		4		50-20		3 1/2		P	No	F	1 1/2	No		For 1958-1960 Thunderbirds.		
KEN SATB-13	34.00	30		4		50-20		3 1/2		P	No	F	1 1/2	No		For 1961-1963 Thunderbirds.		
KEN SATB-1	34.00	30		4		50-20		3 1/2		P	No	F	1 1/2	No		For 1964-1966 Thunderbirds.		
KEN SATB-24	44.00	30		4		70-20		4		P	No	F	1 1/2	No		For 1955-1957 Thunderbirds.		
CAMPS-1	99.00	120		4		60-21		4	3		P	No	S	6 1/2	No		Box enclosure; for rear parcel shelf.	



# SPEAKERS

MANUFACTURER	Model	Price \$ (If Sold Individually)	Price \$ (If Sold in Pairs)	Recommended Maximum Power, Watts	Sensitivity, dB SPL (1 W/1m)	Impedance, Ohms	Frequency Response, Hz to kHz, ±dB	DRIVERS										Notes
								Subwoofer Qty (S)	Woofer Qty (W)	Midrange Qty (M)	Tweeter Qty (T)	Woolfer Size, Inches	Whizzer (W), 2-Way (2)	3-Way (3), 4-Way (4)	Angled Tweeter(s) (A)	Pointable Tweeter(s) (P)	Separately Mounted Drivers?	
CUSTDM AUTOSOUND (Continued)	SATB-69P	149.00	60	4	60-20		6 x 9	3	P	No	S	4	No	For 1955-1957 Thunderbirds, behind seat.				
	CAM-689	99.00	60	4	60-20		5	3	P	No	P	3	No	Fits 6 x 8-inch or 6 x 9-inch hole.				
	SACVMT-46	79.00	30	4	100-20		3 1/2	3	P	No	P	2	No					
	KEN VW-8P	249.00	100	4	50-20		(2)8	3	P	No	S	12	No	Two channel; box enclosure; for VW Beetles.				
	CC8-8	299.00	100	4	50-20		8	2	P	No		9	No	Box enclosure; for 1984-1989 Corvette Coupes.				
CR8-8	299.00	100	4	50-20		8	2	P	No		9	No	Box enclosure; for 1984-1989 Corvette convertibles.					
DENDON	DCS-352		80.00	30	90	4	90-20 ± 3			No	F	1 1/2	Yes	Fits factory cutouts of European cars.  Mounts to front or rear of panel. As above. As above. As above.				
	DCS-461P		115.00	60	91	4	55-21 ± 3			No	F	1 1/2	Yes					
	DCS-462U		115.00	60	91	4	55-21 ± 3			No	F	1 1/2	Yes					
	DCS-402		120.00	45	91	4	55-21 ± 3			No	F	1 1/2	Yes					
	DCS-501		140.00	60	91	4	50-21 ± 3			No	F	1 1/2	Yes					
	DCS-651		170.00	100	92	4	40-21 ± 3			No	F	2 1/2	Yes					
	DCS-692		260.00	150	92	4	35-21 ± 3			No	F	4	Yes					
	DCS-601MW	70.00	200	90	4	35-5 ± 3	S	6			F	3	Yes					
	DCS-802W	100.00	250	92	4	30-3 ± 3	S	8			F	3 3/4	Yes					
	DCS-1001W	125.00	350	92	4	25-2 ± 3	S	10			F	4 1/2	Yes					
DCS-1201W	140.00	350	93	4	20-2 ± 3	S	12			F	5 3/4	Yes						
EARTHQUAKE SOUND	EQ-12 DUAL	175.00	350.00	180	97	4	20-1.5	S	12		S		No	Dual voice-coils.				
	EQ-15 DUAL	210.00	420.00	300	98	4	18-800 Hz	S	15		S		No	As above.				
	TW-102	60.00	120.00	80	101	8	5k-22k	T			S		No					
	TW-102T	95.00	190.00	80	96	8	4k-30k	T			S		No					
	MD-6 CAST	99.00	198.00	80	91	8	50-5	T			S		No					
	MD-5 CAST	70.00	140.00	80	91	8	200-6	M			S		No					
ECLIPSE	ESG-4000		129.95	30	4	4	50-25				F	1 3/4	No	Center-channel powered speaker for use with EQS-1000 digital surround processor (see "Amps"). †Mounts on rear-view mirror.				
	ESG-6950		279.95	70	4	4	30-28				F	3 1/2	No					
	ESG-1000		109.95	60	4	4	2k-23k	T			F	1 1/2	No					
	ESG-5000		109.95	90	4	4	100-12	M			F	1 1/2	No					
	ESG-6000		119.95	150	4	4	45-3	W			F	2 1/2	No					
	ESG-8000		199.95	200	4	4	25-5	S			F	3 3/4	No					
	ESG-3000	159.95	20	Inc.							†		No					
EPI	LS46		79.95	50	91	4	100-20			No	F	1 1/2						
	LS50		79.95	40	91	4	110-20			No	F	1 1/2						
	LS55		99.95	50	91	4	90-20			No	F	1 1/2						
	LS60		109.95	50	94	4	90-20			No	F	1 1/2						
	LS66		139.95	70	94	4	75-20			No	F	3						
ESS	LS2-AMT	75.00	150.00	50	95.2	4	1.5k-25k ± 2	T		P	F	1 1/2	Yes	Heil Air Motion Transformer.				
	9932	99.50	199.00	100	93.6	8	50-20 ± 3				S	4 1/2	Yes					
	8821	79.95	159.00	100	92.9	8	55-20 ± 3				S	2	Yes					
EXCALIBUR	EX-6913		39.95	150	4	4	6 x 9	3			F							
	PP-6923		49.95	150	4	4	6 x 9	3			F							
	EX-4102		39.95	100	4	4	4 x 10	2			F		Yes					
	EX-501		29.95	80	4	4	5 1/4	W			F	1 3/4						
	EX-502		39.95	100	4	4	5 1/4	2			F	1 3/4						
	EX-512		49.95	100	4	4	5 1/4	2			F	1 3/4						
	PP-522		59.95	100	4	4	5 1/4	2			F	1 3/4	Yes					
	EX-401		39.95	60	4	4	4	W			F	1 3/4						
	EX-402		49.95	80	4	4	4	2			F	1 3/4						
	PP-422		59.95	80	4	4	4	2			F	1 3/4	Yes					
	EX-4612		49.95	60	4	4	4	2			F	1 1/2						
	EX-301		39.95	50	4	4	3 1/2	W			F	1 1/2						
	EX-2001		59.95	80	4	4	(2)3				S							
	EX-3001		69.95	100	4	4	(2)4				S							
	PP-621	39.95	100	8	4			M			S		Yes					
	PP-821	59.95	150	8	8			W			S		Yes					
	PP-1021	79.95	150	8	8			W			S		Yes					
	PP-1221	99.95	150	8	8			W			S		Yes					
	TW-1	39.95	50	4	4			T			F							
	TW-4	39.95	100	4	4			T			F							
FAS	CS369		169.95	80	93	4	50-25			No	F	2 1/4	Yes					
	CS269		159.95	90	91	4	50-21			No	F	2 3/4	Yes					
	CS365		139.95	70	93	4	60-25			No	F	1 3/4	Yes					
	CS265		129.95	70	93	4	60-21			No	F	1 3/4	Yes					
	PS4		31.95	20	4	4	100-15			No	F	1 1/2	No					
	PS3		25.95	10	4	4	120-16			No	F	1 1/4	No					
	PS693		64.95	40	4	4	60-20			No	F	3	No					
	PS692		52.95	40	4	4	60-20			No	F	2 1/2	No					
	PS62		49.95	30	4	4	70-20			No	F	2	No					
	PS6		45.95	25	4	4	100-16			No	F	1 3/4	No					
	PS46		35.95	30	4	4	60-18			No	F	1 1/2	No					

# SPEAKERS

MANUFACTURER	Model	Price, \$ (If Sold Individually)	Price, \$ (If Sold in Pairs)	Recommended Maximum Power, Watts	Sensitivity, dB SPL (1 Watt, 1 Meter)	Impedance, Ohms	Frequency Response, Hz to kHz, ±dB	DRIVERS										Notes
								Subwoofer Only (S), Woofer Only (W), Midrange Only (M), Tweeter Only (T)	Woofer Size, Inches	Woofer (W), 2-way (2), 3-way (3), 4-way (4)	Angled Tweeters = A, Flat Tweeters = P	Separately Mounted Drivers?	Flush Mount (F), Surface Mount (S), Convertible (C), Pinie (P)	Maximum Revised Mounting Depth, Inches	Weatherproofed?			
FOCAL	5C018 DBW	85.00	40	91	4	60-20 ±3		5 1/4	3		Yes	S		No				
	7K018 DBW	115.00	50	93	4	40-20 ±3		7	3		Yes	S		No				
	KIT 448	133.00	40	91	4	60-20 ±3		5 1/4	3		Yes	S		No				
	KIT 458	266.00	50	93	4	40-20 ±3		7	3		Yes	S		No				
	10K515 DB	150.00	200	94	4	30-200 Hz	S	10	3		Yes	S		No		Dual voice-coils.		
FUJITSU TEN	SG-1035	41.95	45	45	4	75-21					No	F	1 1/2	No				
	SG-1036	59.95	45	45	4	70-22			2		No	F	1 1/2	No				
	SG-1214	77.95	45	45	4	60-22			2		No	F	1 1/2	No				
	SG-1630	47.95	45	45	4	55-22					No	F	1 1/2	No				
	SG-1631	84.95	60	45	4	50-22			2		No	F	1 1/2	No				
	SG-1632	59.95	45	45	4	50-20					No	F	1 1/2	No				
	SG-1633	95.95	60	45	4	45-20			2		No	F	2	No				
	SG-1634	119.95	100	45	4	45-22			3		No	F	2 1/2	No				
	SG-6908	101.95	100	45	4	40-21			2		No	F	3	No				
	SG-6909	144.95	120	45	4	35-22			3		No	F	3	No				
	SG-6910	203.95	150	45	4	30-23			4		No	F	3 1/2	No				
	FULTRON	15-9120	399.95	150	94	4	40-29 ±3		8				S		No		Carpeted enclosure; for mini hatchbacks.	
		15-9130	429.95	150	94	4	40-39 ±3		8				S		No		Carpeted enclosure; for mini trucks.	
15-9150		519.95	200	95	4	38-39 ±3		10				S		No		Carpeted enclosure; for trucks.		
15-9170		429.95	150	94	4	40-39 ±3		8				S		No		As above.		
15-9180		499.95	200	95	4	38-39 ±3		10				S		No		Carpeted enclosure; for hatchbacks and vans.		
15-9108		54.95	100	94	4	35-2.5 ±3	W	8				F	4 3/8	No				
15-9110		79.95	140	95	4	30-1.7 ±3	W	10				F		No				
15-9112			140	93	4	30-1.5 ±3	W	12				F		No				
15-9115			160	93	4	25-1.5 ±3	W	15				F		No				
15-9240		39.95	15	4	4	90-14 ±3		5				F	5/8	No				
15-9425		39.95	15	96†	4	80-15 ±3		3 1/2	W			C	1 1/8	No		Wedge speaker. †At 0.5 meter. Includes 4 x 6-inch adaptor.		
15-9435		69.95	20	95†	4	70-17 ±3		4	2		No	F	1 1/2	No				
15-9460		79.95	25	96†	4	65-20 ±3		4 x 6	2		No	F	1 1/4	No				
15-9465		84.95	25	96†	4	65-20 ±3		5 1/4	2		No	F	1 1/4	No				
15-9560		84.95	40	96†	4	50-20 ±3		4 x 10	2		No	F	2 1/2	No				
15-9470		84.95	40	98†	4	60-20 ±3		5 1/4	2		No	F	2 1/2	No				
15-9490		99.95	50	98†	4	50-20 ±3		5 1/4	3		No	F	2 1/2	No				
15-9670		99.95	60	99†	4	40-20 ±3		6 x 9	2		No	F	2 1/2	No				
15-9690		119.95	60	100†	4	35-20 ±3		6 x 9	3		No	F	2 1/2	No				
15-9990S		229.95	100	101†	4	20-20 ±3		6 x 9	3	P	Yes	F	2 1/2	No		††Flush-mount woofer, surface-mount tweeter.		
15-9290S	109.95	100	101†	4	1k-20k ±3				P		S		No					
15-9306	54.95	60	94	4	50-20 ±3		6	3		No	F	1 1/2	No					
15-9369	79.95	60	94	4	40-20 ±3		6 x 9	3		No	F	1 1/4	No					
GLENMIDNITOR SPEAKER SYSTEMS	Mini-Mo	275.00	125	91	5.6	40-20		6 1/2	2		Yes	C	4	Yes		Cabinet enclosure.		
	G-Mo	350.00	150	92	5.6	30-21		8	2		Yes	C	5	Yes		As above.		
	Lo-Mo	350.00	250	92	5.6	†	†	(2)10				C	5	Yes		†Includes selectable crossover; response as subwoofer, 20 to 180 Hz; response as woofer, 20 Hz to 2.5 kHz.		
	Mighty-Mo	475.00	250	94	5.6	20-21		10	2		Yes	C	5	Yes		As above.		
GOLD SOUND	GS1596	398.00	1k	105	4	21-3.2 ±3	S	15				F	5					
	GS1588	249.00	600	98	8	21-1.2 ±3	S	15				F	6 3/8	Yes		Dual voice-coils.		
	GS1584	249.00	600	98	4	21-1.2 ±3	S	15				F	6 3/8	Yes		As above.		
	GS1288	198.00	500	95	8	30-3 ±3	S	12				F	5 3/8	Yes		As above.		
	GS1284	198.00	500	95	4	30-3 ±3	S	12				F	5 3/8	Yes		As above.		
	GS1268	158.00	400	94	8	30-1.6 ±3	S	12				F	5 1/4	Yes		As above.		
	GS1264	158.00	400	94	4	30-1.6 ±3	S	12				F	5 1/4	Yes		As above.		
	GS1248	98.00	250	92	8	25-3 ±3	S	12				F	5 3/8	Yes				
	GS1244	98.00	250	92	4	25-3 ±3	S	12				F	5 3/8	Yes				
	GS1068	118.00	400	94	8	30-3 ±3	S	10				F	4 3/4	Yes				
	GS1064	118.00	400	94	4	30-3 ±3	S	10				F	4 3/4	Yes				
	GS1048	98.00	250	92	8	22-600 Hz ±3	S	10				F	4 1/4	Yes		As above.		
	GS1044	98.00	250	92	4	22-600 Hz ±3	S	10				F	4 1/4	Yes		As above.		
	GS1040-8	78.00	250	92	8	30-3 ±3	S	10				F	4 1/4	Yes				
	GS1040-4	78.00	250	92	4	30-3 ±3	S	10				F	4 1/4	Yes				
	GS848	98.00	300	92	8	32-2.5 ±3	S	8				F	3 3/4	Yes				
	GS844	98.00	300	92	4	32-2.5 ±3	S	8				F	3 3/4	Yes				
	GS828	58.00	200	92	8	38-2.5 ±3	S	8				F	3 3/8	Yes		As above.		
	GS824	58.00	200	92	4	38-2.5 ±3	S	8				F	3 3/8	Yes		As above.		
	GS821-8	58.00	200	92	8	38-2.5 ±3	S	8				F	3 3/8	Yes				
	GS821-4	58.00	200	92	4	38-2.5 ±3	S	8				F	3 3/8	Yes				
	GS6x9W	58.00	200	92	4	45-3 ±3	S	6 x 9				F	3 3/8	Yes				
	GS628	58.00	200	92	8	45-4 ±3	S	6 1/2				F	3 1/2	Yes				
	GS624	58.00	200	92	4	45-4 ±3	S	6 1/2				F	3 1/2	Yes				
	GS612-8	38.00	120	90	8	55-5	W	6 1/2				F	3	Yes				
	GS612-4	38.00	120	90	4	55-5 ±3	W	6 1/2				F	3	Yes				
	GS512-8	38.00	100	90	8	70-5 ±3	W	5 1/4				F	2 3/4	Yes				
	GS512-4	38.00	100	90	4	70-5 ±3	W	5 1/4				F	2 3/4	Yes				
	GS505	36.00	60	90	4	70-5 ±3	W	5 1/4				F	2	Yes				
	GS405	36.00	60	90	4	100-5 ±3	M					F	2	Yes				
	GS8AC		176.00	200	92	4/8	40-20 ±3		8	2		F	4	Yes				
	GS8C		138.00	100	92	4/8	40-25 ±3		8	2		F	3 3/8	Yes				
GS69AC		176.00	200	92	4	45-20 ±3		6 x 9	2		F	3 3/4	Yes					
GS69C		138.00	100	92	4	50-25 ±3		6 x 9	2		F	3 1/2	Yes					
GS6.5AC		176.00	200	92	4	40-20 ±3		6 1/2	2		F	3 1/2	Yes					

# B&W Salutes its #1 NYC *MATRIX* Dealer Stereo Exchange



802 Matrix—\$4,000

801 Matrix—\$5,500

"I was not prepared for what I heard the first time I played the (Matrix) 801's...We sat silent throughout the entire performance (something that has never happened before)..."

"...recovering from the initial shock...someone quietly said 'I've just got to have those speakers.'"

"In my opinion, the B&W 801 matrix 2 represents the pinnacle of current full-range dynamic speaker design"...

"...for the emotional involvement only live performance can provide...with absolute sonic honesty...the B&W 801 Matrix 2 Monitor is musically, the end of the road."

**Lewis Lipnick**—Stereophile, Vol. 10, No. 9

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The Block-Long Store

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# SPEAKERS

MANUFACTURER	Model	Price \$ (If Sold Individually)	Price \$ (If Sold in Pairs)	Recommended Maximum Power, Watts	Sensitivity, dB SPL (1 Watt/1 Meter)	Impedance, Ohms	Frequency Response, Hz to kHz, ±dB	DRIVERS										Notes
								Subwoofer Only (S), Woofer Only (W), Midrange Only (M), Tweeter Only (T)	Woofer Size, Inches	Woofer (W), 2-Way (2), 3-Way (3), 4-Way (4)	Amplifier Tweeter(s) = A, Compatible (C), Plus (P)	Separately Mounted Drivers?	Flush Mount (F), Surface Mount (S), Canister (C), Plus (P)	Maximum Required Mounting Depth, Inches	Weatherproofed?			
GOLO SOUND (Continued)	GS6.5C	138.00	70	92	4	50-20 ±3		6½	2			F	3	Yes				
	GS5x7C	138.00	80	92	4	68-30 ±3		5 x 7	2			F	2½	Yes				
	GS5C	138.00	80	90	4	70-30 ±3		5¼	2			F	3	Yes				
	GS55C	116.00	60	90	4	90-30 ±3		5¼	2			F	3	Yes				
	GS4x10C	138.00	80	92	4	58-30		4 x 10	2			F	2¼	Yes				
	GS4x6C	138.00	60	92	4	100-30 ±3		4 x 6	2			F	2¼	Yes				
	GS4C	118.00	70	90	4	98-30 ±3		4	2			F	2¼	Yes				
	GS45C	108.00	50	90	4	98-30 ±3		4	2			F	2¼	Yes				
	GST	69.00	80	93	4	4k-25k ±3	T			P		S	2	Yes	Includes crossover.			
HAFLER	MAS-55	260.00	100	88	4	100-20 ±3		5¼	2		No	F	2½	Yes	Biamp capable.			
	MAS-88	200.00	150	89	8	20-2 ±3	W	8				F	3¼	Yes				
	MAS-108	250.00	150	89	8	20-1 ±3	W	10				F	4¾	Yes				
	MAS-520	325.00	100	89	4	100-20 ±3		5¼	2		No	F	2¼	Yes				
	MAS-5	99.00	50	88	4	5.5k-20k ±3	T			P		S			Includes passive crossover.			
	MAS-35	119.00	100	88	4	200-20 ±3		3½	2		No	F	1¾	Yes	Biamp capable; optional grilles.			
	MAS-460	189.00	100	88	4	200-20 ±3		3½	2		No	P	1½	Yes	Shielded magnet for marine and aviation use.			
	MAS-51	260.00	100	88	4	100-20 ±3		5¼	2	P	Yes	†	2¼	Yes	Flush-mount woofer, surface-mount tweeter.			
	MAS-510s	275.00	100	88	4	100-20 ±3		5¼	2		No	P	3½	Yes	Shielded magnet for marine and aviation use.			
MAS-80s	200.00	150	89	4	20-2 ±3	W	8				F	3¼	Yes	As above; optional passive crossover.				
MAS-100s	250.00	150	89	4	20-1 ±3	W	10				F	4¼	Yes	As above.				
HI-COMP	HS-351	40.00	25	92	4	100-18		3½	W			F	1½	Yes				
	HS-401	45.00	40	92	4	90-20		4	W			F	1¾	Yes				
	HS-420	65.00	40	91	4	60-20		4	2		No	F	1¾	Yes				
	HS-462	55.00	30	91	4	50-20		4 x 6	2		No	F	1¾	Yes				
	HS-501	50.00	40	92	4	90-18		5	W			F	1¾	Yes				
	HS-620	90.00	80	95	4	40-20		6½	2			F	2	Yes				
	HS-621	65.00	40	92	4	50-20		6½	2			F	1¾	No				
	HS-692	120.00	100	95	4	40-20		6 x 9	2			F	3	Yes				
	HS-693	140.00	100	95	4	40-20		6 x 9	3			F	3	Yes				
	HS-820	130.00	100	94	4	35-20		8	2			F	3	Yes				
	HIFONICS	HT1	35.00	40	89	8	1.8k-20k	T			P		S	7/8	No	Includes crossover.		
HT2		40.00	100	91	8	1.4k-32k	T					F	1¾	No	As above.			
HT3		55.00	100	91	8	550-32	T					F	1¾	No	As above.			
MR1		65.00	70	90	8	350-10	M					F	1¾	No	External crossover required.			
MR2		75.00	100	90	8	250-10	M					F	1¾	No	As above.			
MR3		55.00	120	85	8	80-13	M					F	2½	No	As above.			
W1034		300.00	150	90	4	45-1.2	W	10				F	5	No	As above; requires 1.5-cubic-foot enclosure.			
W1244		370.00	400	95	4	40-800 Hz	W	12				F	5¼	No	As above but 2 cubic feet.			
W1248		370.00	400	95	8	40-800 Hz	W	12				F	5¼	No	As above.			
W1544		420.00	400	97	4	35-300 Hz	W	15				F	6	No	As above but 3 cubic feet.			
W1548	420.00	400	97	8	35-300 Hz	W	15				F	6	No	As above.				
W1844	500.00	400	96	4	25-300 Hz	W	18				F	8¼	No	As above but 6 cubic feet.				
W1848	500.00	400	96	8	25-300 Hz	W	18				F	8¼	No	As above.				
HITACHI	SF-1001	69.95	50	90	4	50-21 ±3		4	W			F	1½	Yes				
	SF-1301	79.95	60	91	4	50-22 ±3		5¼	W			F	1½	Yes				
	SF-1601	79.95	80	92	4	50-22 ±3		6½	W			F	1½	Yes				
	SF-4060	79.95	50	90	4	50-22 ±3		4 x 6	2		No	F	1¾	No				
	SF-1002	89.95	50	90	4	50-21 ±3		4	2			F	1½	Yes				
	SF-1302	99.95	100	91	4	50-22 ±3		5¼	2		No	F	1½	Yes				
	SF-1602	119.95	120	92	4	50-22 ±3		6½	2		No	F	1½	Yes				
	SF-6093	149.95	120	93	4	40-22 ±3		6 x 9	2		No	F	3½	Yes				
	SF-6094	169.95	150	93	4	40-22 ±3		6 x 9	3		No	F	3½	Yes				
HOT BOX	6TL	569.00	80	94	4	34-22		6½	3	A	No	S		Yes	Transmission line enclosure; for pickups, vans, hatchbacks, and RVs.			
	6TLB	389.00	80	93	4	34-2	S	6½				S		Yes	As above.			
	8TLs	689.00	100	96	4	30-22		8	3	A	No	S		Yes	Transmission line enclosure.			
	8TL-SB	449.00	100	95	4	25-2	S	8				S		Yes	As above.			
	8TL-L	749.00	100	97	4	25-22		8	3	A	No	S		Yes	As above.			
	8TL-LB	509.00	100	96	4	25-2	S	8				S		Yes	As above.			
	10TL-S	809.00	150	97	4	24-22		10	3	A	No	S		Yes	As above.			
	10TL-SB	569.00	150	96	4	24-2	S	10				S		Yes	As above.			
	10TL-L	839.00	150	98	4	21-22		10	3	A	No	S		Yes	As above.			
	10TL-LB	599.00	150	97	4	21-2	S	10				S		Yes	As above.			
	12TL	899.00	175	98	4	18-22		12	3	A	No	S		Yes	As above.			
	12TL-B	689.00	175	97	4	18-2	S	12				S		Yes	As above.			
	8HL	749.00	100	96	4	25-22		8	3	A	No	S		Yes	As above.			
	10HL-B	509.00	108	94	4	25-2	S	8				S		Yes	As above.			
	10HL	869.00	150	97	4	22-22		10	3	A	No	S		Yes	As above.			
	10HL-B	629.00	150	96	4	22-2	S	10				S		Yes	As above.			
	12HL	959.00	150	98	4	20-22		12	3	A	No	S		Yes	As above.			
	12HL-B	659.00	150	97	4	18-2	S	12				S		Yes	As above.			
	HL-CB48		150	100	4	18-2	S	8				S		Yes	For late-model Camaros.			
	CL-CB410		250	98	4	21-2	S	(4)10				S		Yes	As above.			
HL-CB48CX		300	96	4	25-22	S	(4)8	2		No	S		Yes	As above.				

# SPEAKERS

MANUFACTURER	Model	Price \$ (If Sold Individually)	Price \$ (If Sold in Pairs)	Recommended Maximum Power, Watts	Sensitivity, dB SPL (1 Watt, 1 Meter)	Impedance, Ohms	Frequency Response, Hz to kHz, ±dB	DRIVERS										Notes
								Subwoofer Only (S) Midrange Only (M) Tweeter Only (T)	Woofer Size, Inches	Woofer (W), 2-Way (2) 3-Way (3), 4-Way (4)	Applied Tweeter(s) = A, Passive Tweeter(s) = P	Separately Mounted Drivers?	Flush Mount (F), Surface Mount (S), Concealable (C), Recessed (R)	Maximum Required Mounting Depth, Inches	Weatherproofed?			
INFINITY	693-Kappa	249.95	100	90	4	34-45		6 x 9	3				F, S	2 1/2	Yes			
	63-Kappa	199.95	55	88	4	58-45		6 1/2	3			F, T		Yes				
	692-Kappa	189.95	75	90	4	34-22		6 x 9	2			F, T		Yes				
	62-Kappa	149.95	55	88	4	58-22		6 1/2	2			F, T	2 3/4	Yes				
	52-Kappa	144.95	30	87	4	63-22		5 1/4				F, T	1 1/4	Yes				
	42-Kappa	99.95	25	87	4	98-16		4				F, T	1 1/2	Yes				
	CS-1A Kappa	439.95	200	89	4	34-45		6 x 9			Yes	F, T, S		Yes				
	CS-Kappa	279.85	120	90	4	58-22		6 1/2			Yes	F, T, S	2 3/4	Yes				
	CS-5 Kappa	249.95	100	88	4	85-22		5 1/4			Yes	F, T, S	2 1/4	Yes				
	CS-4 Kappa	229.95	90	88	4	100-22		4			Yes	F, T, S	1 1/2	Yes				
	Kappa Polycell	125.00	40	94	4	3.5k-45k ±3	T			A		F, S		Yes				
	Emit-N Kappa	189.95	50	93	4	3.5k-45k ±3	T			A		S		Yes				
	RSDS 12" Pro	300.00	300	92	4	22-1.5 ±3	W	12				F, T		Yes				
	RSDS 12"	225.00	250	90	4	26-1.5 ±3	W	12				F, T		Yes				
	RSDS 10"	175.00	175	90	4	30-1.5 ±3	W	10				F, T, S		Yes				
	RSDS 8"	135.00	150	89	4	35-1.5 ±3	W	9				F, T, S		Yes				
	RSDS Polycell	125.00	40	94	4	3.9k-22k ±3	T			A		F, S		Yes				
	RSDS Emit-N	189.95	50	93	4	3.5k-45k ±3	T			P		S		Yes				
	RSDS Polydome	100.00	50	88	4	700-4 ±3	M					F, S	3/4	Yes				
	RSDS 4A	50.00	50	88	4	100-4.5 ±3	M					F, S		Yes				
RSDS Polygraph	130.00	75	89	4	100-800 Hz ±3	M					F, S	1 1/2	Yes					
RS-6903	199.95	90	93	4	40-22		6 x 9	3			F, S	2 1/2	Yes					
RS-6902	159.95	80	93	4	40-20		6 x 9	3			F, T, S	2 1/2	Yes					
RS-602	119.95	50	92	4	60-20		6 1/2	2			F, T, S	2 1/2	Yes					
RS-502	119.95	30	91	4	70-20		5 1/4				F, T, S	1 1/2	Yes					
RS-402	89.95	25	91	4	80-16			W			F, T	1 1/2	Yes					
462-K	54.95	25	4	4	98-16		4 x 6	W			F, T		Yes					
32-K	44.95	18	4	4	112-16			W			F, T		Yes					
JBL	1800GTi	479.00	1k	95	4	25-300 Hz	S	18				F	6 1/2	Yes	Venturi air cooling. As above. Replacement for 4 x 6-inch speakers.			
	1500GTi	349.00	1k	94	4	25-300 Hz	S	15				F	4 1/2	Yes				
	T464	119.00	60	90	4	100-20		3 1/2	2		No	F/P	1 3/4	Yes				
	T06	129.00	50	92	4	2.5k-26k	T					C	1/4	Yes				
	T04	79.00	40	90	4	4k-23k	T					C		Yes				
	T030	349.00	200	92	4	500-8	M					C	2	Yes				
	T41	119.00	40	86	4	60-8	M					C	1 3/4	Yes				
	T51	129.00	80	90	4	55-5	W	5 1/4				C	2 1/4	Yes				
	T61	129.00	100	91	4	50-3.5	W	6 1/2				C	2 1/2	Yes				
	T60	119.00	150	95	4	40-3	S	8				C	3 1/2	Yes				
	T100	159.00	200	88	8	35-2.5	S	10				C	4 1/2	Yes				
	T120	259.00	300	91	4	40-1.2	S	12				C	5 1/2	Yes				
	T414	249.00	40	90	4	60-23		4	2			F		Yes				
	T516	319.00	80	92	4	55-26		5 1/4	2			F		Yes				
	T616	379.00	100	92	4	50-26		6 1/2	2		Yes	F		Yes				
	T75	269.00	100	85	4	75-26		5 1/4	2		Yes	P	1 1/2	Yes				
	T903	279.00	120	92	4	55-26		6 x 9	3			C	3 1/4	Yes				
	T902	219.00	120	93	4	55-26		6 x 9	2			C	3 1/4	Yes				
	T900	169.00	80	92	4	55-23		6 x 9	2			C	2 3/4	Yes				
	T602	199.00	80	92	4	55-26		6 1/2	2			C	2 1/2	Yes				
	T600	149.00	60	91	4	55-23		6 1/2	2			C	2 1/4	Yes				
	T502	149.00	60	91	4	60-23		5 1/4	2			C	2 1/4	Yes				
	T500	119.00	60	91	4	60-20		5 1/4	2			F	2 1/2	Yes				
	TL410	119.00	80	92	4	55-20		4 x 10	2			F	3 1/4	Yes				
TL460	49.00	20	88	4	90-12		4 x 6				F	1 3/4	Yes					
TL460M	49.00	20	91	4	90-12		4 x 6				F	1 3/4	Yes					
TL400	99.00	25	89	4	100-15		4				C	1 3/4	Yes					
TL400SD	59.00	40	91	4	100-15		4				F	1 3/4	Yes					
TL350	49.00	15	87	4	115-15		3 1/2				F	1 1/2	Yes					
JENSEN	JTE-830	249.95	200	94	4	60-25 ±3					No	S		No	Carpeted enclosure; for standard pickups. Carpeted enclosure; for smaller pickups and hatchbacks. Fits European cars. As above.			
	JTE-630	199.95	91	4							No	S		No				
	JXL-522	99.95	100	91	4	58-20 ±3		5 1/4	2		No	F		No				
	JCX-225	79.95	80	90	4	60-20 ±3		5 1/4	2		No	F		No				
	JW-1200	79.95	325	92	4	20-2.5 ±3	S	12			No	F	5 1/4	No				
	JW-1000	69.95	250	91	4	25-2.1 ±3	S	10			No	F	4 1/2	No				
	JSM-301	139.95	100	88	4	85-20 ±3		4	3			S		No				
	JSM-401	179.95	120	90	4	80-20 ±3		(2)4	2		No	S		No				
	JCX-220	69.95	130	92	4	45-22 ±3		6 x 9	3		No	F	4 1/2	No				
	JTX-320	99.95	140	93	4	45-22 ±3		6 x 9	3		No	F	4 1/2	No				
	JFX-165	59.95	75	92	4	62-20 ±3		6 1/2	W		No	F	2 1/4	No				
	JCX-240	69.95	140	92	4	45-22 ±3		6 x 9	2		No	F	4 1/2	No				
	JTX-340	99.95	150	93	4	45-22 ±3		6 x 9	3		No	F	4 1/2	No				
	JTE-602	160.95	100	91	4	75-22		6 1/2	2		No	S		No				
	JTX-300	119.95	150	92	4	40-25		6 x 9	3		No	F	4	No				
	JCX-200	89.95	150	91	4	40-22		6 x 9	2		No	F	4	No				
	JTX-365	99.95	120	91	4	58-20		6 1/2	3		No	F	1 1/2	No				
	JCX-265	69.95	90	90	4	60-20		6 1/2	2		No	F	1 1/2	No				
	JFX-140	44.95	60	88	4	70-20		4	W		No	F	1 1/2	No				
	JXL-693	129.95	175	93	4	40-26		6 x 9	3		No	F	4	No				
JXL-653	109.95	135	91	4	58-23		6 1/2	3		No	F	1 1/2	No					
JXL-452	69.95	80	90	4	65-23		4 1/2	2		No	F	1 3/4	No					
JXL-401	49.95	65	88	4	70-21		4	W		No	F	1 1/2	No					
JXL-461	37.95	50	91	4	65-21		4 x 6	W		No	F	1 1/2	No					
JXL-351	32.95	50	86	4	70-20		3 1/2	W		No	F	1 3/4	No					

# SPEAKERS

MANUFACTURER	Model	Price \$ (If Sold Individually)	Price \$ (If Sold in Pairs)	Recommended Maximum Power, Watts	Sensitivity, dB SPL (1 Watt/1 Meter)	Impedance, Ohms	Frequency Response, Hz to kHz, ±dB	DRIVERS										Notes
								Supra-woofer Only (S) Midrange Only (M) Tweeter Only (T)	Wooler Size, Inches	Woofer Only (W) Tweeter Only (T)	Woofer (W) 3-Way (3), 4-Way (4)	Amplifier Tweeter(s) = A Pointable Tweeter(s) = P	Separately Mounted Drivers?	Flush Mount (F) Convertible (C) Pole (P)	Maximum Required Mounting Depth, Inches	Weatherproofed?		
JENSEN (Continued)	J1445	34.95	25	88	4	70-17		4 1/2	W				C	1 5/8				
	J1401	129.95	45	92	4	40-20		4 x 10	3			No	F	2 5/8				
	J1405	84.95	45	92	4	45-18		4 x 10	2			No	F	2 5/8				
	J1350	32.95	25	83	4	80-15		3 1/2	W			No	F	1 3/8				
	JTE-802	249.95	150	94	4	60-25		8	2	A		No	S				As above.	
JSE	361	29.95	25	90	4	120-18 ±3		3 1/2					F	1 1/2	No			
	411	49.95	30	88	4	100-18 ±3		4	W				F	1 5/8	No			
	421	59.95	40	88	4	100-20 ±3		4	2	No	No	No	S	1 5/8	No			
	456	99.95	100	90	4	100-18 ±3		4	2	No	No	No	S	1 5/8	No			
	531	79.95	60	90	4	80-20 ±3		5 1/2	3	No	No	No	F	2	No			
	601	19.95	15	90	4	100-10 ±3		6 1/2					F	1 3/8	No			
	611	49.95	50	90	4	80-18 ±3		6 1/2	W				F	1 7/8	No			
	621	69.95	60	88	4	80-20 ±3		6 1/2	2		No	No	F	1 7/8	No			
	631	89.95	60	90	4	80-20 ±3		6 1/2	3		No	No	F	1 7/8	No			
	681	99.95	80	87	4	75-20 ±3		6 1/2	3		No	No	F	2 5/8	No			
	721	49.95	30	88	4	100-20 ±3		4 x 6	2		No	No	F	1 5/8	No			
	731	59.95	30	87	4	100-20 ±3		4 x 6	3		No	No	F	1 5/8	Yes			
	921	99.95	120	90	4	50-18 ±3		6 x 9	2		No	No	F	3 3/8	No			
	931	109.95	120	90	4	50-20 ±3		6 x 9	3		No	No	F	3 3/8	Yes			
	941	129.95	150	89	4	50-20 ±3		6 x 9	4		No	No	F	3 3/8	Yes			
1051	89.95	60	88	4	60-20 ±3		4 x 10	3		No	No	F	2 3/4	No				
S-4011	49.95	60	90	4	1.5k-20k ±3	T							F	1	No			
S-4021		54.95	50	90	4	90-12 ±3	M						F	2	Yes			
S-4041	49.95	200	90	4	20-3.5 ±3	W		8					F	3 3/4	Yes			
S-4051	69.95	250	91	4	20-3.5 ±3	W		10					F	4 1/2	Yes			
S-4061	99.95	300	91	4	20-3 ±3	W		12					F	4 7/8	Yes			
JVC	CS-X416	69.95	45	88	4	50-20		4	W			No	F	1 3/4	Yes			
	CS-X426	79.95	45	88	4	50-20		4	2			No	F	1 3/4	Yes			
	CS-X616	69.95	75	91	4	40-20		6 1/2	W			No	F	1 7/8	Yes			
	CS-X626	89.95	100	91	4	40-20		6	2			No	F	1 7/8	Yes			
	CS-X6926	119.95	100	92	4	30-20		6 x 9	2			No	F	2 3/8	Yes			
	CS-X6936	159.95	135	92	4	30-20		6 x 9	3			No	F	2 7/8	Yes			
	CS-103	229.95	60	88	4	40-25		4	2			No	P	1	Yes			
	CS-105	299.95	120	87	4	30-30		5 1/4	2			No	P	1 3/4	Yes			
	CS-106	479.95	150	88	4	25-35		6 3/4	3			No	P	1 7/8	Yes			
	CS-304	34.95	30	87	4	80-15		3 1/2	W				F	1 5/8	Yes			
	CS-417	39.95	45	87	4	50-20		4	W				F	1 3/4	Yes			
	CS-427	49.95	45	86	4	50-20		4	2				F	1 3/4	Yes			
	CS-424	34.95	45	87	4	50-20		4	2				F	1 3/4	Yes			
	CS-4624	89.95	45	89	4	50-20		4 x 6	2				F	1 7/8	Yes			
	CS-4625	99.95	45	89	4	50-20		4 x 6	2				F	1 3/4	Yes			
	CS-515	59.95	60	90	4	50-20		5 1/4	W				F	1 3/4	Yes			
	CS-525	79.95	60	90	4	50-20		5 1/4	2				F	1 3/4	Yes			
	CS-617	59.95	60	90	4	40-19		6	W				F	1 3/4	Yes			
	CS-627	74.95	100	90	4	40-20		6	2				F	1 7/8	Yes			
	CS-635	99.95	120	89	4	40-20		6 1/2	3				F	2 1/4	Yes			
	CS-4124	129.95	60	90	4	40-20		4 x 10	2				F	3	Yes			
	CS-5724	129.95	60	91	4	40-20		5 x 7	2				F	2 1/2	Yes			
	CS-6917	89.95	75	92	4	30-15		6 x 9	W				F	2 5/8	Yes			
	CS-6935	179.95	150	93	4	30-20		6 x 9	3				F	3 1/8	Yes			
	CS-8007	169.95	70	90	4	50-20		4	3				S	3	Yes			
	CS-8009	199.95	100	91	4	40-20		4 1/2	4				S	3	Yes			
	CS-101	119.95	200	93	4	2k-30k	T						S	3/4	Yes			
	CS-M04	99.95	150	88	4	45-7	M						F	1 3/4	Yes			
	CS-M05	89.95	150	88	4	45-7	M						F	2 1/4	Yes			
	CSF-08	169.95	200	89	4	30-2	S		8				F	3 3/8	Yes			
	CS-F10	199.95	300	89	4	20-1	S		10				F	4 3/8	Yes			
	CS-F12		400	94	4	18-4	S		12				F	5 1/8	Yes			
CS-F300	129.95					S		6				S		Yes				
	249.95		†	86	†	20-2											†Dual voice-coils, 50 watts and 4 ohms per coil.	
	CS-F800	429.95		87	†	20-150 Hz	S	8									†As above but 150 watts. Trunk-mount.	
KEF	GT-100	250.00	50	90	4	50-20 ±3		4 1/2	2		No	P	1 3/4	Yes				
	GT-200	575.00	100	90	4	50-20 ±3		8	3		Yes	P	†	Yes			†1 3/4 inches for satellites, 12 inches for enclosed subwoofers. External crossover required.	
	KAR-19S	120.00	70	90	4	2.5k-22k ±3	T					S		Yes				
	KAR-19F	120.00	70	90	4	2.5k-22k ±3	T					F	1 1/2	Yes			As above.	
	KAR-33A	120.00	100	90	4	2.5k-20k ±3	T			A/P		S		Yes			As above.	
	KAR-33F	120.00	100	90	4	2.5k-20k ±3	T					F	1 3/4	Yes			As above.	
KAR-110	120.00	100	90	4	50-5	W/M		4 1/2				F	2 1/8	Yes			As above.	
KAR-200SW	350.00	100	90	4	30-250 Hz	S		8				F	12	Yes			As above; enclosed subwoofer.	
KENWOOD	KFC-W212	149.00	300	90	4	30-3	S	12					F	5 1/8				
	KFC-W210		300	92	4	30-3	S	10					F	4 1/2				
	KFC-W106		129.00		4		W	6					F					
	KFC-P104		179.00	150	89	4	65-20					Yes	†	1 3/4			†Flush-mount midrange, surface-mount tweeter.	
	KFC-P105		199.00	150	90		60-20					Yes	†	2 1/4				
	KFC-6992		199.00	200	92	4	35-25 ±3						F, S	3 1/4	Yes			
	KFC-6982		149.00	150	91	4	50-20 ±3		6 x 9	3			F, S	3 1/8	Yes			
	KFC-6972		129.00	100	91	4	65-20 ±3		6 x 9	3			F, S	3	Yes			
	KFC-6962		99.00	75	91	4	65-20 ±3		6 x 9	2			F, S	2 3/4	Yes			
	KFC-463V		79.00	45	89	4	70-20		4 x 6	2			F	1 3/4	Yes			
	KSC-7701	249.00	200	90	4	35-20		(2)10	3		A	No	S		No		Box enclosure; for hatchbacks.	
KFC-W112	249.00	400	96	4	27-1	S	12					F	4 1/2	Yes				
KFC-W110		300	89	4	35-1	S	10					F	4 3/8	Yes			Dual voice-coils.	



# SPEAKERS

MANUFACTURER	Model	Price, \$ (if Sold Individually)	Price, \$ (if Sold in Pairs)	Recommended Maximum Power, Watts	Sensitivity, db SPL (1 Watt/1 Meter)	Impedance, Ohms	Frequency Response, Hz to kHz, ±db	DRIVERS										Notes
								Subwoofer Only (S)	Midrange Only (M)	Tweeter Only (T)	Woofer Size, Inches	Woofer (W) / 3-Way (C) / 4-Way (Z)	Agile Tweeter(s) = A / Piezoelectric Tweeter(s) = P	Separately Mounted Drivers?	Flush Mount (F) / Surface Mount (S) / Conceivable (C) / Pile (P)	Maximum Required Mounting Depth, Inches	Wedge/Protoproof?	
KENWOOD (Continued)	KFC-W108	199.00	300	89	4	45-2	S	8					F	3 3/8	Yes	Box enclosure for trucks; tweeter overload protection. As above.		
	KFC-W169	199.00	300	89	4	45-7	W	6 x 9					F	3 1/2	Yes			
	KFC-M105	109.00	300	88	4	45-7	M						F	2 1/4	Yes			
	KFC-M104	99.00	300	87	4	45-10	M						F	1 3/4				
	KFC-T101	99.00	300	88	4	2k-23k	T						F	3/8				
	KSC-9900	249.00	200	90	4	40-20		10		2		Yes	F					
	KSC-8800	199.00	150	90	4	50-20		8		2		Yes	S					
	KSC-5100	169.00	60	85	4	60-20		4		2		Yes	S					
	KSC-3300	249.00	100	90	4	50-30		5		2	A	No	P	1 1/8	Yes			
	KSC-2200	199.00	100	90	4	50-20		5		2	A	No	P	1 1/8	Yes			
	KFC-1692	149.00	150	90	4	35-22		6 1/2		2	A	No	F	2 3/4	Yes			
	KFC-1682	119.00	110	90	4	45-21		6 1/2		3	A	No	F	2 1/8	Yes			
	KFC-1672	99.00	90	92	4	50-20		6 1/2		2	A	No	F	1 1/8	Yes			
	KFC-1662	79.00	60	92	4	55-20		6 1/2	W		A	No	F	1 1/8	Yes			
	KFC-1382	109.00	60	90	4	50-21		5		3	A	No	F	1 3/4	Yes			
	KFC-1372	89.00	50	90	4	50-20		5		2	A	No	F	1 3/4	Yes			
	KFC-1362	59.00	50	90	4	60-20		5	W		A	No	F	1 3/4	Yes			
	KFC-1278	99.00	60		4			5		2	A	No	F	1 1/8	Yes			
	KFC-1072	89.00	45	90	4	60-21		4		2	A	No	F	1 3/4	Yes			
	KFC-103X	79.00	45	90	4	60-20		4	W		A	No	F	1 3/4	Yes			
KFC-1048	79.00	30	90	4	60-20		4		2	A	No	F	1 1/8	Yes				
KFC-411G	99.00	100	91	4	60-20		4 x 10		2	A	No	F	2 1/2	Yes				
KFC-4671	99.00	45	91	4	60-20		4 x 6		2	A	No	F	1 1/8	Yes				
KFC-830G	39.00	30	89	4	96-20		3 1/2	W			No	F	1 1/8	Yes				
KICKER	SS-15	649.95	300	4	4	28-39		(2)15	3	A	No	S		No	Cabinet enclosure; for trucks. Cabinet enclosure; for small trucks. Cabinet enclosure; for hatchbacks and four-wheel drive vehicles. Mounts behind seat in pickups. Mounts behind seat in mini trucks. Mounts behind seat in full-sized pickups. Rear mount in hatchbacks and 4 x 4 vehicles. As above. Cabinet enclosure; drops in rear well of Camaros, Trans Ams, and Firebirds. Mounts on rear deck in cars, ceiling mount in vans, behind seat in pickups. Mounts on rear side panels in 4 x 4 vehicles and vans, on rear deck in cars. Satellite and subwoofer system. Cabinet enclosure; for trucks. Cabinet enclosure; for hatchbacks and fastbacks. Requires 3.7-cubic-foot box enclosure. As above but 3.0 cubic feet. As above but 2.0 cubic feet. As above but 1.5 cubic feet. As above but 0.75 cubic foot. As above. As above. As above.			
	TLM-10	629.95	350	4	4	19-21		(2)10	2	A	No	S		No				
	SJ-10	449.95	200	4	4	38-39		(2)10	2	A	No	S		No				
	ST-12	479.95	250	4	4	35-39		(2)12	2	A	No	S		No				
	ST-10	429.95	200	4	4	38-39		(2)10	2	A	No	S		No				
	SS-12	479.95	250	4	4	30-39		(2)12	2	A	No	S		No				
	Kicker Side-Kicks Super-Kicks	299.95	100	4	4	40-39		(2)6 1/2	2	A	No	S		No				
		319.95	100	4	4	40-39		(2)6 1/2	2	A	No	S		No				
		369.95	100	4	4	38-39		(2)8	2	A	No	S		No				
	Kicker II	309.95	100	4	4	40-39		(2)6 1/2	2	A	No	S		No				
	Super II CTF	369.95	150	4	4	38-39		(2)8	2	A	No	S		No				
		449.95	150	4	4	29-39		(2)8	2	A	No	S		No				
	Classic	259.95	75	4	4	50-29		(2)5	2	A	No	S		No				
	Colts	269.95	75	4	4	50-29		(2)5	2		No	S		No				
	Compact Bandits	319.95	75	4	4	40-20		(2)5	2		Yes	S		No				
	Bullets	209.95	50	4	4	50-27		(2)6 1/2	2	A	No	S		No				
		209.95	50	4	4	50-27		(2)6 1/2	2	A	No	S		No				
	C-18	425.00	1k	93	4/8	20-1.5	S	18					F	7 1/2		Yes		
	C-15	180.00	500	93	4/8	25-3	S	15					F	6		Yes		
	C-12	140.00	400	93	4/8	25-3	S	12					F	5		Yes		
	C-10	117.00	300	94	4/8	25-3	S	10					F	4 3/4		Yes		
	C-8	75.00	200	95	4/8	30-3.5	W	8					F	3 3/4		Yes		
	C-6.5	70.00	150	96	4/8	30-3.5	W	6 1/2					F	2 7/8		Yes		
	F-15	180.00	300	93	4/8	25-3	S	15					F	6		Yes		
	F-12	140.00	250	94	4/8	25-3	S	12					F	5		Yes		
	F-10	117.00	200	94.5	4/8	25-3	S	10					F	4 3/4		Yes		
	F-8	75.00	150	95	4/8	30-3.5	W	8					F	3 3/4		Yes		
	F-6 x 9	70.00	150	96	4/8	30-3.5	W	6 x 9					F	3 3/8		Yes		
	F-6.5	70.00	100	96	4/8	30-3.5	W	6 1/2					F	2 7/8		Yes		
	F-5.25	55.00	90	91	4/8	50-6	W	5 1/4					F	2 1/2		Yes		
F-4	38.00	70	89	4/8	60-6	M						F	2 1/8	Yes				
F-3.5	32.50	40	88	4/8	90-15	M						F	1 3/8	Yes				
FX-69	249.50	160	96	4	30-21		6 x 9		2		No	S		Yes				
FX-65	239.50	100	96	4	30-21		6 1/2		2		No	S		Yes				
FX-46	199.50	90	87	4	50-20		4 x 6		2		No	S		Yes				
FX-525	229.50	90	87	4	50-20		5 1/4		2		No	S		Yes				
D-20	28.50	75	93	6	3k-21k	T						C	3/4	Yes				
D-14	26.50	50	92	4	4.5k-20k	T						C	3/4	Yes				
KRACO	FX-93	119.95	100	96	4	40-20		6 x 9	3	A	No	F	3 3/8	No	Box enclosure.			
	FX-95	175.00	100	96	4	20-20		6	2	A	Yes	S		No				
	TRI-500	99.95	50	86	4	85-20		4	3	A	No	S		No				
	CX-300	54.95	25	85	4	150-16		3 1/2	2	A	No	S		No				
	TRI-369	74.95	50	89	4	60-17		6 x 9	3		No	S		No				
	CX-269	49.49	40	86	4	65-16		6 x 9	2		No	F	3 1/2	No				
	CX-120	49.95	40	86	4	90-16		6 1/2	2		No	F	2 1/2	No				
	CX-2-20	49.95	40	86	4	90-16		5 1/4	2		No	F	2 1/4	No				
	THP-3	44.95	25	86	4	150-20		3 1/2	2		No	F	1 1/4	No				
	CX-240	49.95	40	89	4	90-16		4	2		No	F	1 3/4	No				



# SPEAKERS

MANUFACTURER	Model	Price, \$ (If Sold Individually)	Price, \$ (If Sold in Pairs)	Recommended Maximum Power, Watts	Sensitivity, dB SPL (1 Watt 1 Meter)	Impedance, Ohms	Frequency Response, Hz to kHz, ± dB	DRIVERS										Notes
								Subwoofer Only (S)	Woofer Only (W)	Midrange Only (M)	Tweeter Only (T)	Woofer Size, Inches	Woofer (W), 2-Way (S), 3-Way (S), 4-Way (S)	Agled Tweeters (A)	Variable Tweeters (V)	Separately Mounted Drivers?	Flush Mount (F)	
LANZAR SOUND	MWS 6.5	129.95	100	98	4	120-6 ± 3	W	6 1/2						F	3 1/4	No		
	MD-4	59.95	80	98	4	200-7 ± 3	M							F	1 1/4	No		
	DMT	79.95	100	100	4	2k-25k ± 3	T							F	1 1/4	No		
	DST	49.95	60	100	4	4k-26k ± 3	T							F	3/8	No		
	HT-100	29.90	100	98	4	4k-20k ± 3	T							F	2	No		
	LN-8	64.95	80	96	4	39-4 ± 3	W	8						F	3 1/2	No		
	LN-10	69.95	100	96	4/8	35-4 ± 3	S	10						F	4	No		
	LN-12	94.95	150	96	4/8	32-4 ± 3	S	12						F	5 1/2	No		
	LN-15	124.95	200	98	4/8	30-4 ± 3	S	15						F	6 1/2	No		
	LN-18	219.95	250	98	4	25-4 ± 3	S	18						F	7 1/2	No		
	OA-8	69.95	80	96	4	38-3 ± 3	S	8						F	3 3/4	No		
	DA-10	89.95	120	96	4	36-3 ± 3	S	10						F	4 3/4	No		
	OA-12	104.95	150	98	4	34-3 ± 3	S	12						F	5 1/2	No		
	DA-15	134.95	200	98	4	24-3 ± 3	S	15						F	6 3/4	No		
	LC 8S	89.95	150	96	4/8	35-4 ± 3	S	8						F	4	No		
	LC 10S	109.95	200	96	4/8	30-4 ± 3	S	10						F	4 1/2	No		
	LC 12	165.95	300	98	4/8	26-4 ± 3	S	12						F	5 1/2	No		
	LC 15	199.95	350	98	4/8	24-4 ± 3	S	15						F	6 1/4	No		
	LC 18	279.95	450	99	4	22-4 ± 3	S	18						F	7 1/2	No		
	LA SOUND	LS401	15.00	25	89	4	100-20 ± 3		4						F	1 1/2	No	
LS601		24.00	30	91	4	90-20 ± 3		6 1/2						F	2	No		
LS602		29.00	50	91	4	60-20 ± 3		6 1/2	2		No			F	2	No		
LS692		34.00	50	91	4	60-20 ± 3		6 x 9	2		No			F	3 3/4	No		
LS693		39.00	100	91	4	60-20 ± 3		6 x 9	3		No			F	3 1/2	No		
LX8-100			50	91	4	40-20 ± 3		8	2	A				S		No	Box enclosure.	
LX10-150			75	91	4	40-20 ± 3		10	2	A				S		No	As above.	
LX10-200			100	91	4	40-20 ± 3		10	2	A				S		No	As above.	
LX12-200			100	91	4	40-20 ± 3		12	2	A				S		No	As above.	
LX12-300			150	92	4	40-20 ± 3		12	2	A				S		No	As above.	
LX15-300		150	92	4	40-20 ± 3		15	2	A				S		No	As above.		
LX15-400		200	92	4	40-20 ± 3		15	2	A				S		No	As above.		
LINEAR POWER	BV-1	200.00	150	90	†	20-150 Hz	S	(2)8						F	10	No	†8 ohms in mono mode, 4 ohms in stereo. Two woofers fire through one 3 x 9-inch faceplate.	
	1752S	1500. Sys.	175 Inc.			20-100 Hz	S	(4)8						F	3 3/4	No	Mono; includes feedback-servo amp. (See "Amps/Equalizers.")	
MAJESTIC	MCS3A	39.95	60	88	4	4k-20k	T							F	1 1/2			
	MCS4	39.95	150	92	4	3k-20k	T							F	1 1/2			
	MCS5A	49.95	100	90	4	500-10	M							F	2 3/4			
	MCS6A	49.95	100	92	4	60-10	W	6 1/2						F	3 1/4			
	MCS8A		100	92	4	20-2.5	W	8						F	3 1/2			
	MPS42SL	59.95	60	92	4	60-20		4	2		No			F	1 1/2	Yes		
	MPS52SL	59.95	60	92	4	60-20		5 1/4	2		No			F	1 3/4	Yes		
	MPS62SL	69.95	60	92	4	50-20		6	2		No			F	1 3/4	Yes		
	MPS692	89.95	125	92	4	40-20		6 x 9	2		No			F	4 1/4	Yes		
	MPS69	99.95	150	92	4	40-22		6 x 9	3		No			F	4 1/4	Yes		
	MS6510	39.95	30	90	4	40-20		6	W					F	1 3/8	No		
	MS6516	49.95	30	90	4	30-20		6	2		No			F	1 3/8	No		
	MS4123	49.95	35	90	4	50-20		4 x 10	3		No			F	2 3/8	No		
	MS265HE	24.95	20	98	4	60-18		6 1/2	W					F	2	No		
	MS269HE	49.95	25	98	4	60-18		6 x 9	W					F	3	No		
	MS4010	29.95	20	88	4	100-16		4	W					F	1 1/2	No		
	MS4012	29.95	30	88	4	50-18		4	2		No			F	1 1/2	No		
	MS355	19.95	10	88	4	120-16		3 1/2	W					F	1 1/2	No		
	MS4620	39.95	30	88	4	60-18		4 x 6	2		No			F	1 1/2	No		
	MS69120W	79.95	60	90	4	45-20		6 x 9	3		No			F	3 1/8	No		
	MS566	79.95	40	88	4	45-20		6 x 9	3		No			F	3	No		
	MS30	49.95	50	90	4	80-21		3 1/2	3		No			S		No	Bass reflex enclosure.	
	MS40	69.95	60	90	4	80-21		4	3		No			S		No	As above.	
	MS50	99.95	100	90	4	60-20		4	3		No			S		No	As above; honeycomb woofer.	
	MS560	149.95	150	90	4	60-24		4	4		No			S		No	As above.	
	MS590	49.95	25	88	4	80-18		3	3		No			S		No	Cabinet enclosure.	
	MS5100	99.95	100	92	4	60-20		4	3		No			S		No	As above.	
	MS5600	119.95	100	92	4	50-20		4	3		No			S		Yes		
	MS5650WP	119.95	100	92	4	50-20		4	3		No			S		Yes		
	MS570	129.95	125	92	4	65-20		5 1/4	4		No			S		No	For pickup trucks, vans, and hatchbacks.	
MAVRICK	Nonspeaker	1200.00	100	90	5	40-40 ± 3		6	2		No		P	2	Yes	External crossover.		
	Ribbon																	
	Uniplate System	1500.00	100	90	5	38-40 ± 3		6	2		No		S		Yes	As above; tuned enclosure; bi-wired.		
	Nonspeaker	2000.00	200	91	7	22-40 ± 3		12	2		No		S		Yes	As above.		
Automotive																		
Monitor	2000.00	200	92	7	18-200 Hz	S	12			No			S		Yes	Transmission line enclosure; requires crossover; for trucks and vans.		
Nonspeaker																		
Ribbon																		
Automotive																		
Reference																		
Nonspeaker																		
Transmission																		
Line																		
Subwoofer																		

# SPEAKERS

MANUFACTURER	Model	Price, \$ (If Sold Individually)	Price, \$ (If Sold in Pairs)	Recommended Maximum Power, Watts	Sensitivity, dB SPL (1 Watt/1 Meter)	Impedance, Ohms	Frequency Response, Hz to KHz, ±dB	DRIVERS										Notes
								Subwoofer Only (S) Midrange Only (M) Tweeter Only (T)	Woofer Size, Inches	Woofer (W) 3-Way (3), 4-Way (4)	Angle Tweeter(s) = A, Point-to-Point Tweeter(s) = P	Separately Mounted Drivers?	Flush Mount (F), Convertible (C), Plate (P)	Maximum Required Mounting Depth, Inches	Weatherproofed?			
MB QUART	QM 215 Goli	329.00	60	4	48-32		5 1/4	2		Yes	F		Yes	For Volkswagen Golf GTI and Jetta (1988 on).				
	QM 215 BMW	289.00	60	4	45-32		5 1/4	2		Yes	F		Yes	For BMW 5 series (1988 on) and BMW 7 series (1987 on).				
	QM 215 Passat	319.00	60	4	48-32		5 1/4	2		Yes	F		Yes	For Volkswagen Passat (1990 introduction).				
	QM 100/19	99.00	30	89	4	100-10	M				F		Yes					
	QM 130 TC/S	149.00	60	4	4	45-3.5	W	5 1/4			F		Yes					
	QM 130TC	159.00	60	4	4	48-3.5	W	5 1/4			F		Yes					
	QM 160TC	179.00	80	89	4	40-3.2	W	6 1/2			F	2	Yes					
	QM 19HC	129.00	60	92	4	3.5k-32k	T				F	1/4	Yes					
	QM 25HC	299.00	100			100-3.5	M				C	1 1/2	Yes	4-inch midrange fits dash of Japanese cars.				
	QM 100MC	140.00									C	2 1/2	Yes					
	QM 120K	179.00	80	90	4	40-20		6 1/2	2		C	2	Yes					
	QM 130K	199.00	60	88	4	50-32		5 1/4	2		C	2 1/4	Yes	For Mercedes-Benz 200 and 300 series.				
	QM 130K W 124	199.00	60	88	4	50-32		4 1/4	2		F	2 1/4	Yes	For rear deck of Mercedes 200 and 300 series.				
	QM 130K W 124 Heck	239.00		89		48-32			2			2 1/4	Yes	For rear deck of Mercedes 200 and 300 series.				
	QM 160K	249.00	80	90	4	40-32		6 1/2	2		C	2 1/4	Yes					
	QM 210K	449.00	100	90	4	35-32		8	2	A		3 1/4	Yes	External crossover supplied.				
	QM 210TC	319.00	100	90	4	33-200 Hz	S	8					Yes					
QM 215CS	289.00	60	90	4	48-32		5 1/4	2		Yes	2	Yes						
QM 218CS	329.00	80	90	4	40-32		6 1/2	2		Yes	2 1/4	Yes						
QM 325CS	479.00	60	90	4	48-32		5 1/4	3		Yes	2	Yes						
QM 328CS	529.00	80	90	4	38-32		6 1/2	3		Yes	2 1/4	Yes						
QM 335CS	749.00	90			30-32		8	3		Yes	3 1/4	Yes						
MEI	CK1025	39.95	75	94	4	6k-20k	T				F, S	5/8						
	CK1050	59.95	150	94	4	3k-20k					F, S	1		Midrange and tweeter.				
	CK1250	139.95	300	93	4	30-400 Hz	S	12	2		F, S	4 7/8						
MGA	SC-5260	59.95	60	90	4	45-20		5 1/4	2		No	F	2 1/4	Yes				
	SC-6560	69.95	60	90	4	35-20		6 1/2	2		No	F	1 1/2	Yes				
	ST-6912	99.95	120	92	4	30-20		6 x 9	3		No	F	3 3/4	Yes				
MGT	CSP-6930P	149.95	120	93.5	4	40-20		6 x 9	3		Yes	F	2 7/8	Yes				
	CSP-6530P	139.95	120	92.5	4	50-20		6 1/2	3		Yes	F	2 3/8	Yes				
	CSP-522P	79.95	40	92.5	4	50-20		5 1/4	2		Yes	F	1 3/8	Yes				
	CSP-402P	69.95	40	92.5	4	80-20		4	2		Yes	F	1 1/2	Yes				
	CSP-521PP	69.95	40	92.5	4	45-20		4	2		Yes	F	1 1/2	Yes				
	P-900	89.95	50	92	4	50-20		6 x 9	3		Yes	F	2 3/8	Yes				
	P-600	79.95	50	92	4	70-20		6 1/2	3		Yes	F	2	Yes				
	P-410	84.95	30	92	4	80-20		4 x 10	3		Yes	F	2 1/2	Yes				
	P-460	59.95	25	92	4	90-20		4 x 6	2		Yes	F	1 3/4	Yes				
	P-500	69.95	40	92	4	70-20		5 1/4	2		Yes	F	2 1/4	Yes				
	P-400	55.95	20	92	4	90-20		4	2		Yes	F	1 3/4	Yes				
	P-300	34.95	20	92	4	100-18		3 1/2	2		Yes	F	1 1/2	Yes				
	PR-100W	49.95	50	92	4	60-20		6 x 9	3		Yes	F	2 3/4	No				
	PR-80W	44.95	30	92	4	65-20		6 1/2	3		Yes	F	2	No				
	CES-104	119.95	120	93	4	35-20		4 x 5	4		Yes	S		Yes	Honeycomb woofer; bass-reflex enclosure.			
	CSP-81P	39.95	100	94	4	30-4	S	8				F	3 3/8	Yes				
	CSP-101P	59.95	150	94	4	25-2.5	S	10				F	4 1/4	Yes				
CSP-121P	74.95	200	94	4	20-3	S	12				F	5	Yes					
CSP-15US	119.95	250	96	4	20-2	S	15				F							
CSP-18US	299.95	500	96	4	27-2	S	18				F							
CSP-350D	49.95	60	93	4	2.7k-20k	T					F	3/4	Yes	Removable diaphragm.				
MSP-5220	119.95	40	92	4	50-20		5 1/4	2		Yes	F	1 3/8	Yes					
MSP-5221	124.95	40	92	4	50-20		5 1/4	2		Yes	S		Yes					
CSP-500M	59.95	60	92	4	100-10	M					F	2	Yes	Pin-cushion basket.				
MISC-RED LINE	PC8A-4	57.95	100	96	4	50-3	W	8					4 1/4	↑	↑Optional waterproofing.			
	PC10A-4	63.95	100	97	4	45-2.5	W	10					5 3/8	↑				
	PC12A-4	67.95	100	99	4	40-2	W	12					6 1/8	↑				
	JC69CD-4	52.95	30	97	4	50-20		6 x 9	W				3	Yes				
	JC54CD-4	47.95	30	94	4	85-12		5 1/4	W				3	Yes				
MITSUBISHI	S-6002	109.95	90	90	4	40-20		6 1/2	2		No	F	2	Yes				
	S-6102	99.95	75	90	4	45-20		6 1/2	2		No	F	1 3/8	Yes				
	S-6902	119.95	120	92	4	30-20		6 x 9	2		No	C	3 3/8	Yes				
	S-6903	149.95	150	92	4	30-20		6 x 9	3		No	C	3 1/2	Yes				
	S-4001	69.95	45	88	4	50-20		4	W		No	F	1 1/4	Yes				
	S-4002	79.95	60	88	4	50-20		4	W		No	F	1 1/4	Yes				
	S-4602	79.95	45	88	4	50-20		4 x 6	2		No	F	1 3/8	Yes				
	S-5002	99.95	75	90	4	45-20		5 1/4	2		No	F	2	Yes				
	MOHAWK	M-15	115.00	150	92	4	25-4	S	15					6 1/8				
		M-12	82.50	150	92	4	35-4	S	12					4 7/8				
M-10		67.50	125	91	4	35-4	S	10					4 1/4					
M-8		55.00	100	90	4	40-5	W	8					3 3/4					
M-6.5		42.00	75	90	4	45-10	W	6 1/2					3					
M-5.25		40.00	50	87	4	55-10	M						2 1/2					
M-4		32.50	40	90	4	65-20		4	W				1 3/4					
M-3.5		25.00	30	90	4	95-20		3 1/2	W				1 3/8					
M-14		19.95	50	92	4	5k-20k	T						5/8					
MONOLITHIC SOUND		W-700	59.00	125	91	8	40-2	S	7			S		Yes				
	WA-100	199.00	50	98		30-200 Hz	S	7			S		Yes	Powered subwoofer; box enclosure.				



a/d/s/. The first. Still the best.

Technology and imagination create new possibilities. The music we listen to and the cars we drive were science fiction only fifty years ago—just about the time AM radio was installed in a car. No one would have called it high fidelity, but it was a beginning. Over the next thirty-five years, the quality of music in the car slowly improved, but it was still a distant second to music at home.

Then, fifteen years ago, all that changed when the idea of putting high-performance sound in the car met up with the people and technology to make the idea a reality. It happened at a/d/s/. Since then, products from a/d/s/ have continued to define excellence in automotive hifi.

Our newest, and perhaps best idea for improving automotive sound is 'systems hifi'. Built on the idea of multichannel architecture, systems hifi makes it possible to put absolute performance in virtually any car, at almost any price. Speakers can be placed where they fit and sound best. Power is placed to achieve highest performance, and a single amplifier can power up to six channels.

There are three basic configurations; one will be right for your car. A 2-channel, 2-speaker stereophonic system is the natural starting point. The next level of performance, 4-channel, uses another pair of loudspeakers and two more channels of amplification. A 6-channel, 6-speaker satellite subwoofer system delivers dramatically improved dynamic range and extends useful bass response down to the very fundamentals of music.

No one has more experience bringing high fidelity to the automobile than a/d/s/. To hear the components that an entire industry is trying to imitate, visit your nearest a/d/s/ dealer.

a/d/s/ offers a well thought out series of automotive amplifiers, signal processors, loudspeakers, subwoofers and accessories; all engineered to deliver ultimate performance—and built to handle the rigors of the road. For the name of the dealer nearest you, call 617. 729. 1140.

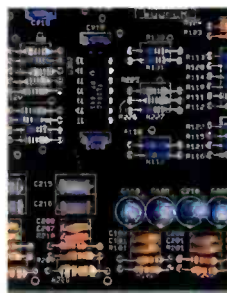
Together, the 320i and 300i have earned more design, engineering and performance awards than any other automotive products. The newest versions, the 320i/s and 300i/s, raise performance standards again.

The 642CSi, an electronic signal processor, integrates all the electronic components of a system and makes any a/d/s/ system compatible with any car stereo head unit—even factory models.

a/d/s/ power plates include 2-, 4-, and 6-channel amplifiers. They are built to sound better and work more reliably than anything else you can buy.

Designed to bring rock-solid bass to cars where interior space is tight, the S6.2i tandem subwoofers underscore all the advantages of the multichannel approach.

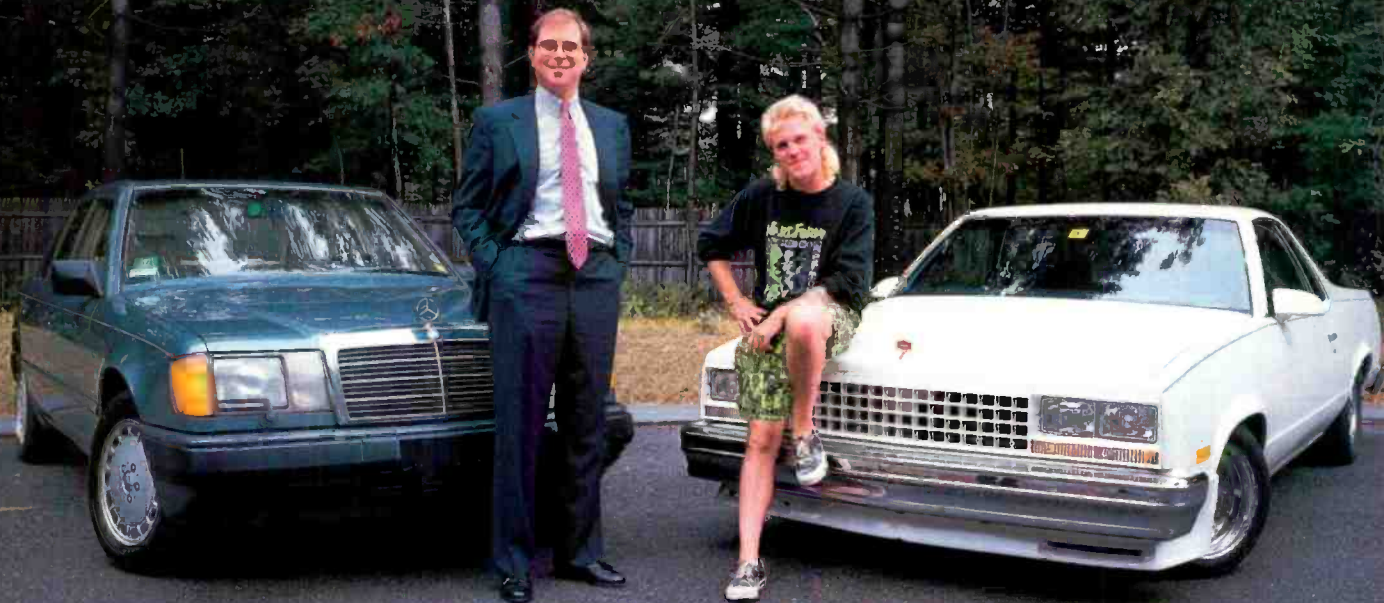
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# SPEAKERS

MANUFACTURER	Model	Price, \$ (If Sold Individually)	Price, \$ (If Sold in Pairs)	Recommended Maximum Power, Watts	Sensitivity, dB SPL (1 Watt / 1 Meter)	Impedance, Ohms	Frequency Response, Hz to kHz, ± dB	DRIVERS										Notes
								Subwoofer Only (W), Midrange Only (M), Tweeter Only (T)	Woofer Size, Inches	Woofer (W), 3-Way (3), 5-Way (5)	Angled Tweeter(s) = A, Pivotal Tweeter(s) = P	Separately Mounted Drivers?	Flush Mount (F), Surface Mount (S), Conceivable (C), Pole (P)	Maximum Required Mounting Depth, Inches	Weatherproof?			
MOREL ACOUSTICS	CR-7 System	498.00	150	91	4	40-20 ±3	T	6	2	P	No	F	1½		Wedge-shaped cabinet.			
	MDT-101S	129.00	200	91	6.4	1.8k-25k ±3	T					F	1½					
	MDT-104	104.00	80	90	6.4	2k-20k	T			P		F	1¼					
	MDT-107H	129.00	200	95	6.4	1.2k-25k	T			P		F	2					
	MDT-105S	149.00	200	91	6.4	1.5k-25k	T			P		F	2					
	MDT-106	258.00	200	92	6.4	1.8k-25k ±2	T			P		F	2½					
	CDM-95	199.00	200	92	6.4	250-5	M					F	1½					
	MCW-162	198.00	120	90	4	40-5	W	6				F	2¼					
	CW-6	198.00	100	90	4	35-5	W	6				F	2					
	CW-8	229.00	120	91	4	30-3.8	W	8				F	2¼					
	CW-10	290.00	150	92	4	30-3.3	W	10				F	2¾					
	CW-12	299.00	150	93	4	25-3.3	W	12				F	4¾					
	CW-15	319.00	200	93	4	20-2.5	W	15				F	5¼					
	PP-10	198.00	200	92	4	25-1.5	W	10				F	2¾					
	Coax-162	187.00	60	89	4	45-20	S	6	2		No	F	2¼					
	Integra 6	254.00	100	91	4	45-25	S	6	2		No	F	2¼					
	Integra 8	289.00	120	92	4	35-25	S	8	2		No	F	2¼					
	Integra 10	329.00	150	92	4	30-25	S	10	2		No	F	2¼					
	166-M System	275.00	120	89	4	45-20	S	6	2	P	Yes	F	2¼					
	226-M System	298.00	150	90	4	35-20	S	8	2	P	Yes	F	2¼					
228-M System	489.00	150	90	4	35-20	S	8	3	P	Yes	F	2¼						
MTX	MTW82	99.95	140	88	2	36.5-2.2 ±3	S	8				F	3¾	No				
	MTW102	104.95	200	89.5	2	27.5-1.8 ±3	S	10				F	4½	No				
	MTW122	114.95	300	89.5	2	26.5-2 ±3	S	12				F	5½	No				
	MTW152	134.95	300	91	2	24-2.1 ±3	S	15				F	6¼	No				
	ESW84	70.95	200	90	4	50-3.7 ±3	S	8				F	3¾	No				
	ESW104	109.95	300	88.3	4	35-2 ±3	S	10				F	4½	No				
	ESW124	119.95	300	89	4	29-1.7 ±3	S	12				F	5½	No				
	ESW154	149.95	300	91.6	4	24-2.1 ±3	S	15				F	6¼	No				
	BX1212	419.95	300	90	4	60-2.2 ±3	S	12				S		No				
	8X1515	449.95	300	91	4	55-2.1 ±3	S	15				S		No				
	RFL6	79.50	120	92	8	145-6.8 ±3	M					S	2½	No				
	TT100	329.95	150	93	4	40-2.5 ±3	S	10				S		No				
	TT103	449.95	150	93	4	40-20 ±3	S	10	3	A	No	S		No				
	65HBS	449.95	300	91	4	50-22 ±3	S	10	3	A	No	S		No				
	95HBS	549.95	400	87	4	40-20 ±3	S	12	3	A	No	S		No				
	105HBS	649.50	500	90	4	60-20 ±3	S	15	3	A	No	S		No				
	MM52	349.95	100	96	4	500-20 ±3	S	5	2		No	P	1	No				
	MM72	399.95	360	92	4	50-20 ±3	S	7	2		No	P	2½	No				
	225HB		1k	91	†		S	15	3	A	No	S	2½	No				
	MTW0VC84	89.95	100	89	4	36-2	S	8				F	3¾	No				
	MTW0VC104	89.95	130	91	4	27-2.5	S	10				F	4¾	No				
	OT-1	69.95	60	91	4	2k-20k	T			P		F	½	No				
	Micro 100C	199.95	70	86.6	4	130-20	T		2	P	Yes	F	½	Yes				
	Micro 300	269.95	100	91.6	4	400-20		6½	2		Yes	F		No				
	MTP46	69.95	60	92	4	400-20		4 x 6	2		Yes	F	1¾	No				
	RFLT1	119.95	†	107	8	5k-20k	T		2			F	2½	No				
	RFL5	69.95	100	95	8	800-10	M	W				F	1¾	No				
	RFL8	99.95	250	93	4	34-2	W	8				F	3½	No				
	RFL10	109.95	300	93	4	32-2	S	10				F	4½	No				
	RFL12	299.95	600	93	4	25-2	S	12				F	5¼	No				
	RFL15	349.95	800	95	4	20-2	S	15				F	6½	No				
	RT54	39.95	80	88	4	74-5.5	S	5¼				F	2¾	No				
	RT694	59.95	150	88	4/8	45-3.5	S	6 x 9				F	3¼	No				
	RT64	59.95	120	88	4/8	35-3.5	S	6				F	3¾	No				
	RT84	69.95	200	90	4/8	39-3.5	S	8				F	3¾	No				
	RT104	74.95	200	88	4/8	28-2	S	10				F	4¾	No				
	RT124	79.95	200	89	4/8	19-1.7	S	12				F	5	No				
	RT154	99.95	200	88	4	22-2	S	15				F	6½	No				
	RFL7	89.95	360	91	8	50-4	M					F	3½	No				
	MR354	26.95	60	83	4	100-7	M					F	1¾	No				
	MR408	22.95	†	91	8	600-10	M					F	2	No				
	MR454	34.95	60	84	4	70-5	M					F	1¾	No				
	MR508	39.95	60	89	8	600-5	M					F	2¼	No				
	37Z684	17.95	60	95.5	†	3.5k-20k	T					F	2½	No				
	1CU757	17.95	†	92	4	3k-20k	T					F	½	No				
	1EB714FP	59.95	†	100	8	2k-20k	T					F	2½	No				
	1HB804P	39.95	†	94	4	2.5k-20k	T					F	½	No				
	1HB805P	39.95	†	95	8	2k-20k	T					F	½	No				
	B3.5	26.95	60	91.5	4	130-20		3½	W			F	1½	No				
	B4.0	39.95	60	96	4	150-20		4			No	F	1½	No				
B4.5	49.95	129.95	89.5	4	90-20		4½	2		No	F	1¾	No					
B5.3	59.95	139.95	60	91	4	75-20		2		No	F	2½	No					
B6.5	69.95	149.95	60	94	4	60-20		2		No	F	2½	No					
B6.9	79.95	159.95	60	94	4	55-20		2		No	F	3	No					
B7.5	89.95	219.95	200	99	4	30-22		2		No	F	3½	No					
B8.5	99.95	200	91	4	39-20		8	2		No	F	¼	No					
65HB	419.95	300	91	4/8	50-22		(2)10		A	Yes	F		No					
55SX	349.95	300	97	4/8	80-20		10	3	A	Yes	F		No					
45SB		419.95	300	97	4/8	55-22		10	3	A	Yes	F		No				
35SB		319.95	200	94	4/8	60-22		8	2	A	Yes	F		No				

# Different Wheels, Different Beats,



## Same Speakers.

Mark Weld, 35, develops commercial real estate and drives a 1988 Mercedes 300E.

Chris Card, 22, does body work on foreign cars and drives a 1987 El Camino.

On weekends, Mark heads for his country house, listening to everything from classical rhapsodies to classic rock.

Chris, on the other hand, heads for the nearest Sound-Off (he's a consistent winner), where he enjoys "blowing the doors off the competition" with his heavy metal CD arsenal.

Mark selected his car's loudspeakers because they turned his Mercedes into a concert hall. Chris chose his because "they shred anybody else's."

The speakers Mark relaxes to, and the speakers Chris competes with, are Quart.

You see, a truly exceptional automotive loudspeaker should handle all types of music, under all kinds of performance conditions.

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Mercedes Install by Rich's Car Tunes, Watertown, MA. El Camino Install by Sound Barrier, Nashua, NH. If you'd like to know more about the sound systems used by Mark or Chris, write to them care of MB Quart.

Enter No. 31 on Reader Service Card

# SPEAKERS

MANUFACTURER	Model	Price, \$		Recommended Maximum Power, Watts	Sensitivity, dB SPL (1 Watt/1 Meter)	Impedance, Ohms	Frequency Response, Hz to kHz $\pm$ dB	DRIVERS						Notes			
		(If Sold Individually)	(If Sold in Pairs)					Subwoofer Only (S)	Wooler Only (W)	Midrange Only (M)	Tweeter Only (T)	Woofer Size, Inches	Woofer (W), 2-Way (2), 3-Way (3), 4-Way (4)		Amplifier Tweeters (A), Passive Tweeters (P)	Separately Mounted Drivers?	Flux Mount (F), Surface Mount (S), Conventional (C), Plate (P)
MTX (Continued)	25SX		249.95	90	4/8	80-22		8				Yes	S		No	As above.	
	BX1010	329.95		200	96	4	30-2	S	(2)10				S		No	As above; external crossover required.	
	BTW 834	89.95		140	85	4	25-2.5	S	8				F	3 3/4	No	External crossover required.	
	BTW 1044	99.95		200	82.5	4	21-2.5	S	10				F	4 3/4	No	As above.	
	BTW 1244	109.95		300	84.5	4	21-2	S	12				F	5 1/4	No	As above.	
	BTW 838	89.95		140	85	8	25-2.5	S	8				F	3 3/4	No	As above.	
	BTW 1048	99.95		200	82.5	8	21-2.5	S	10				F	4 3/4	No	As above.	
	BTW 1248	109.95		300	84.5	8	21-2	S	12				F	5 1/4	No	As above.	
	MTW 84	79.95		200	87	4	33-2	S	8				F	3 3/4	No	As above.	
	MTW 104	89.95		250	89.5	4	23-1.8	S	10				F	4 3/4	No	As above.	
	MTW 124	99.95		300	90	4	24-2	S	12				F	5 1/4	No	As above.	
	MTW 154	119.95		300	87	4	24-1.6	S	15				F	6 1/4	No	As above.	
	MTW 88	79.95		200	87	8	33-2	S	8				F	3 3/4	No	As above.	
	MTW 108	89.95		250	89.5	8	23-1.8	S	10				F	4 3/4	No	As above.	
	MTW 128	99.95		300	90	8	24-2	S	12				F	5 1/4	No	As above.	
MTW 158	119.95		300	87	8	26-3	S	15				F	6 1/4	No	As above.		
NAKAMICHI	SP-60		190.00	80	86	4	45-5	W	6				F	2 3/4	Yes		
	SP-15		250.00	40	87	4	1k-10k	M					F	1 3/4	Yes		
	SP-5		200.00	40	86	4	5k-22k	T					C		Yes		
	SP-55C		250.00	80	86	4	50-22		5 1/2			No	F	2 3/4	Yes		
	SP-46		100.00	20	87	4	90-20		4 x 6	2	W		F	1 3/4	Yes		
	SP-1010	195.00		200	90	4	25-4	S	9 1/4				F	4 1/4	Yes		
	SP-65C		325.00	80	86	4	45-22		6 1/2			†	F	2 3/4	Yes	†Optional angle mount, Model MK-1.	
	SP-35		75.00	20	87	4	90-20		3 1/2		W		F	1 3/4	Yes	†Detachable tweeter.	
	SP-300		425.00	80	86	4	50-22		5 1/4		2	A/P	No	P	1 3/4	Yes	Selectable woofer roll-off frequency.
	SP-200		275.00	80	86	4	50-20		5 1/4		2		No	P	1 3/4	Yes	
	SP-80		250.00	160	92	4	30-1	S	7 1/4		2		No	F	3 3/4	Yes	
	SP-50		149.00	80	87	4	50-6	W	5 1/4				F	1 1/2	Yes	External crossover required.	
SP-40		129.00	40	88	4	75-20		4		W		F	1 1/4	Yes			
SP-10		195.00	40	86	4	2.5k-22k	T				†	C		Yes	As above.		
NIGHT STALKER	NS-4.5PM		53.00	60	92	4/8	90-6	W	4 1/2				F	2	Yes		
	NS-1052PM		65.00	60	92	4/8	70-5	W	5 1/4				F	2	Yes		
	NS-206P		95.00	100	94	4/8	40-4	W	6 1/2				F	2 1/2	Yes		
	NS-308P		113.00	100	93	4/8	30-2	W	8				F	3	Yes		
	NS-4010P		149.00	150	94	4/8	30-2	W	10				F	3 1/2	Yes		
	NS-7010P		239.00	180	94	4/8	20-1	S	12				F	3 3/4	Yes		
	NS-4012P		170.00	150	93	4/8	22-1	S	12				F	4 3/4	Yes		
	NS-6012P		203.00	200	94	4/8	22-1	S	12				F	4 3/4	Yes		
	NS-6015P		233.00	200	94	4/8	20-1	S	15				F	6 1/4	Yes		
	NS-7015P		285.00	250	94	4/8	20-1	S	15				F	6 1/4	Yes		
	NS-830PSW		128.00	160	92	4/8	32-2	S	8				F	3	Yes	Dual voice-coils.	
	NS-1040PSW		158.00	160	94	4/8	30-2	S	10				F	3 1/2	Yes	As above.	
	NS-1240PSW		195.00	250	96	4/8	22-2	S	12				F	4 3/4	Yes	As above.	
	NS-1260PSW		224.00	300	98	4/8	28-2	S	12				F	4 3/4	Yes	As above.	
	NS-1560PSW		269.00	300	98	4/8	25-1	S	15				F	6 1/4	Yes	As above.	
	NS-XL1655B		59.00	40	95	4/8	300-6	M					F	2	No	Sealed-back midrange.	
	NS-DM75		62.00	60	94	8	500-10	M					F	1 1/2	Yes		
	NS-DM39		56.00	60	93	8	500-10	M					F	1 1/2	Yes		
	NS-46P		99.00	30	89	4	300-20	M			2		P	1 1/2	Yes	Midrange and tweeter.	
	NS-CP12	149.00		40	92	8	3k-20k	T					F	1	Yes		
	NS-DT1	56.00		35	92	8	4k-22k	T					F	1 1/4	Yes		
	NS-MP1	15.00		40	89	8	3k-20k	T					F	1 1/2	Yes		
	NS-MT1	15.00		50	93	8	4k-22k	T					F	1	Yes		
	NS-PDT10	47.00		40	96	8	3k-20k	T					F	2	Yes		
	NS-HT1	65.00		40	93	8	4k-22k	T					F	1	Yes		
	NS-PDTS	41.00		50	93	8	4k-22k	T					F	1	Yes		
	NS-PDT10SQ	47.00		40	92	8	4k-22k	T					F	1 1/4	Yes		
	NS-SD10	47.00		70	92	8	1.8k-25k	T					F	1 1/2	No		
	NS-PHT26	38.00		75	95	8	1.5k-18k	T					F	1 3/4	Yes		
	NS-DDKD	194.00		60	91	4	68-20		4		2		F		Yes		
	NS-4PCX	98.00		60	92	4	65-20		5 1/4		2	No	F		Yes		
	NS-5PCX	104.00		100	92	4	40-18		6 1/2		2	No	F		Yes	Blamp capable.	
NS-206PCX	149.00		100	92	4	30-18		8		2	No	F		Yes	As above.		
NS-308PCX	158.00		250	99	8	30-4	W	10				F		Yes			
NCS-10	419.00		300	99	8	30-4	S	12				F		Yes			
NSC-12	509.00		400	100	8	18-4	S	15				F	7 1/4	Yes			
NSC-15	539.00		400	101	8	16-4	S	18				F	8 1/4	Yes			
NSC-18	749.00											F		Yes			
NUMARK	AAS100		619.00	100	94	4	36-20		8		2	A	F	3 3/4		Powered speaker.	
	AAS150		679.00	150	95	4	29-20		10		2	A	F	4 1/4		As above.	
	AAS200		699.00	200	96	4	28-20		12		2	A	F	5		As above.	
	ND-200-8	375.00		100	94	4	36-20		(2)8		2	A	F	3 3/4			
	ND-200-10	419.00		125	95	4	29-20		(2)10		2	A	F	4 1/4			
	ND-200-12	439.00		150	96	4	28-20		(2)12		2	A	F	5			
	NS-100-8		419.00	100	94	4	36-20		8		2	A	F	3 3/4			
	NS-100-10		479.00	125	95	4	29-20		10		2	A	F	4 1/4			
NS-100-12		499.00	150	96	4	28-20		12		2	A	F	5				
DRCA	Dne		690.00	100	93	4	70-19 $\pm$ 2		5 1/4		2	†	P	2 3/4	Yes	†Optional angled base.	
	Two Depth		880.00	100	95	4	55-19 $\pm$ 1.5		7		2	†	P	2 3/4	Yes		
	Great Depth		520.00	200	93	4	45-200 Hz $\pm$ 3	S	(2)7				P	2 3/4	Yes		
			590.00	200	95	4	35-200 Hz $\pm$ 3	S	(2)8				P	3	Yes		

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# SPEAKERS

MANUFACTURER	Model	Price, \$ (If Sold Individually)	Price, \$ (If Sold in Pairs)	Recommended Maximum Power, Watts	Sensitivity, dB SPL (1 Watt/1 Meter)	Impedance, Ohms	Frequency Response, Hz to kHz, ±dB	DRIVERS										Notes				
								Subwoofer Only (S)	Woofer Only (W)	Midrange Only (M)	Tweeter Only (T)	Woofer Size, Inches	Woofer (W), 2-Way (2)	3-Way (3), 4-Way (4)	Applied Tweeter(s) = A	Separately Mounted Drivers?	Flush Mount (F)		Surface Mount (S)	Convertible (C), Plate (P)	Maximum Required Mounting Depth, Inches	Weatherproofed?
ORION	ST-1		40.00	100	91	4	6k-25k ±3	T									F					
	TR-4		60.00	100	91	4	3k-20k ±3	T									F					
	TR-8		60.00	100	89	8	3k-20k ±3	T									F					
	SGX54		98.00	60	88	4	200-8 ±3	M									F					
	SGX64		150.00	100	88	4	50-5 ±3	M									F					
	SGX84		178.00	200	89.1	4	40-2.5 ±3	W	8								F					
	SGX89		178.00	200	90.5	8	40-2.5 ±3	W	8								F					
	SGX104		238.00	250	89.2	4	25-1 ±3	S	10								F					
	SGX108		238.00	250	87.5	8	25-1 ±3	S	10								F					
	SGX124		280.00	400	89.1	4	28-500 Hz ±3	S	12								F					
	SGX128		280.00	400	88.5	8	28-500 Hz ±3	S	12								F					
	SGX154		320.00	400	91	4	20-500 Hz ±3	S	15								F					
	SGX158		320.00	400	89.7	8	20-500 Hz ±3	S	15								F					
HC10		260.00	250	91	2	25-1 ±3	S	10								F						
HC12		320.00	400	91	2	28-500 Hz ±3	S	12								F						
HC15		344.00	400	91	2	28-500 Hz ±3	S	15								F						
OUTRAGEOUS AUDIO	OA-8		179.00	200	95	4	30-27		8		2	A	No	S			Yes					
	OA-10		219.00	300	96	4	30-33		10		2	A	No	S			Yes					
	OA-M12		249.00	350	96	4	25-29		12		2	A	No	S			Yes					
	OA-10X2	229.00	250	95	4	30-33		10		2	A	No	S				Yes					
	OA-12	329.00	500	98	4	25-29		12		3	A	No	S				Yes					
	OA-12J	329.00	500	98	4	25-29		12		3	A	No	S				Yes					
	OA-15	369.00	600	101	4	23-29		15		2	A	No	S				Yes					
	OA-M15	339.00	500	100	4	23-28		15		2	A	No	S				Yes					
	OA-12X2	249.00	300	98	4	25-30		12		2	A	No	S				Yes					
	OA-8X2	179.00	200	96	4	30-27		8		2	A	No	S				Yes					
	OA-415	649.00	1k	103	4	23-33		15		4	A	No	S				Yes					
OWI	900	199.00		30	93	8	40-450 Hz	S	5 1/4				No	S			Yes					
	202		159.00	80	92	8	90-20							S			Yes					
	203		179.00	100	92	8	90-20							S			Yes					
	2300		399.00	60	85	4	50-20							S		1 1/4	Yes					
	2301		299.00	60	90	6	65-20							F		1 1/4	Yes					
PACIFIC SOUND & SIGNAL	PAC40		99.95	40	90	4	50-21		4		2	P	No	S			No					
	CF16	349.95	100	92	6	30-120 Hz	S	(2)8						S			No					
	CF16b	299.95	80	93	6	30-1	W	(2)8						S			No					
	PowerPAC		159.95	25	90	4	60-20		4		2	P	No	S			No					
PAC50		149.95	60	91	4	45-21		5		2	P	No	S			Yes						
PANASONIC	EAB-ST1		59.00	100	92	4	5k-25k	T				P		C		5/8	Yes					
	EAB-W25	129.00	300	92	4	25-5	S	10						F		4 3/8	Yes					
	EAB-H67		109.00	120	93	4	30-25		6 1/2		3	A		F		2 5/8	Yes					
	EAB-H65		79.00	100	92	4	35-22		6 1/2		2	A		F		1 7/8	Yes					
	EAB-H45		75.00	60	92	4	50-22		4		2	A		F		1 3/4	Yes					
	EAB-H98		159.00	200	94	4	30-22		6 x 9		3	A		F		3	Yes					
	EAB-H97		119.00	120	94	4	30-22		6 x 9		3	A		F		3	Yes					
	EAB-H95		99.00	100	93	4	40-20		6 x 9		2	A		F		2 3/4	Yes					
	EAB-H93		65.00	80	93	4	40-20		6 x 9		2	A		F		2 3/4	Yes					
	EAB-S33		30.00	40	90	4	100-20		3 1/2		W			F		1 3/8	Yes					
	EAB-051		35.00	40	93	4	50-15		5					F		1 3/4	Yes					
	EAB-T501		45.00	40	89	4	50-16 ±3		5		W			F		3 1/8	Yes					
	EAB-T651		75.00	50	92	4	40-22 ±3		6 1/2		2	A	No	F		1 1/2	Yes					
	EAB-466		55.00	50	90	4	60-22 ±3		4 x 6		2		No	F		1 3/8	Yes					
	EAB-4152		89.00	60	92	4	45-22 ±3		4 x 10		2		No	F		3 3/8	Yes					
	EAB-S651		55.00	50	92	4	40-22 ±3		6 1/2		2	A	No	F		1 7/8	Yes					
	EAB-S412		35.00	40	91	4	50-20 ±3		4		W			F		1 3/4	Yes					
	EAB-S452		45.00	40	92	4	50-22 ±3		4		2	A	No	F		1 3/4	Yes					
	EAB-0552		55.00	60	91	4	40-22 ±3		5 1/4		2		No	F		2 1/8	Yes					
	EAB-S611		45.00	50	92	4	40-20 ±3		6 1/2		W			F		1 3/8	Yes					
PEERLESS	CO100		50.00	250	94	6	2k-25k ±3	T						F		1 1/8						
	CO105		55.00	250	92	6	2k-20k ±3	T						F		7/8						
	CM146		85.00	250	91	4	150-5 ±3	M						F		2 3/8						
	CW146		85.00	80	91	4	70-5 ±3	W	5 1/4					F		2 3/8						
	CW180		115.00	125	91	4	55-4 ±3	W	6 1/2					F		3 1/8						
	CW220		135.00	150	92	4	50-3 ±3	W	8					F		3 1/2						
	CW260		175.00	200	92	4	45-2 ±3	W	10					F		3 7/8						
	CW315		195.00	250	94	4	40-2 ±3	W	12					F		4 1/4						
	PETRAS LOUOSPEAKER	51HF	17.50	40	92	8	5k-25k ±3	T							F		1/2	Yes				
80HF		24.99	50	97	8	5k-25k ±3	T							F		1/2	Yes					
94HF		24.99	50	96	8	5k-25k ±3	T							F		7/8	Yes					
800T4		24.99	50	92	4	3k-22k ±3	T							F		7/8	Yes					
800T8		24.99	50	89	8	3k-22k ±3	T							F		1 1/8	Yes					
1000T4		31.99	50	95	4	3k-22k ±3	T							F		1 1/8	Yes					
1000T8		31.99	50	92	8	3k-22k ±3	T							F		1 1/8	Yes					
45HF		22.90	50	100	8	3k-18k ±4	T							F		2 1/2	Yes					
1108T8		99.99	80	104	8	3k-18k ±3	T							F		2 3/8	Yes					
11.5CPC8		29.99	50	89	8	80-8 ±3	M							F		2	Yes					
13S08		39.99	70	91	8	500-6 ±3	M							F		2 1/4	Yes					
13PR4		39.99	70	91	4	80-5 ±3	M															



# SPEAKERS

MANUFACTURER	Model	Price, \$ (If Sold Individually)	Price, \$ (If Sold in Pairs)	Recommended Maximum Power, Watts	Sensitivity, dB SPL (1 Watt, 1 Meter)	Impedance, Ohms	Frequency Response, Hz to kHz, ± dB	DRIVERS										Notes
								Subwoofer Only (S), Woofer Only (W), Midrange Only (M), Tweeter Only (T)		Woofer Size, Inches	Woofer (W), 2-Way (2), 3-Way (3), 4-Way (4)	Kegged Tweeters? = A	Separately Mounted Drivers?	Rear Mount (R), Surface Mount (S), Convertible (C), Pile (P)	Maximum Required Mounting Depth, Inches	Weatherproofed?		
								W	T								Yes	
PETRAS LOUDSPEAKER (Continued)	15GF8	59.99	150	89	8	40-3 ± 3	W	6 1/2					F	3 3/4	Yes	↑Dual voice-coils, 8 ohms per coil.		
	20GF4	64.99	150	94	4	35-3 ± 3	W	8					F	3 1/4	Yes			
	20GF8	64.99	150	91	8	35-3 ± 3	W	8					F	3 1/4	Yes			
	25CS4	69.99	150	92	4	30-2 ± 3	W	10					F	4 1/2	Yes			
	25CS8	69.99	150	89	8	30-2 ± 3	W	10					F	4 1/2	Yes			
	25HS4	84.99	250	93	4	30-2 ± 3	W	10					F	3 7/8	Yes			
	25HCSC	89.99	250	94	†	30-1 ± 3	S	10					F	3 3/4	Yes			
	30W4B	99.99	250	94	4	25-1 ± 3	W	12					F	5	Yes			
	30W8C	99.99	250	91	8	25-1 ± 3	W	12					F	5	Yes			
	30SW8DVCC	109.99	250	94	†	25-1 ± 3	S	12					F	5	Yes			
	30HS4	89.99	250	94	4	25-1 ± 3	S	12					F	4 1/2	Yes			
	38HS4	139.99	250	94	4	20-800 Hz ± 3	S	15					F	5 1/2	Yes			
38SW8DVCC	144.99	350	95	†	20-800 Hz ± 3	S	15					F	5 1/2	Yes				
PHASE LINEAR	PLS 1200 PT 5	150.00	500	93	4	20-2.5 ± 3	S	12					S		No	Optional grille kit, Model PL 46AC, \$35.00.		
	PLC 2525	100.00	120	6	4	3k-21k ± 3	T						C		No			
	PL 1352	270.00	120	88	4	40-21 ± 3		5 1/4			Yes		F, S	2 1/4	No			
	PL 1400	50.00	70	88	4	110-22		3 1/2	W				F	1 1/2	No			
	PL 2450	65.00	75	88	4	65-22		4					F	1 1/2	No			
	PL 2460	85.00	100	89	4	60-27		4 1/2	W		No		F	1 1/4	No			
		100.00	90	91	4	65-22		4			No		P	1 1/2	No			
	PL 2650	130.00	160	90	4	55-27		6 1/2	2		No		F	1 7/8	No			
	PL 3690	200.00	250	92	4	36-27		6 x 9	3		No		F	4 1/8	No			
	PL S800	75.00	100	91	4	30-5	S	8					F	4 1/2	No			
PL S1000	100.00	150	92	4	25-3.5	S	10					F	4 1/4	No				
PL 2690	150.00	70	92	4	38-24	S	6 x 9	2				F	4	No				
PHILIPS	PRD 8869 MKII	274.95	200	90	4	20-20		6 x 9	3				F		Yes	Fits 4 x 6-inch hole; for GM cars. For Ford and Chrysler cars. For imported cars.  Ribbon tweeter.   Closed-back midrange. As above. May be used as midrange.		
	PRD 8810 MKII	179.95	100	91	4	20-20		4 x 10	2				F		Yes			
	PRD 8749 MKII	179.95	100	90	4	20-20		6 x 9	2				F		Yes			
	PRD 602 MKII	189.95	100	90	4	20-22		6 1/2	2		Yes		F		Yes			
	PRD 502 MKII	164.95	80	89	4	25-22		5 1/4	2		Yes		F		Yes			
	PRD 402 MKII	144.95	50	90	4	30-22		4	2		Yes		F		Yes			
	PRD 635 MKII	159.95	110	94	4	25-22		6 1/2	3	A	No		F		Yes			
	PRD 535 MKII	149.95	80	92	4	25-22		5 1/4	3	A	No		F		Yes			
	PRD 620 MKII	139.95	110	93	4	20-22		6 1/2	2		No		F		Yes			
	PRD 520 MKII	124.95	80	90	4	25-22		5 1/4	2		No		F		Yes			
	PRD 420 MKII	104.95	80	91	4	30-22		4	2		No		F		Yes			
	PRD 8890	119.95	80	91	4	40-20		4	2		No		P		Yes			
	SFL 621	89.95	30	92	4	35-20		6 1/2	2		No		F	1 1/4	Yes			
	SFL 521	79.95	25	90	4	35-20		5 1/4	2		No		F	1 1/4	Yes			
	SFL 611	69.95	25	92	4	35-20		6 1/2	2		No		F	1 1/4	Yes			
	SFL 511	59.95	25	91	4	35-20		5 1/4	2		No		F	1 1/4	Yes			
	SFL 509	34.95	25	90	4	35-20		5 1/4	2		No		F	1 1/4	Yes			
	EN 8846	99.95	60	91	4	100-20		4 x 6	2						Yes			
	EN 8346	64.95	100	91	4	2.7k-20k	T								Yes			
	EN 8335	59.95	100	91	4	2.7k-20k	T								Yes			
	EN 8340	59.95	100	91	4	2.7k-20k	T								Yes			
	PRD 200 MKII	74.95	80	91	4	3k-20k	T								Yes			
	PKAD21600/T8	209.95					T											
	PKAD00200/T4FF	32.95					T											
	PKAD00202/T4FF	32.95					T											
	PKAD00845/T4FF	44.95					T											
	PKAD11602/T4FF	64.95					T											
	PKAD01624/T4FF	59.95					T											
	PKAD0163 T4	59.95					T											
	PKAD11610/T4	52.95					T											
	PKAD11410 T8	45.95					T											
	PKAD50600 SQ8	42.95					M											
PKAD2110 SQ8	52.95					M												
PKAD4061 W4	26.95					W	4											
PKAD80042 W4	106.00	120	90			W	8											
PKAD10042 W4	124.95	160	93	4		W	10											
PKAD12070	159.95	160	95	4		W	12											
PKAD15070	199.95	200	98	4		W	16											
PIONEER	TS-6995	300.00	200	94	4	28-32 ± 3		6 x 9	4				F	4 1/2		For GM cars. As above. As above. As above. Rear deck mount. Includes mounting spacer.  Door mount. As above. Fits 6 x 8-inch hole. As above. For rear deck of GM cars. As above. For dash of GM and VW cars. As above.		
	TS-6985	260.00	200	94	4	29-28 ± 3		6 x 9	3				F	4 1/2	Yes			
	TS-A6908	220.00	200	93	4	28-30 ± 3		6 x 9	4				F	3 1/2	Yes			
	TS-A6907	160.00	160	93	4	28-27 ± 3		6 x 9	4				F	3 1/4	Yes			
	TS-A6905	140.00	120	93	4	30-26 ± 3		6 x 9	3				F	2 3/4	Yes			
	TS-A6904	100.00	100	92	4	35-23 ± 3		6 x 9	2				F	2 1/2	Yes			
	TS-A6903	70.00	80	91	4	35-20 ± 3		6 x 9	2				F	2 1/2	Yes			
	TS-1609	170.00	180	91	4	30-20 ± 3		6 1/2	3				F	2 1/8	Yes			
	TS-A1670	130.00	120	91	4	35-26 ± 3		6 1/2	3				F	2 1/8	Yes			
	TS-1606	100.00	150	91	4	30-20 ± 3		6 1/2	2				F	2 1/8	Yes			
	TS-A1640	95.00	100	91	4	35-24 ± 3		6 1/2	2				F	1 3/8	Yes			
	TS-1602	70.00	60	92	4	40-20 ± 3		6 1/2	2				F	1 3/8	Yes			
	TS-1601	50.00	60	92	4	40-20 ± 3		6 1/2	2				F	1 3/8	Yes			
	TS-W160	130.00	150	92	4	20-12 ± 3		6 1/2					F	2 1/8	Yes			
	TS-A5705	120.00	120	91	4	40-24 ± 3		5 x 7	3				F	2 1/8	Yes			
	TS-A5703	100.00	100	91	4	40-23 ± 3		5 x 7	2				F	2 1/8	Yes			
	TS-66	48.00	40	90	4	180-18 ± 3		5 1/4					S		Yes			
	TS-A1390	85.00	100	90	4	45-24 ± 3		5	2				F	2 1/8	Yes			
	TS-1225	80.00	50	91	4	60-20 ± 3		5	2				F	1 3/8	Yes			
	TS-4155	145.00	120	93	4	38-23 ± 3		4 x 10	3				F	3	Yes			
	TS-4133	110.00	120	92	4	40-22 ± 3		4 x 10	2				F	3	Yes			
	TS-469	82.00	40	89	4	50-22 ± 3		4 x 6	3				F	1 3/8	Yes			
TS-468	72.00	40	89	4	50-20 ± 3		4 x 6	2				F	1 3/8	Yes				

# SPEAKERS

MANUFACTURER	Model	Price, \$ (If Sold Individually)	Price, \$ (If Sold in Pairs)	Recommended Maximum Power, Watts	Sensitivity, dB SPL (1 W/1 Meter)	Impedance, Ohms	Frequency Response, Hz to kHz, ±dB	DRIVERS										Notes
								Speaker Qty. (S) Midrange Only (M), Tweeter Only (T)	Woofer Size, Inches	Woofer (W), 2-Way (2), 3-Way (3), 4-Way (4)	Applied Tweeter(s) = A, Pilotable Tweeter(s) = P	Separately Mounted Drivers?	Flush Mount (F), Surface Mount (S), Cornerable (C), Pilot (P)	Maximum Required Mounting Depth, Inches	Weatherproofed?			
PIONEER (Continued)	TS-467		50.00	40	89	4	60-20 ± 3		4 x 6	2				F	1 1/2		As above.	
	TS-X300		215.00	120	89	4	50-30 ± 3		4x5 1/2	4				S			Honeycomb woofer.	
	TS-X200		135.00	80	89	4	65-30 ± 3		4	3				S			Bas reflex enclosure.	
	TS-X100		105.00	60	89	4	80-20 ± 3		4	2				S			As above.	
	TS-A1090		85.00	50	90	4	50-24 ± 3		4	2				F	1 3/4	Yes	Door mount.	
	TS-102G		75.00	40	91	4	50-22 ± 3		4	2				F	1 3/4	Yes	For dash of GM cars.	
	TS-1002		65.00	40	91	4	50-20 ± 3		4	2				F	1 3/4	No	Door mount.	
	TS-1018		65.00	40	88	4	50-20 ± 3		4	2				F	1 1/2	Yes	For dash of Toyotas.	
	TS-A1070		55.00	50	90	4	50-21 ± 3		4	2				F		Yes	Door mount.	
	TS-1001		43.00	40	90	4	50-16 ± 3		4	2				F	1 3/4	No	As above.	
	TS-44		38.00	40	88	4	180-20 ± 3		4					S				
	TS-879		65.00	40	88	4	90-20 ± 3		3 1/2	2				S	1 1/2		For dash of GM, Toyota, Ford, and Chrysler cars.	
	TS-877		42.00	40	88	4	90-20 ± 3		3 1/2	2				F	1 1/2		For dash of GM, VW, and Ford cars.	
	TS-T87		95.00	150	90	6	180-24 ± 3	T						F	1 1/8	Yes	For GM cars; includes 4 x 6-inch gasket.	
	TS-W300		165.00		300	94	4	18-4 ± 3	S	12				F	5			
	TS-W200		100.00		200	93	4	20-8 ± 3	S	8				F	3 1/2			
	TS-S21			105.00	150	88	4	2.5k-26k ± 3	T					F	1	Yes		
	TS-TRX70			400.00	200	90	4	45-20 ± 3		8	2			S		Yes	For trucks.	
	TS-TRX60			300.00	150	91	4	55-24 ± 3		6 1/2	2			S		Yes	As above.	
	TS-TRX50			230.00	120	90	4	75-22 ± 3		5	2			S		Yes	As above.	
TS-TRX3			165.00	100	90	4	75-22 ± 3		5	2			S		Yes	As above.		
TS-MR165			200.00	120	90	4	35-21 ± 3		6 1/2				F		Yes	For marine applications.		
TS-MR163			150.00	100	90	4	38-20 ± 3		6 1/2				F		Yes	As above.		
TS-M131			105.00	150	88	4	4-11 ± 3	M					F	2 1/8	Yes	As above.		
TS-M4			60.00	30	91.5	4	400-20 ± 3	T					F		No	Dash mount.		
POLK	MM 1A		89.90	50	96†	4	80-15		4	W				C	1 3/8	Yes	†At 0.5 meter.	
	MM 3A		139.90	75	93†	4	40-20.5		5 1/4	2				C	2 1/4	Yes		
	MM 10A		179.90	100	94†	4	40-20.5		6 1/2	2				C	2 5/8	Yes		
	MM 3500		54.90	50	94†	4	120-17		3 1/2	W				F	1 1/2	Yes		
	MM 4600		69.90	50	96†	4	75-15		4 x 6	W				F	2	Yes		
	MM 4620		119.90	50	96†	4	100-20.5		3 1/2	2				P	1 1/2	Yes	Tweeter protection circuit.	
	MM 5500		99.90	75	95†	4	50-17		5 1/4	W				C	1 7/8	Yes		
	MM 6920		189.90	100	95†	4	34-20.5		6 x 9	2				C	3 3/8	Yes	As above.	
	MM 6930		229.90	150	95†	4	34-20.5		6 x 9	3				C	3 3/8	Yes		
	MM 5503		239.80	125	93†	4	40-20.5		5 1/4	2	A	Yes		C	2 1/4	Yes		
	MM 6503		259.80	150	94†	4	38-30.5		6 1/2	3	A	Yes		C	2 5/8	Yes		
	MM 6903		289.90	150	95†	4	34-20.5		6 x 9	3	A	Yes		C	3 3/8	Yes	As above.	
	MM 300		159.90	100	96†	4	130-20.5		3 1/2	2		Yes		P	1 1/2	Yes		
	MM 2001		119.90	50	95†	4	1.5k-20.5k			2	A	No		C		Yes		
	MM 5501		119.90	75	93†	4	40-1.5	W	5 1/4					C	2 1/4	Yes		
	MM 6501		139.90	100	94†	4	38-1.5	W	6 1/2					C	2 5/8	Yes		
	MM 6901		169.90	100	95†	4	34-1.5	W	6 x 9					C	3 3/8	Yes		
MM 8001			150	95†	4	30-2	S	8					C	3 3/4	Yes			
MM 1025		79.90 129.90	200	95†	4	25-1	S	10					C	4 3/8	Yes			
POLYDAX	HIF 17JVX		99.95	30	86.6	4/8	29-5	W	6 1/2						3/4	No		
	HIF 13JVX		69.95	30	86	4/8	42-5	W	5						2 1/2	No		
	TW 60ATI		30.00	40	91.3	4/8	5k-20k	T							3 3/8			
	DTW100 Ti25		80.00	40	88	4/8	1.5k-20k	T							1 3/4			
	BACAVFFG																	
PREMIER	TS-U699		230.00	100	91	4	28-32 ± 3		6 x 9	3				F		Yes		
	TS-U697		185.00	100	91	4	28-30 ± 3		6 x 9	2				F		Yes		
	TS-903		140.00	120	93	4	30-26 ± 3		6 x 9	3				F	2 3/4	Yes		
	TS-902		100.00	100	92	4	35-23 ± 3		6 x 9	2				F	2 1/2	Yes		
	TS-603		130.00	120	91	4	35-26 ± 3		6 1/2	3				F	2 1/8	Yes		
	TS-602		90.00	100	91	4	35-24 ± 3		6 1/2	2				F	1 3/4	Yes		
	TS-U160		180.00	100	89	4	30-30 ± 3		6 1/2	2				F		Yes		
	TS-U130		150.00	60	88	4	37-30 ± 3		5 1/4	2				F		Yes		
	TS-W400		300.00	500	96	4	15-3	S	16					F	5	Yes		
	PROFILE	PRO 1250			250	96	8	36-3	W	12								
SP8 300				60	87	8			3 1/2	3								
SP8 400				120	90	8			5	3				S				
PRO 653				100	8		60-21		6 1/2	3								
PRO 652				100	8		60-20		6 1/2	2								
PRO TW1				200	93	8	2k-20k	T										
PRO 410				80	93	8	400-4	M										
PRO 840				150	93	8	38-4	W	8									
PRO 1050				250	96	8	36-3	W	10									
PRO 1550				300	100	8	30-2	W	15									
PRO 692				120	8		60-20		6 x 9									
PRO 693			120	8		60-20		6 x 9										
PROTON	CS-269		159.00	160	92	8	60-21 ± 3		6 x 9	2		No	F, S		Yes	Blamp capable.		
	CS-265		149.00	120	90	8	50-21 ± 3		6 1/2	2		No	F, S		Yes	As above.		
	CS-252P		239.00	100	88	8	60-22 ± 3		5 1/4	2		No	P		Yes			
	CS-252		129.00	120	91	8	60-21 ± 3		5 1/4	2		No	F, S		Yes	As above.		
	CS-240		119.00	100	91	8	80-20 ± 3		4	2		No	F, S		Yes	As above.		
	CS-112		149.00	240	92	8	25-2 ± 3	S	12				F, S		Yes			
	CS-110		119.00	200	93	8	30-2.5 ± 3	S	10				F, S		Yes			
	CS-108		90.00	150	91	8	40-3 ± 3	S	8					F, S		Yes		



# WHY TWO OHM? NO ONE ELSE IS DOING IT.

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But two ohm is more than multiple loudspeakers. It means **vastly increased musical accuracy, enhanced detail and powerful dynamics** through high current control of loudspeaker motion. Whether you choose to install a

car full of loudspeakers or just four, the advantage is musicality.

If musicality and high performance weren't the biggest advantages, the technical advantages wouldn't mean much. But **two ohm is technically superior.** It means better utilization of amplifier output stages. Efficient power distribution. Easier installation. Together, the MTX Terminator amplifiers and Terminator woofers create the driving force behind the most exciting sound systems available today. **MTX Terminator two ohm woofers are designed specifically for high current use.** High grade barium ferrite magnets. Large 2" black anodized voice coils that feature perimeter cooling. Composite fibre and polypropylene cone material combined with high compliance suspension provides very deep sub-bass frequencies and concussive mid-bass.

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# SPEAKERS

MANUFACTURER	Model	Price, \$		Recommended Maximum Power, Watts	Sensitivity, dB SPL (1 Watt/1 Meter)	Impedance, Ohms	Frequency Response, Hz to kHz, -dB	DRIVERS										Notes
		(If Sold Individually)	(If Sold in Pairs)					Superwoofer Only (S)	Woofer Only (W)	Midrange Only (M)	Tweeter Only (T)	Woofer Size, Inches	Woofer (W), 2-Way (2); 3-Way (3); 4-Way (4)	Applied Tweeters (A); Removable Tweeters (R)	Separately Mounted Drivers?	Flush Mount (F); Surface Mount (S); Convertible (C); Plate (P)	Maximum Required Mounting Depth, Inches	
PYLE	P101C		385.95	200	93	4	35-20 ± 3		(2)8	2	P	Yes	S		Yes	Carpet-covered enclosure.		
	P301C	359.95		200	94	4	30-20 ± 3		(2)8	2	P	Yes	S		Yes	As above.		
	P401C	379.95		200	94	4	30-20 ± 3		(2)8	2	P	Yes	S		Yes	As above.		
	P601C	549.95		300	95	4	20-20 ± 3		(2)12,	3	P	Yes	S		Yes	As above.		
	P701C	675.95		350	96	4	20-20 ± 3		(2)15,	3	P	Yes	S		Yes	As above.		
	P21		297.95	120	89	4	45-20 ± 3		(2)5 1/4	2	P	Yes	S		Yes	Satellite and subwoofer system.		
	P51		299.95	120	89	4	45-20 ± 3		(2)5 1/4	2	P	Yes	S		Yes	Mounts behind seats or on rear decks.		
	P101		395.95	200	93	4	35-20 ± 3		(2)8	2	P	Yes	S		Yes	Mounts behind seats in mini pickups.		
	P102		489.95	240	94	4	25-20 ± 3		(2)10	2	P	Yes	S		Yes	Mounts behind seats in pickups.		
	P103		552.95	300	95	4	20-20 ± 3		(2)12	2	P	Yes	S		Yes	As above.		
	P201	337.95		180	93	4	30-20 ± 3		(2)6 1/2	2	P	Yes	S		Yes	For hatchbacks, vans, and 4 x 4 vehicles.		
	P301	379.95		200	94	4	30-20 ± 3		(2)8	2	P	Yes	S		Yes	Mounts behind seats in pickups.		
	P401	399.95		200	94	4	30-20 ± 3		(2)8	2	P	Yes	S		Yes	For hatchbacks, vans, and 4 x 4 vehicles.		
	P501	449.95		240	94	4	25-20 ± 3		(2)10	2	P	Yes	S		Yes	As above.		
	P601	557.95		300	95	4	20-20 ± 3		(2)12,	3	P	Yes	S		Yes	As above.		
	P701	693.95		350	96	4	20-20 ± 3		(2)15,	3	P	Yes	S		Yes	As above.		
	P801	695.95		350	95	4	20-20 ± 3		(2)5	3	P	Yes	S		Yes	As above.		
	TS210	364.95		240	94	4	25-500 Hz ± 3	S	(2)10				S		Yes	As above.		
	TS212	443.95		300	95	4	20-500 Hz ± 3	S	(2)12				S		Yes	As above.		
	P5216D	57.95	139.95	70	92	4	55-20 ± 3		5 1/4	2	P	No	F	1 3/8	Yes			
	P6516D	59.95	145.95	80	93	4	55-20 ± 3		6 1/2	2	P	No	F	2 3/8	Yes			
	P5710D	54.95	109.95	70	92	4	60-20 ± 3		5 x 7	2	P	No	F	2 3/8	Yes			
	P6810D	55.95	110.95	80	92	4	60-20 ± 3		6 x 8	2	P	No	F	2 1/2	Yes			
	P6920D	89.95	199.95	130	94	4	40-20 ± 3		6 x 9	2	P	No	F	3 1/2	Yes			
	P6940D	99.95	249.95	200	94	4	50-20 ± 3		6 x 9	2	P	No	F	3 3/8	Yes	Biamp capable; overload protected.		
	P4116D	59.95	148.95	80	94	4	55-20 ± 3		4 x 10	2	P	No	F	3 1/8	Yes	As above.		
	P355T	43.95	89.95	40	90	4	90-20 ± 3		3 1/2	2	P	No	F	1 1/2	Yes	For Ford and GM cars.		
	P455T	45.95	119.95	50	91	4	60-20 ± 3		4 1/2	2	P	No	F	1 1/2	Yes			
	P465T	46.95	108.95	50	91	4	70-20 ± 3		4 x 6	2	P	No	F	1 3/4	Yes			
	P465T/M	47.95	109.95	50	91	4	70-20 ± 3		4 x 6	2	P	No	F	1 3/4	Yes			
	6929D	93.95	229.95	140	95	4	40-20 ± 3		6 x 9	2	P	No	F	3 3/8	No	Metric mount basket.		
	4116D	58.95	147.95	80	94	4	55-20 ± 3		4 x 10	2	P	No	F	3 1/8	No	Overload protected.		
	6910C	62.95	149.95	90	93	4	45-20 ± 3		6 x 9	2	P	No	F	3 1/4	Yes			
	6923	115.95	275.95	130	94	4	40-20 ± 3		6 x 9	3	P	No	F	3 1/2	Yes			
	P355W	26.95	56.95	40	89	4/8	90-18 ± 3		3 1/2	W		F	F	1 1/2	Yes	For Ford and GM cars.		
	P499W	28.95	82.95	50	91	4/8	70-18 ± 3		4	W		F	F	1 3/4	Yes			
	P465W	27.95	59.95	50	91	4/8	70-18 ± 3		4 x 6	W		F	F	1 3/4	Yes			
	355W	24.95	54.95	40	89	4/8	90-18 ± 3		3 1/2	W		F	F	1 1/2	No	As above.		
	499W	28.95	82.95	50	91	4/8	70-18 ± 3		4	W		F	F	1 3/4	No			
	465W	26.95	58.95	50	91	4/8	70-18 ± 3		4 x 6	W		F	F	1 3/4	No			
	5210W	32.95	94.95	60	91	4/8	55-18 ± 3		5 1/4	W		F	F	1 3/8	No			
	6910W	34.95	99.95	90	93	4/8	45-18 ± 3		6 x 9	W		F	F	3	No			
	4110W	34.95	99.95	70	92	4/8	55-18 ± 3		4 x 10	W		F	F	2 3/8	No			
	K-HS100A		239.95	80	90	4	50-20 ± 3		4	2	P	Yes	S		Yes			
	K-HP523A		219.95	80	92	4	45-20 ± 3		5 1/4	2	P	Yes	S		Yes			
	K-TP3546		79.95	80	94	8	4k-20k ± 3	T					F, P		Yes	Fits 3 1/2- or 4 x 6-inch holes.		
	K-MTP46		119.95	60	90	4	200-20 ± 3		3 1/2	2	P	Yes	F		Yes	Fits 4 x 6-inch hole.		
	WL840/4	109.00		220	93	4	45-4 ± 3		W 8				F		Yes			
	WL870/4	149.00		250	93	4	40-3.5 ± 3		W 8				F		Yes			
	WL1070/4	169.00		270	94	4	40-3.5 ± 3		W 10				F		Yes			
	WL1080/4	240.00		300	94	4	35-3 ± 3		W 10				F		Yes			
	WL1270/4	195.00		290	95	4	35-3.5 ± 3		W 12				F		Yes			
	WL1280/4	265.00		320	95	4	30-3 ± 3		W 12				F		Yes			
	WL12160/4	310.00		350	96	4	30-3 ± 3		W 12				F		Yes			
	WL1570/4	220.00		300	96	4	30-3 ± 3		W 15				F		Yes			
	WL1580/4	280.00		340	96	4	25-2.5 ± 3		W 15				F		Yes			
	WL15160/4	330.00		370	97	4	25-2.5 ± 3		W 15				F		Yes			
	WL1880/4	375.00		360	97	4	20-2 ± 3		W 18				F		Yes			
	WL840	108.00		220	93	8	45-4 ± 3		W 8				F		Yes			
	WL870	148.00		250	93	8	40-3.5 ± 3		W 8				F		Yes			
	WL1070	168.00		270	94	8	40-3.5 ± 3		W 10				F		Yes			
	WL1080	239.00		300	94	8	35-3 ± 3		W 10				F		Yes			
	WL1270	194.00		290	95	8	35-3.5 ± 3		W 12				F		Yes			
	WL1280	264.00		320	95	8	30-3 ± 3		W 12				F		Yes			
	WL12160	309.00		350	96	8	30-3 ± 3		W 12				F		Yes			
	WL1570	219.00		300	96	8	30-3 ± 3		W 15				F		Yes			
	WL1580	279.00		340	96	8	25-2.5 ± 3		W 15				F		Yes			
	WL15160	329.00		370	97	8	25-2.5 ± 3		W 15				F		Yes			
	WL1880	374.00		360	97	8	20-2 ± 3		W 18				F		Yes			
	WP5216/4	41.95		80	92	4	50-8 ± 3		W 5 1/4				F		Yes			
	WP6520/4	51.95		120	92	4	40-6 ± 3		W 6 1/2				F		Yes			
	WP6929/4	64.95		150	95	4	30-5.5 ± 3		W 6 x 9				F		Yes			
	WP820/4	56.95		140	94	4	30-5.5 ± 3		W 8				F		Yes			
	WP830/4	72.95		160	94	4	30-3 ± 3		W 8				F		Yes			
	WP1020/4	63.95		150	95	4	25-5 ± 3		W 10				F		Yes			
	WP1040/4	81.95		170	95	4	25-3 ± 3		W 10				F		Yes			
	WP1240/4	90.95		180	96	4	20-3 ± 3		W 12				F		Yes			
	WP1560/4	117.95		200	98	4	20-3 ± 3		W 15				F		Yes			
	WP5216	40.95		80	92	8	50-8.5 ± 3		W 5 1/4				F		Yes			
	WP6520	50.95		120	92	8	40-6.5 ± 3		W 6 1/2				F		Yes			
	WP6929	63.95		150	95	8	30-6 ± 3		W 6 x 9				F		Yes			
	WP820	55.95		140	94	8	30-6 ± 3		W 8				F		Yes			

# SPEAKERS

MANUFACTURER	Model	Price, \$ (If Sold Individually)	Price, \$ (If Sold in Pairs)	Recommended Maximum Power, Watts	Sensitivity, dB SPL (1 Watt/1 Meter)	Impedance, Ohms	Frequency Response, Hz to kHz, ±dB	DRIVERS										Notes
								Subwoofer Dia. (W)	Woofer Dia. (W)	Midrange Dia. (M)	Tweeter Dia. (T)	Woofer Size, Inches	Whizzer (W), 2-Way (C) 3-Way (S), 4-Way (Q)	Angled Tweeter(s) = A, Pointable Tweeter(s) = P	Separately Mounted Drivers?	Flush Mount (F), Surface Mount (S), Convertible (C), Pole (P)	Maximum Required Mounting Depth, Inches	
PYLE (Continued)	WP830	71.95	160	94	8	30-3.5 ±3	W	8						F	4 1/8	Yes		
	WP1020	62.95	150	95	8	25-5.5 ±3	W	10						F	4 3/8	Yes		
	WP1040	80.95	170	95	8	25-3.5 ±3	W	10						F	4 3/8	Yes		
	WP1240	89.95	180	96	8	20-3.5 ±3	W	12						F	5 1/4	Yes		
	WP1560	116.95	200	98	8	20-3.5 ±3	W	15						F	6 1/4	Yes		
	W6520/4	50.95	120	92	4	40-6 ±3	W	6 1/2						F	3 1/4	No		
	W6929/4	63.95	150	95	4	30-5.5 ±3	W	6 x 9						F	3 3/8	No		
	W820/4	55.95	140	94	4	30-5.5 ±3	W	8						F	3 3/8	No		
	W830/4	70.95	160	94	4	30-3 ±3	W	8						F	4 1/8	No		
	W1020/4	61.95	150	95	4	25-5 ±3	W	10						F	4 3/8	No		
	W1040/4	79.95	170	95	4	25-3 ±3	W	10						F	4 3/4	No		
	W1240/4	88.95	180	96	4	20-3 ±3	W	12						F	5 1/4	No		
	W1560/4	114.95	200	98	4	20-3 ±3	W	15						F	6 1/4	No		
	W6520	49.95	120	92	8	40-6.5 ±3	W	6 1/2						F	3 3/4	No		
	W820	54.95	140	94	8	30-6 ±3	W	8						F	3 3/8	No		
	W830	69.95	160	94	8	30-3.5 ±3	W	8						F	4 1/8	No		
	W1020	60.95	150	95	8	25-5.5 ±3	W	10						F	4 3/8	No		
	W1040	78.95	170	95	8	25-3.5 ±3	W	10						F	4 3/4	No		
	W1220	67.95	160	96	8	20-5 ±3	W	12						F	5 1/4	No		
	W1240	87.95	180	96	8	20-3.5 ±3	W	12						F	5 1/4	No		
	W1260	95.95	190	97	8	20-3.5 ±3	W	12						F	5 1/4	No		
	W1270	114.95	210	97	8	20-3 ±3	W	12						F	5 3/8	No		
	W1560	113.95	200	98	8	20-3.5 ±3	W	15						F	6 1/4	No		
	W1570	125.95	220	98	8	20-3 ±3	W	15						F	6 1/2	No		
	W6517S	52.95	120	91	4	25-2.5 ±3	W	6 1/2						F	3 3/8	No		
	W820S	57.95	140	93	4	20-1.5 ±3	W	8						F	3 3/8	No		
	W1020S	63.95	150	93	4	20-1 ±3	W	10						F	4 3/8	No		
	W830D	79.95	160	92	4	25-2 ±3	S	8						F	4 1/8	No	Dual voice-colls.	
	W1040D	88.95	170	93	4	20-2 ±3	S	10						F	4 3/8	No	As above.	
	W1240D	99.95	180	94	4	20-4.5 ±3	S	12						F	5 3/8	No	As above.	
	W1570D	132.95	220	96	4	20-4 ±3	S	15						F	6 1/2	No	As above.	
	F810W	34.95	90	93	8	40-18 ±3	W	8	W	2	P	No		F	2 1/8	No		
	F820T	85.95	130	94	8	30-20 ±3	W	8						F	3 3/8	No		
	PR8	17.95				25-500 Hz	W	8						F	2 1/4	No	Passive radiator.	
	PR10	23.95				20-500 Hz	W	10						F	2 7/8	No	As above.	
	PR12	32.95				15-500 Hz	W	12						F	3 1/2	No	As above.	
	M5H	47.95	90	92	8	300-8 ±3	M							F	4	Yes		
	M5J0	34.95	90	92	8	500-10 ±3	M							F	2 1/8	Yes		
	M516	39.95	100	94	8	500-10 ±3	M							F	2 1/4	Yes		
	M516C	41.95	100	94	8	500-14 ±3	M							F	2 1/4	Yes		
	MP516	42.95	100	94	8	500-10 ±3	M							F	2 1/4	Yes		
	H3910	47.95	80	102	8	2k-15k ±3	T							F	7 1/2	Yes	Includes crossover.	
	H3910E	48.95	80	102	8	2k-18k ±3	T							F	7 1/2	Yes	As above.	
	K-D210		34.95	60	90	8	4k-20k ±3	T						F	5 1/2	Yes	As above.	
	K-D2210		35.95	60	90	8	4k-20k ±3	T						F	5 1/2	Yes	As above.	
K-D2215H		60.95	60	90	8	4k-20k ±3	T			P			F	5 1/2	Yes	As above.		
K-O3580		63.95	80	94	8	4k-20k ±3	T						S	1 3/8	Yes	As above.		
K-O480		64.95	80	94	8	4k-20k ±3	T						F	1 1/2	Yes	As above.		
K-O4580		64.95	80	94	8	4k-20k ±3	T						F	1 1/2	Yes	As above.		
K-O5480		65.95	80	90	8	4k-20k ±3	T						F	1 3/8	Yes	As above.		
K-O54580		65.95	80	90	8	4k-20k ±3	T						F	1 1/4	Yes	As above.		
K-R4580		99.95	120	92	8	4k-20k ±3	T						F	1 1/4	Yes			
K-T324		54.95	100	94	8	4k-20k ±3	T						F	1 1/2	Yes			
H2610	45.95	80	101	8	4k-20k ±3	T							F	4 1/2	Yes			
K-TP3S		23.95	140	90		5k-40k ±3	T						F	1	Yes			
K-TP375S		33.95	140	89		3k-20k ±3	T						F	1 1/8	Yes			
HTP35	23.95	140	94			4k-30k ±3	T						F	2 3/4	Yes			
HTP26	32.95	140	92			2k-40k ±3	T						F	4 1/4	Yes			
RADION	DS-396	69.95	150	4	50-20 ±3			6 x 9	3		No	F	3	No				
	DS-296	59.95	150	4	50-20 ±3			6 x 9	2		No	F	3	No				
	DS-206	49.95	80	4	75-20 ±3			6	2		No	F	2	No				
	DS-106	39.95	80	4	75-18 ±3			6	W			F	1 3/4	No				
	DS-204	31.95	60	4	105-20 ±3			4	2		No	F	1 1/2	No				
	DS-104	27.95	60	4	105-18 ±3			4	W			F	1 1/2	No				
	DS-8	59.95	150	4	45-5 ±3			8				F	3 3/8	No				
	DS-10	79.95	225	4	38-5 ±3			10				F	3 3/8	No				
DS-12	99.95	300	4	23-5 ±3			12				F	4 3/8	No					
REALISTIC	12-1713	79.95	100	4				4	4	P	No	S		Yes				
	12-1715	69.95	80	4				6 x 9	2	P	No	F		Yes				
	12-1704	29.95	40	4				4				F	1 1/2	Yes				
	12-1703	29.95	40	4				5 1/4				F	1 1/4	Yes				
	12-1712	180.00	100	93.5	4	50-20		8	2	P	No	F	6 1/4	Yes	Carpeted enclosure.			
	12-1711	70.00	40	93	4	50-20		5 1/4	3	P	No	F	2 3/4	Yes				
	12-1710	14.00	12					3				S						
	12-1709	20.00	20									S						
	12-1708	59.95	60					5 1/4	3		No	S						
	12-1706	59.95	60					5 1/4	2		No	S						
	12-1707	34.95	30					3	2		No	S						
	12-1859	99.95	120					6 x 9	3		No	F				Wedge-shaped.		



# Our engineers can give you one concrete reason to install our subwoofers.

In the next 5 minutes, you'll learn more about improving the sound of your car stereo than you will in the rest of this magazine.

The first thing to remember is that in car audio, we have only one competitor.

Road noise.

You see, at 60 miles per hour, the rattle and hum of the road reaches a crescendo of nearly 70 very loud decibels.

Yikes!

What this means is that your car system either needs tons of amplifier power or an extremely sensitive subwoofer. Just to be heard over the drone of the road.

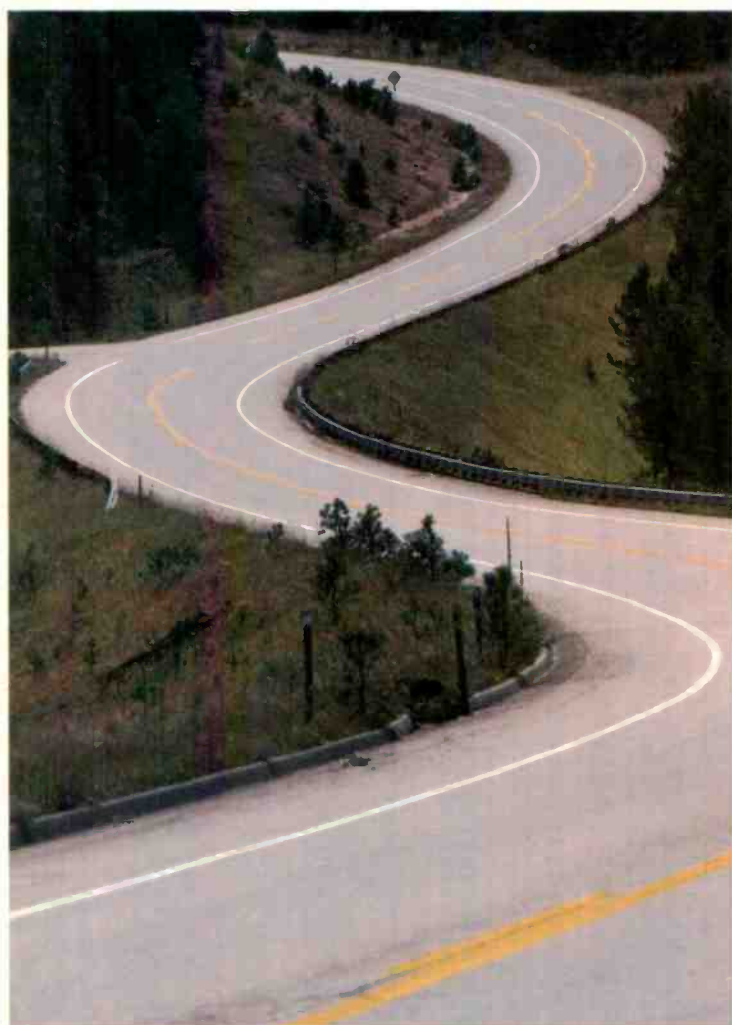
## Sensitivity training.

By definition, a sensitive speaker will reproduce very high volume while using very little power.

For example, to reach a volume level of 120 decibels, a subwoofer with a typical sensitivity rating of 89 dBs would need a Hulk Hogan-size 1,000 watt amp.

A Cerwin-Vega subwoofer, with sensitivity rated at 98 dBs, needs only 130 watts.

In fact, our subwoofers are so



*To overcome highway road noise, we've designed the most efficient series of subwoofers in car audio. So you'll never again have to listen to your car humming along with the music.*

efficient they can run on as little as 5 watts of power. Or, if you'd like Klingons to hear you, they can take up to 350 watts.

What's more, when you install one of our subwoofers in a properly designed vented enclosure, you'll get even higher volume and deeper bass. Specifically, an increase of

3 decibels at 30 Hertz. Which is equal to doubling the input power at the enclosure's tuning frequency.

## Basic bass.

Now we'd like to talk about something of very low importance. Our 18" subwoofer takes low frequency response all the way down to 18 Hertz. So you'll feel the bass from music. And not from, say, speed bumps and pot holes.

One more thing, we'd like to dispel the myth of the mega-magnet.

A gigantic magnet will do nothing more than over-damp the speaker, causing a big drop in efficiency. And sound.

Our engineers calculate magnet and voice coil sizes, as well as cone weight, to form a precise balance. The result of which is very loud and very deep bass.

At Cerwin-Vega, we

build our subwoofers so you'll hear more music and less road. The way we see it, it's either our way.

Or the highway.



**Cerwin-Vega!**









# SPEAKERS

MANUFACTURER	Model	Price, \$ (If Sold Individually)	Price, \$ (If Sold in Pairs)	Recommended Maximum Power, Watts	Sensitivity, dB SPL (1 Watt 1 Meter)	Impedance, Ohms	Frequency Response, Hz to kHz, ±dB	DRIVERS										Notes
								Subwoofer Only (S) Midrange Only (M), Tweeter Only (T)	Woofer Size, Inches	Woofer (W) 2-Way 3-Way (3), 4-Way (4)	Applied Tweeters = A, Pointable Tweeters = P	Separately Mounted Drivers?	Flush Mount (F), Surface Mount (S)	Maximum Required Mounting Depth, Inches	Weatherproofed?			
SOUNDSTREAM	SS4.0		115.00	50	90.0	4	70-18		4	2		Yes	F, S	2	Yes			
	SS5.0		140.00	80	90.0	4	55-6		5			Yes	F, S	2 1/2	Yes			
	SS510		319.00	80	90.0	4	55-20		5		A, P	Yes	F, S	2 1/2	Yes			
	SS8	150.00		200	90.0	4	35-1		8				F, S	3 1/2	Yes			
	SS10	230.00		250	92.0	4	30-1	S	10				F, S	3 1/2	Yes			
	SS12	290.00		300	93.0	4	26-1	S	12			Yes	F, S	4 1/4	Yes			
	SS15	550.00		1k	98.0	8	30-1	S	15			Yes	F, S	6 1/2	Yes			
	SS18	795.00		1k	97.0	8	20-500 Hz	S	18			Yes	F, S	7 1/2	Yes			
SPARKOMATIC	9440		79.99	40	90	4	60-20 ±3		4	3		No	S		Yes	Enclosure.		
	8690		54.99	70	93	4	40-20 ±3		6 x 9	3		No	F	3 1/4	Yes			
	8650		54.99	60	91	4	60-20 ±3		6 1/2	2		No	F	2 1/4	Yes	Blamped.		
	8400		29.99	40	89	4	80-20 ±3		5	2		No	F	1 3/4	Yes			
	ASK3000		89.99	20	92	22	80-20 ±3		4	2		No	S		Yes			
	SK6950		79.99	200	92	4	50-20 ±3		6 x 9	4		No	F	4	Yes	For pickup trucks, vans, and RVs.		
	SK6922		49.99	125	96.6	4	30-17 ±3		6 x 9	3		No	F	3 1/2	Yes			
	SK6920		44.99	75	95.3	4	30-15 ±3		6 x 9	2		No	F	3 3/4	Yes			
	SK693		34.99	160	95.3	4	30-17 ±3		6 x 9	3		No	F	3 1/2	Yes			
	SK692		27.99	100	96.6	4	30-15 ±3		6 x 9	2		No	F	1 3/4	Yes			
	SK650		79.99	400	92	4	70-20 ±3		6	4		No	F	2 3/4	Yes			
	SK622		44.99	200	96.6	4	50-17 ±3		6	3		No	F	2 3/4	Yes			
	SK620		39.99	150	95	4	50-15 ±3		6	2		No	F	2 3/4	Yes			
	SK63		34.99	120	90	4	60-16 ±3		6	3		No	F	2 3/4	Yes			
	SK415		34.99	80	86	8	90-15 ±3		4	W		S	S		Yes			
	SK410		29.99	80	86	4	90-15 ±3		4	W		S	S		Yes			
	SK400		27.99	80	86	4	90-15 ±3		4	W		S	S	1 3/4	Yes			
	SK355		19.99	20	88	8	100-10 ±3		3 1/2	W		F	F	1 3/4	Yes			
SK313		19.99	20	85	8	125-8 ±3		3 1/2	W		No	S		Yes				
SK300		19.99	80	86	4	90-15 ±3		3 1/2	W		No	F	1 1/2	Yes				
SK520		49.99	100	95	8	60-15 ±3		5 x 7	2		No	S		Yes				
9690		89.99	80	92	4	35-21 ±3		6 x 9	3		No	F	3	Yes				
9525		44.99	80	90	4	50-21 ±3		5	2		No	F	1 1/2	Yes				
9400		39.99	60	89	4	70-21 ±3		4	2		No	F	1 1/2	Yes				
SPECO	G860APP	89.95	100	91	4/8	30-3 ±3	W	8				F	6	Yes	Drop-in dash replacement.			
	G1060APP	99.50	125	92	4/8	25-3 ±3	W	10				F	6	Yes				
	G1260APP	109.50	150	93	4/8	25-3 ±3	W	12				F	7	Yes				
	G1580APP	169.95	200	95	4/8	20-3 ±3	W	15				F	8	Yes				
	T3.5S010	19.95	20	91	8	2k-20k	T					F	1 1/2	No				
	DMS-2		70.95	60	4	60-20 ±3		3	2		No	S		No				
	DMS-3		94.95	100	4	55-20 ±3		4	3		No	S		No				
	DMS-3A		94.95	100	4	55-20 ±3		4	3		No	S		No				
	W5CF3		20.95	10	4	75-10 ±3		5			No	S		No				
	STREET WAVE	TR1000		389.95	125	4	40-29		(2)10	2			No	S			Yes	Cabinet enclosure. As above.
TR800			299.95	100	4	45-29		(2)8	2			No	S		Yes			
CR1000		389.95		125	4	40-29		(2)10	2	A		No	S		Yes			
CR650			239.95	50	4	55-29		(2)6 1/2	2	A		No	S		Yes			
TARGA	S-693		89.95	200	4	40-19 ±3		6 x 9	3		No	F	3 1/4	No				
	S-692		69.95	200	4	40-19 ±3		6 x 9	2		No	F	2 3/4	No				
	S-691		59.95	200	4	40-16 ±3		6 x 9	W		No	F	2 1/2	No				
	S-602		59.95	150	4	50-19 ±3		6	2		No	F	2	No				
	S-601		42.95	120	4	50-16 ±3		6	W		No	F	1 3/8	No				
	S-402		37.95	45	4	120-19 ±3		4	2		No	F	1 3/8	Yes				
	S-401		31.95	45	4	120-16 ±3		4	W		No	F	1 1/2	Yes				
	S-301		24.95	30	4	150-16 ±3		3 1/2	W		No	F	1 3/8	Yes				
	Sub-12	99.95		300	4	23-5 ±3	S	12				F		No				
	Sub-10	79.95		225	4	38-5 ±3	S	10				F		No				
	Sub-8	59.95		150	4	45-5 ±3	S	8				F		No				
	Twt-1		19.95	50	4	3k-13k ±3	T					F		Yes				
	Twt-3		29.95	100	4	2.5k-19k ±3	T					F		Yes				
TECHNICS	EAB-C35		45.00	40	90	4	100-22		3 1/2	2		P	F					
	EAB-C465		49.00	50	90	4	60-22		4 x 6	2		F	F					
	EAB-F-991		169.00	200	94.5	4	24-22		6 x 9	3	A, P	Yes	F					
	EAB-SW8			200	90	4	30-3	S	8				F					
	EAB-F440		109.00	100	92.5	4	40-22		4	2	A	No	F	2	Yes			
	EAB-F660		139.00	120	93	4	30-22		6 1/2	3	A	No	F	2 1/2	Yes			
	EAB-C67		109.00	80	93	4	35-22		6 1/2	3	A	No	F	1 3/8	Yes			
	EAB-C97		129.00	100	94	4	30-22		6 x 9	3	A	No	F	3	Yes			
	EAB-C417		99.00	60	93	4	40-22		4 x 10	3	A	No	F	3 3/8	Yes			
	EAB-CT62		75.00	50	92	4	50-22		6 1/2	2	A	No	F	1 1/2	Yes			
	EAB-C66		75.00	80	92.5	4	40-22		6 1/2	2	A	No	F	3 1/4	Yes			
EAB-C96		99.00	80	94.5	4	30-22		6 x 9	2	A	No	F	3	Yes				
TOSHIBA	TS793		149.95	150	92	4	34-25		6 x 9	3	P	No	F	3 3/8	Yes			
	TS792		129.95	100	92	4	34-25		6 x 9	2	P	No	F	3	Yes			
	TS762		99.95	75	89	4	48-25		6 1/2	2	P	No	F	2 1/8	Yes			
	TS761		99.95	50	89	4	48-25		6 1/2	2	P	No	F	2 3/8	Yes			
	TS741		69.95	40	90	4	90-20		4	W			F	1 1/4	Yes			
	TS710			200	90	4	28-2	S	10				F	4 3/8	Yes			
	TS712			300	90	4	21-1.5	S	12				F	4 3/4	Yes			
	TS730		279.95	200	88	4	50-22		10	2		No	S		Yes			
	TS693		129.99	150	90	4	40-20		6 x 9	3	P	No	F	3	No			
	TS692		99.95	100	90	4	40-20		6 x 9	2	P	No	F	3	No			
	TS662		79.95	75	88	4	55-20		6 1/2	2	P	No	F	2 1/8	No			
	TS641		49.95	40	89	4	100-20		4	W			F	1 1/4	No			

# SPEAKERS

MANUFACTURER	Model	DRIVERS										Notes		
		Price, \$ (If Sold Individually)	Price, \$ (If Sold in Pairs)	Recommended Maximum Power, Watts	Sensitivity, dB SPL (1 Watt/1 Meter)	Impedance, Ohms	Frequency Response, Hz to kHz, ±dB	Subwoofer Only (S) Midrange Only (M) Tweeter Only (T)	Woofer Size, Inches	Woofer (W), 2-Way (2) 3-Way (3), 4-Way (4) Poleable Tweeter(s) = A	Separately Mounted Drivers?		Flush Mount (F), Surface Mount (S), Concealed (C), Plate (P)	Maximum Required Mounting Depth, Inches
ULTIMATE SOUND	PW1550	132.95	250	97	4	20-25 ±3	W	15			F	6		
	PW1250	103.95	225	96	4	20-3 ±3	W	12			F	5		
	PW1035	84.95	200	95	4	25-3 ±3	W	10			F	4 1/2		
	PW8035	71.95	180	94	4	30-3 ±3	W	8			F	3 3/4		
	PW6520	38.95	85	92	4	40-5 ±3	W	6 1/2			F	3		
	PM5210	31.95	55	91	4	80-10 ±3	M				F	2 1/4		
	PM4010	29.95	45	91	4	100-10 ±3	M				F	2 1/4		
	UWP1880	377.95	300	94	4	22-3 ±3	S	18			F	7		
	UWP1580DV	179.95	250	94	4	25-3 ±3	S	15			F	6		
	MW1230	65.95	130	94	4	20-2.5 ±3	W	12			F	3 3/4		
	MW1025	49.95	120	93	4	25-3 ±3	W	10				3 3/4	No	
	MW8020	39.95	100	93	4	30-3 ±3	W	8				3 1/2	No	
	UT1000	11.95	50	91	4	2k-20k ±3	T					5 1/2	No	
	UT996	35.95	100	96	8	5k-22k ±3	T					3 1/4	No	
	UT845	22.95	50	91	4	2k-20k ±3	T					7 1/2	No	
	UT745	10.95	50	92	4	1.8k-20k ±3	T				F	5 1/2	No	
	UT602	24.95	60	91	8	1.5k-20k ±3	T				F	1	No	
	KL1580	247.95	450	97	4	20-2 ±3	W	15			F	6	No	
	KL1280	211.95	400	96	4	20-3 ±3	W	12			F	5	No	
	KL1050	141.95	375	95	4	25-3 ±3	W	10			F	4 1/2	No	
	KL8050	116.95	350	94	4	30-3 ±3	W	8			F	3 3/4	No	
	UP6900	148.95	65	92	4	45-23 ±3					P	1 3/8	No	
	UP5700	112.95	55	91	4	50-22 ±3					P	1 3/8	No	
	UP4600	78.95	50	90	4	70-22 ±3					P	2 1/4	No	
	SL6920TX	98.95	60	96	4	35-22 ±3	5 x 9	2		No	P	3	No	
	SL6920CX	89.95	50	95	4	35-20 ±3	6 x 9	2		No	F	3	No	
	SL6510TX	76.95	37	94	4	40-22 ±3	6 1/2	2		No	F	2 1/8	No	
	SL6510CX	67.95	30	93	4	40-20 ±3	6 1/2	2		No	F	2 1/8	No	
	SL6510W	49.95	25	92	4	40-18 ±3	6 1/2	W		No	F	2 1/8	No	
	SL4606CX	56.95	20	92	4	45-20 ±3	4 x 6	2		No	F	1 3/4	No	
SL4006CX	53.95	20	90	4	50-20 ±3	4	2		No	F	1 1/8	No		
SL4006W	35.95	17	90	4	55-18 ±3	4	2		No	F	1 1/2	No		
SL3506W	29.95	17	89	4	65-18 ±3	3 1/2	W		No	F	1 1/2	No		
WEST COAST AUDIO LABS	PS 400	199.00	75	85	4	55-20 ±3		4 1/2			Yes	P	1 1/2	Yes
	PS 500	259.00	120	92	4	40-20 ±3		5 1/4			Yes	P	1 3/4	Yes
	PS 600	329.00	150	91	4	33-20 ±3		6 1/2			Yes	P	2 1/4	Yes
	SP 400	179.00	75	89	4	55-20 ±3		4 1/2			Yes	F	2 1/4	Yes
	SP 500	229.00	120	92	4	40-20 ±3		5 1/4			Yes	F	2 1/2	Yes
	SP 600	279.00	150	91	4	33-20 ±3		6 1/2		Yes	F	3 1/4	Yes	
	LF 400	79.00	75	90	4	55-4 ±3	W	4 1/2			F	2 1/4	Yes	
	LF 500	119.00	120	93	4	40-4 ±3	W	5 1/4			F	2 1/2	Yes	
	LF 600	159.00	150	92	4	33-4 ±3	W	6 1/2			F	3 1/4	Yes	
	HF 11	29.00	20	90	8	2.5k-20k ±3	T				F	5 1/8	Yes	
	HF 20	69.00	50	93	4	2.5k-20k ±3	T				F	3/4	Yes	
	HF 25	119.00	75	92	8	2.5k-20k ±3	T				F	1	Yes	
	HP 804	129.00	250	94	4	27-500 Hz ±3	S	8			F			
	HP 808	129.00	250	94	8	27-500 Hz ±3	S	8			F			
	HP 1004	169.00	350	96	4	20-500 Hz ±3	S	10			F			
HP 1008	169.00	350	96	8	20-500 Hz ±3	S	10			F				
YAMAHA	YCS-3030	60.00	40	93	4	6k-20k	T				S		Yes	Includes crossover.  Trunk-mount powered servo subwoofer; for use with YST-CA500 amp (see "Amps"). Box enclosure; for trucks.
	YCS-3510	50.00	50	90	4	80-20		3 1/2	W		F	1 3/4	Yes	
	YCS-4010	70.00	60	91	4	60-20		4	W		F	1 3/4	Yes	
	YCS-4020	90.00	80	90	4	60-20		4	W		F	1 3/4	Yes	
	YCS-4610	60.00	60	90	4	70-20		4 x 6	W		F	1 3/8	Yes	
	YCS-4621	100.00	70	89	4	70-20		4 x 6	W		F	1 3/8	Yes	
	YCS-5010	70.00	80	91	4	60-20		5	W		F	1 3/4	Yes	
	YCS-5020	90.00	80	90	4	60-20		5	W		F	1 3/4	Yes	
	YCS-6010	70.00	80	92	4	50-20		6 1/2	W		F	1 3/4	Yes	
	YCS-6020	100.00	120	92	4	50-20		6 1/2	W		F	1 3/4	Yes	
	YCS-6022	150.00	120	90	4	55-20		6 1/2	W		F	1 3/4	Yes	
	YCS-6060	120.00	100	90	4	55-18		6 1/2	W		F	1 3/4	Yes	
	YCS-6920	120.00	180	93	4	35-20		6 x 9	W		F	2 1/8	Yes	
	YCS-6921	140.00	180	93	4	35-20		6 x 9	W		F	2 1/8	Yes	
	YCS-800	200.00	200	92	4	20-1	W	8			F	3 1/2	Yes	
	YCS-1010	240.00	200	93	4	35-1	S	10			F	4 1/8	Yes	
	YCS-1212	300.00	200	91	4	35-1	S	12			F	4 1/2	Yes	
YST-CS80W	299.00	180	93	4	25-500 Hz	S	(2)8			S				
YTB-A10B	300.00	250	91	4	60-20		10			S				
Z-BOX	911-F2	520.00	140	89	4	100-22				2	A	Yes		Biamp capable; for Porsche 911 kick panels. Enclosed subwoofer for Porsche 911 rear side panels. Triamp capable; satellite and subwoofer system for 1980 to 1983 Porsche 911; Model 911-R3(B), for 1984 to 1989 Porsche 911, \$1690.00 each.
	911C-SW	1050.00	125	89	4	20-200 Hz	S	8						
	911-R3(A)	1590.00	390	89	4	20-22		8		3	A	Yes		

(Continued)



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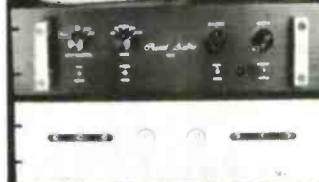


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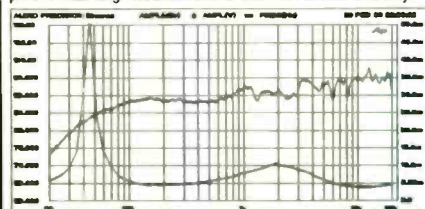
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The Europa 8 Coax is a fine high fidelity reproducer on one frame. It should give precise reproduction from 50 to over 20K hertz. It incorporates a gentle rise in output, making it very useful for autotuning reproduction. Moreover its high power handling should make in-the-wall stereo a reality.



### Europa 8 Coax Suggested Alignments

Box Volume Liter	14	21	21	28	35
Bass 1/2 Power F3	71	70	51	44	39
Box Vent Freq. Fb			36	36	28
Port Diameter *			2	2	2
Port Length *			7.4	5.15	7.29

### Europa 8 Coax

Fs	38.4
Mind	26.6 grams
Cms	627 mH
Vas	39.9 Liters
Rsc	3.62 Ω
Zmin	51 Ω
Zmax	6 @ 1K
vcl	7.3 T/M
Bl	7.46
Cms	.41
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Qts	.41
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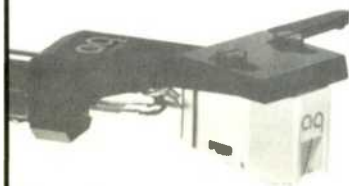
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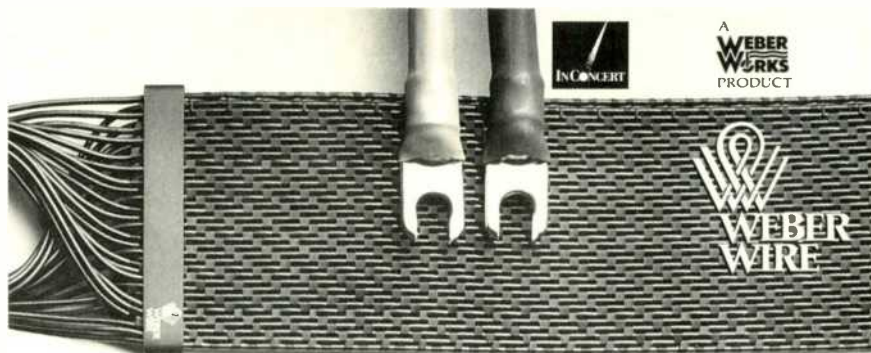
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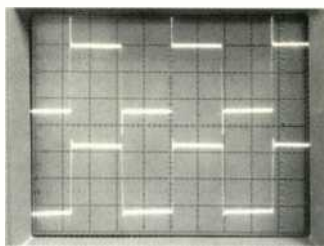
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Fig. 1 Transmission characteristics for 15 ft. of WeberWire—1Ω source, 8Ω resistive load—communicating a 100 kHz square wave. The upper limit of WeberWire is just beginning to be observed as the extremely high harmonics of the overshoot from the signal generator (upper trace) are noticeably reduced. Nevertheless, the bandwidth of WeberWire permits the wave itself to be reproduced without tilt or other anomaly.



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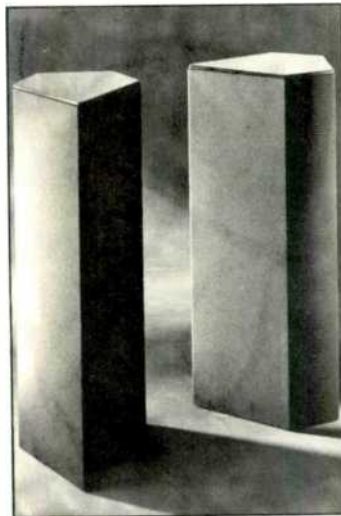
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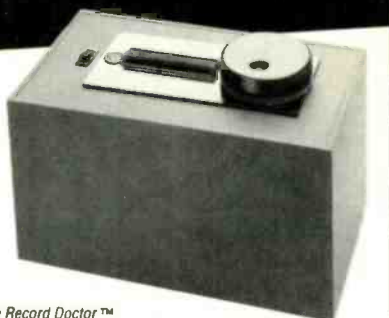
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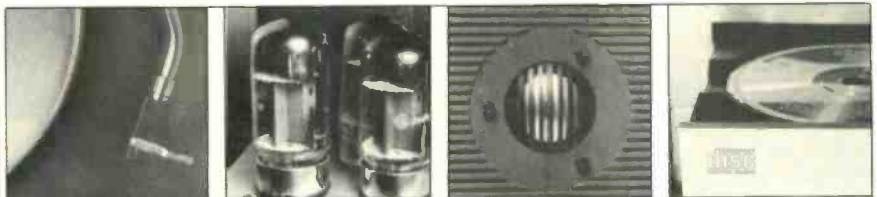
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