

PENTHOUSE

02242

THE INTERNATIONAL MAGAZINE FOR MEN

JULY 1971 75 cents

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ATOMS IN 2000 A.D.:
EXCLUSIVE INTERVIEW
WITH GLENN SEABORG,
PLUTONIUM'S DISCOVERER

PHALLUS IN WONDERLAND:
NUDIE MOVIE'S
OUTSIZE HERO

**A COMPUTER KNOWS
ALL ABOUT YOU:** THE
DANGER IN DATA BANKS

CHARLES BERLITZ ON
THE SEX WAR IN WORDS

**CULTISTS' TOPSELLING
CAR:** THE CORVETTE
IN CLOSE-UP

STEREO '71 SPECIAL:
**A FIVE-PART
PENTHOUSE GUIDE**



PENTHOUSE GUIDE TO STEREO

BY ROBERT ANGUS



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WHY
aren't you listening
to the 2 extra channels
in your stereo
records, tapes, and
FM broadcasts?



There are four stereo channels already present on your stereo records, tapes, and FM broadcasts but you are listening to only two of them! Add the Lafayette Dynaquad* 4-Channel Adapter to your present stereo receiver or amplifier and two additional speakers and you will experience the exciting difference of four channel sound NOW!

During a stereo recording session, the microphones pick up two types of sounds: direct and reflected, both of which are always included on a stereo recording. When played back in a conventional 2-channel stereo system, the reflected sounds are masked by the louder direct sounds coming from each of the two front speakers. The Lafayette Dynaquad Adapter recovers and separates the reflected sound from the direct sound. Thus dramatic new sound dimension is achieved with all existing stereo program sources without the need for any additional amplifiers!

So . . . why listen to only two channels when you can hear music the way it was meant to be heard with FOUR CHANNEL STEREO from LAFAYETTE? Price \$29.95! *

*Exclusive Licensee of Dynaco Inc.

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Lafayette Radio Electronics, Dept. 79071
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Send me **FREE** Lafayette Catalog 714
79071

Name.....

Address.....

City.....

State..... Zip.....

4-CHANNEL STEREO: WHAT IS IT?

"It's like nothing we've ever heard," says Burton Cummings of the Guess Who. "It's like getting completely stoned without using drugs or alcohol." "It" is the latest sensation to hit the stereo circuit, 4-channel sound. And it's already having an impact on rock musicians like Cummings and classically-oriented audio-philosophers alike.

Basically, 4-channel stereo is to ordinary stereo what stereo is to mono: the addition of two separately-recorded channels of sound for giving extra dimension and depth to the music we hear. Regular stereo took music from the pinhole sound source of a single speaker and spread it out across the wall of your listening room. Four-channel adds depth — putting you in the middle of a group like the Guess Who, or recreating the acoustics of Carnegie Hall in your living room.

What excites musicians about the new medium is the possibility of creating a total sound environment in the listening room. And because the listener exercises control over the balance among the loudspeakers, he becomes part of the creative process. With the right program material, good 4-channel equipment and psychedelic lighting, who needs pot for the perfect trip? Now it's possible to score music or record it so that it surrounds you.

Four-channel stereo works on exactly the same principle as 2-channel. Our ears are approximately seven inches apart, and practically none of the sound we hear reaches both ears simultaneously. Instead, the left ear hears a solo violin a millisecond before the sound reaches the right ear, or an electric guitar assaults the right eardrum slightly before the left ear hears it. The brain, acting like a calculator, computes the difference between the signals and tells us just how far to the left or the right the violin or guitar actually is. By providing separate channels for the left and right ears, we create stereo sound.

If separate speakers for left and right can create wall-to-wall stereo, some lovers of classical music asked themselves, wouldn't it be possible to recreate the acoustical environment of a concert hall by placing microphones at the rear of the hall, recording the music plus the ambience of the hall and playing back this sound through two loudspeakers located behind the listener? They discovered that with such a recording, the listener could, by adjusting the controls himself, recreate the intimacy of a small salon complete with chamber orchestra, or the enormous caverns of the Metropolitan Opera.

For recording engineers, record producers and the more creative rock groups, 4-channel opened whole new horizons. The group



Telex-Viking's Quad/Sonic 2+2, a playback deck compatible for 2- or 4-channel.

wouldn't have to be located up in front of the listener. It could surround him. In fact, he could get inside not only the music, but some of the instruments, like the electronic Moog synthesizer. Creative minds have barely gotten to work on the problem of what to do with 4-channel, even though they're agreed it's the most exciting thing to happen to music in years. But the 4-channel hardware is here already.

The new sound requires more than just four loudspeakers in your listening room. You've got to have four separate programs of information, one for each speaker. These may be fed into your system by a 4-channel tape, cassette or cartridge deck or a 4-channel stereo broadcast; or your system may be able to recreate them from existing 2-channel program material like your present stereo record collection or a conventional FM stereo broadcast. Sansui, Harman-Kardon, Dynaco, Electro-Voice and Lafayette Radio are just a few of the manufacturers who can give you 4-channel sound from 2-channel records or tapes, for example.

Stations now set up to broadcast 4-channel

WNEW-FM
WNYC-FM
WRFM
WDHA-FM
WASH
WRNL-FM
WCRB-FM
WJIB
WPEX-FM
WHFD
WFMT
WCLR
WLWL-FM
KMBR-FM
KLIR-FM
KSL-FM
KIRO-FM
KFOG
KSAN
KPEN
KBIG-FM
KMET
WKNR-FM
WCRB-FM
WGBH-FM

New York, N.Y.
New York, N.Y.
New York, N.Y.
Dover, N.J.
Washington, D.C.
Richmond, Va.
Waltham, Mass.
Boston, Mass.
Pensacola, Fla.
Archbold, Ohio
Chicago, Ill.
Chicago, Ill.
Minneapolis, Minn.
Kansas City, Mo.
Denver, Colo.
Salt Lake City, Utah
Seattle, Wash.
San Francisco, Calif.
San Francisco, Calif.
Mountain View, Calif.
Los Angeles, Calif.
Los Angeles, Calif.
Dearborn, Mich.
Boston, Mass.
Boston, Mass.

And it is a little devil. Because it only weighs 12 ounces. And because the little devil delivers the exciting Sound of Koss. With an uncommon range and clarity that music lovers will more than likely call heavenly. (10-20,000 Hz.)

But then the heavenly Sound of Koss in a truly lightweight stereophone isn't all the Red Devil offers. Like the Red Devil's soft, resilient neoprene foam ear cushions that seal out



ambient noise and provide an extended linear bass that can be felt as well as heard. Or the Red Devil's virtually blowout proof driving element.

The devil's waiting for you at your favorite hi-fi dealers. Just ask for it by name: Koss KRD-711 Stereophone. In your choice of one devilish color: devil red. It's a devil of a Stereophone...especially when the little devil only costs \$29.95.

Our new lightweight Stereophone. So devilishly good we had to name it the Red Devil.

 **KOSS STEREOPHONES**

Koss Electronics, Inc., 4129 N. Port Washington Rd., Milwaukee, Wis. 53212 • Koss Electronics S.r.l., Via Valtorta, 21 20127, Milan, Italy

HOW TO CONVERT TO 4-CHANNEL

Oh, wow, you've just sunk upwards of \$400 into a stereo system that's the pride of the neighborhood and already something new has come along and made it obsolete, right? Wrong. If you've got a typical four-piece hi-fi system (record player, stereo receiver and two loudspeakers) you can have four-channel sound for as little as \$100 more—and you don't even have to buy any new records or tapes to enjoy it. Of course, the more you spend on converting, the better any 4-channel system will sound.

Obviously, the first thing to add is two loudspeakers, mounted in the rear of your listening room (behind you). Experts are

divided on whether these need to match your present stereo speakers, or whether you can get away with something less in the way of cost and sound quality. For classical music, speakers selling for less than \$60, like the Electro-Voice Sonocaster, the Wharfedale W-25 or the AR-4, are more than satisfactory for reproducing the 100-9000 cycles-per-second frequency range necessary to recreate room ambiance. To these you add a quadrasonic control, available from Lafayette Radio or Dynaco for \$29.95. The system works on the principle that there's already 4-channel program information on most stereo records (and because records form the backbone of FM



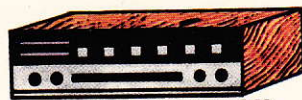
Toyo's Qaudio model CH-702, a cartridge player for 4- or 2-channel

stereo programming, on most broadcasts). The Quadaptor simply picks the rear channel signals off your records and feeds it to the rear speakers. Its supporters say this is a great way to get started with 4-channel stereo, because the cost is low and because you can step up to the next level at any time.

The next level can be a substantial step. In addition to a 4-channel decoder or synthesizer (Electro-Voice has one for \$59.95; Sansui's QS-1 costs \$199.95), you need a second stereo amplifier to power the rear loudspeakers you've already bought. It need not match the stereo amplifier or receiver you already own;

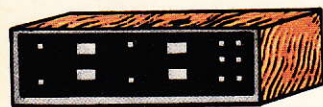


AUTOMATIC TURNTABLE



STEREO RECEIVER OR AMPLIFIER

If you own a conventional stereo system (like this, above), here's what you need to add for 4-channel stereo*:



SECOND STEREO AMPLIFIER

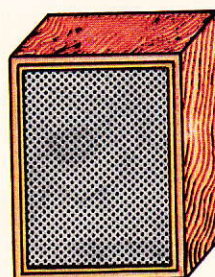


DECODER OR ADAPTOR*

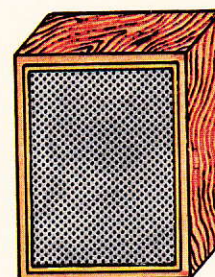
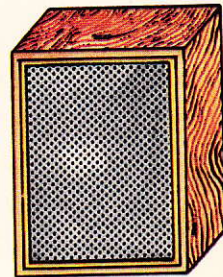


OR SYNTHESIZER

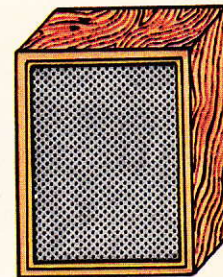
*No second amplifier needed with the Dyna-Lafayette system.



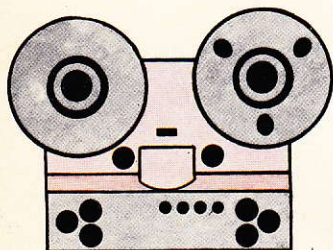
2 LOUDSPEAKERS



2 ADDITIONAL SPEAKERS



If you're buying a complete 4-channel stereo system, you need:



4-CHANNEL OPEN REEL TAPEDECK



4-CHANNEL AMPLIFIER

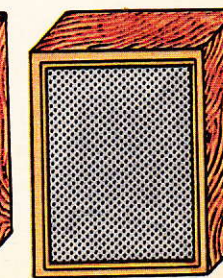
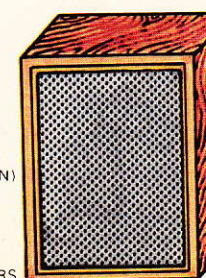
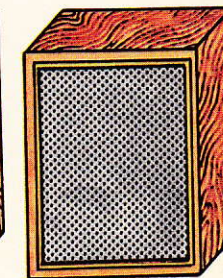
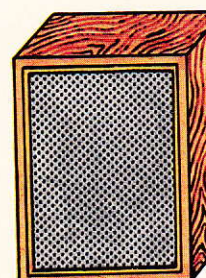
FM STEREO TUNER



4-CHANNEL STEREO-8 CARTRIDGE DECK



AND DECODER (FOR 4-CHANNEL RADIO RECEPTION)



4 LOUDSPEAKERS

*it's
funny-
you
pay
more
for a
TDK
cassette
and you
get so
much
less*

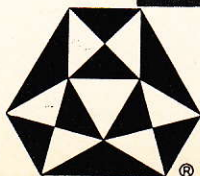


less tape noise . . . exclusive TDK SD Gamma Ferric Oxide affords better signal-to-noise ratios, wider dynamic range too.

less distortion . . . TDK's SD high coercivity oxide permits higher recording levels, low harmonic distortion (0.7%) at standard recording levels, clearer sounds.

less mechanical problems . . . precision slitting means no "scalped" tape edges, accurate track alignment; virtually no jamming or binding of reel hubs to adversely affect wow and flutter.

less "dropouts" and head wear . . . mirror finish of oxide side prevents "shedding", abrasive action.



TDK®

TDK ELECTRONICS CORP.

LONG ISLAND CITY, NEW YORK 11103

World's leader in tape
technology since 1932



stereo amplifier or receiver you already own; an \$80 amplifier delivering a bare 20 watts per channel should be adequate with most speakers. Of course, if you've recently bought better speakers for your living room and haven't yet gotten rid of the old ones, or if you've traded up from an inexpensive stereo amplifier to a good stereo receiver and still have the old model on hand, you're ahead of the game. This equipment is ideal for getting started in 4-channel.

So, if Dynaco's \$29 Quadaptor will do the job, who needs the Sansui QS-1 at \$199? The more expensive stereo decoders and adaptors not only provide greater versatility within the system, but can be capable of more dramatic quadrasonic effects from 2-channel recordings. For example, the QS-1 offers you the option with any stereo record of concert-hall sound (all the musicians up front, with only the ambiance of the auditorium behind) or surrounding yourself with the Philadelphia Orchestra or the Guess Who. The QS-1 offers not only a multiplicity of volume and balance controls, but separate volume indicators for each channel and other goodies. And because each channel now has its own amplifier as well as its own speaker, you're ready to step up to a full-fledged 4-channel system with its own program source.

If you chose the Electro-Voice decoder, all you need now are some 4-channel records, available from Ovation Records, Phase III or several other labels. At press time, however, most of the Quadrasonic action was on tape, with RCA and Motorola offering a significant selection of Stereo 8 cartridges and Fisher, Toyo, Webcor, Telex and Lafayette offering playback equipment; and manufacturers of open reel tape recorders like Teac, Wollensak, Sony/Superscope, Panasonic and Astrocom, with decks selling for from \$399 to \$1695. Because it's possible to assign a separate tape track to each of the four sound channels, it's easier to put quad stereo on tape, and the results — at least so far — are more satisfactory than on discs. Any of these decks connect directly to your stereo amplifiers or control center.

Suppose you've gone the whole route — two new speakers, stereo synthesizer, stereo tape deck — and discover that you have quite a shelf full of equipment. Don't despair. You can replace the 2-channel stereo receiver and amplifier with a single unit — Fisher's 701 quadrasonic receiver or H.H. Scott's Model 499 quadrasonic amplifier (\$699.95 and \$599.95 respectively). Like the QS-1, both feature a multiplicity of balance and volume controls, the latter with four illuminated volume indicators.

There are such things as quadrasonic broadcasts. In Boston they go out over two separate FM stereo stations, and to enjoy them you need two conventional stereo receivers. In other cities, stations have experimented with the Electro-Voice and Dyna systems. So far, the Federal Communications Commission hasn't laid down the law about what form over-the-air quad stereo will take, so there's no such thing as a 4-channel stereo tuner. The FM section of Fisher's model 701, in fact, is a conventional 2-channel FM stereo tuner.

As with anything else, the better the ingredients in your 4-channel system, the better the overall results are bound to be. But if you're worried about having to scrap a hard-earned piece of equipment, don't. Chances are it'll fit in just fine with your new 4-channel stereo system.

PENTHOUSE
PARAPHERNALIA

SURROUND SOUND

4-CHANNEL, THE SECOND
HI-FI REVOLUTION, BRINGS YOU
CONCERT-HALL REALISM

FURNISHMENTS BY DAWN STEEL
PHOTO BY BRUCE WAYNE



1. Wharfedale model W35 three-way speaker is shaped for placement free standing on a shelf or on the floor in room corners. Use of optional corner mounting bracket allows for free suspension positioning. \$82 per speaker plus \$4 for mounting bracket.

2. Wollensak model 6154, 4-channel reel-to-reel tape deck includes preamp. Features 4-channel playback; 4-track monophonic or stereo recording/playback. Three heads, three speeds, two motors, push-button tape controls. \$399.95

3. Astrocom model 711, 4-channel reel-to-reel tape deck features three-motor system, four calibrated VU meters, "micro-touch" sensing system plus synchronous recording on all four channels, and built-in mixing facility for all inputs. Under \$1900

4. Teac's TCA-42 reel-to-reel tape deck

incorporates 2- and 4-channel playback, 2- and 4-channel recording, auto reverse for 2-channel operation and a total of eight separate solid-state playback and recording amplifiers. Includes off-the-tape monitor selectors. \$695

5. Sony/Superscope model 366-4 is 4-channel, reel-to-reel tape deck featuring 4-channel recording and playback capability. Additional attractions include automatic total mechanism shut-off, mike/line mixing, record equalization selector switch and built-in sound on sound. \$499.95

6. Fisher WS-80 three-way omnidirectional speaker system. Scatters sound in 360 degree circle enabling speakers to be placed anywhere in room. Ideal for 4-channel systems because of wider dispersion of sound. \$99.95 per speaker.

7. Fisher CP-100. This 8-track cartridge player



adapts to both regular 2-channel or 4-channel stereo. Three controls permit repeat, change or continuous programming. **\$169.95**

8. Fisher 701, 4-channel, AM/FM stereo receiver. Features three methods of tuning — manually, electronically, or by remote control. Simulates 4-channel sound from conventional 2-channel program material. **\$699.95**

9. Dynaquad 4-channel adaptor converts existing 2-channel stereo system to 4-channel. Includes rear speaker level control, "null" switch for balancing and speaker selections. **\$29.95**

10. Lafayette RK-43 8-track cartridge deck. Automatic 2-channel or 4-channel selection. **\$79.95**

11. Lafayette LA-44, 4-channel amplifier. Individual volume controls for each of four speakers. Separate bass and treble controls for

front and rear. Headphone jacks select front or rear channels. **\$219.95**

12. Toyo Qaudio CS-721 4-channel stereo tape cartridge player for automobiles. Can also take standard 8-track stereo cartridges. Designed for power connection to conventional 12-volt automotive systems with positive ground. Master volume control, master tone control, channel selector, program adaptor (to accommodate either 2-channel or 4-channel tapes), and a balance control. **\$129.95**

13. Telex model 824 is a 4-channel stereo cartridge recorder/player that records and plays in both conventional stereo and 4-channel. About **\$390**

14. Astrocom model 307 is component-quality cassette deck with 4-channel, stereo or monophonic capabilities. Subsonic coding and sensing system permits automatic reverse play.

Under **\$500**

15. H.H. Scott 499 is first available 4-channel stereo quadrant amplifier. Controls to balance any combination of left-right, front-rear. Dual channel headphone jacks. **\$599.95**

16. Electro-Voice Decoder model EVX-4 expands existing 2-channel source material (FM broadcast, record, or tape) to four different sound channels. **\$59.95**

17. Sansui QS-1 Quadphonic synthesizer offers true 4-channel sound from any 2-channel source. 4-channel volume control in a single 4-ganged control permits changing output signal level in all four channels simultaneously. Four VU meters. **\$199.95**

18. Webcor 4-channel 8-track cartridge tape player sports built-in preamp, 2-channel playback capabilities. Push-button channel selector, 4-channel indicator lights. **\$179.95**

Plexiglass cubes courtesy Auralume

THE SUPER CASSETTE IS HERE

Sometime during 1971, every 17th person in the United States will stop into an audio salon, department store, discount house or neighborhood camera shop to buy a tape recorder. More than half these buyers, or about 6.5 million shoppers, will select a cassette player or recorder. It may be a battery-operated portable, for the beach or a heavy date; a stereo playback deck for the car, or one of the increasing number of super-cassette decks designed for use with a component hi-fi system.

Until recently, audiophiles tended to look askance at the cassette. True, it was compact, easy to use and highly portable. But it really didn't sound as good as today's better stereo records or open reel tapes, when played on good equipment. The frequency response was limited, hiss from the tape masked some of the music, and the players themselves introduced distortion. A lot has happened so far this year to change that picture.

For one thing, equipment manufacturers like Sony, Panasonic, Harman-Kardon, Teac and others have launched a campaign against noise. They define noise as any sound you don't want in your audio system. Perhaps the biggest name in the anti-noise field is Dolby Laboratories, a British firm already responsible for making records quieter and better-sounding. The Dolby circuit cuts noise during recording by altering the relationship of the very quiet tones and overtones to the noise level inherent in any recording tape. Cassette decks featuring the Dolby circuit are available from Harman-Kardon, Advent, Fisher, Kenwood and others, with more models and manufacturers expected this fall. They're not cheap — the average Dolbyized deck sells for \$200 and up — but they do narrow the gap between cassette sound and records.

Dolby doesn't have the noise reduction to itself. Panasonic and Sony, to name only two, have their own systems. Meanwhile tape manufacturers like TDK, Scotch, Bell & Howell, Ampex and others have produced a quieter tape. TDK, which pioneered the field, found a way of packing a higher density of iron particles — the stuff which makes recording tape work — on a given area of tape. The result was a tape which not only looks different from ordinary brown recording tape, but sounds noticeably better, even when you use it on an inexpensive portable.

At the same time, DuPont (chromium dioxide) and 3M Company (cobalt) have been experimenting with new materials. Chromium dioxide, a substance created in the laboratory, seems ideally suited to high fidelity recording but, like many of the high density tapes, requires an adjustment in the recorder in order to take full advantage of its high frequency and low noise characteristics. Scotch's cobalt-treated low-noise tape, on the other hand, claims the benefits of both sides — high density performance on a standard recorder without the need for adjustment. These tapes sell for up to 50 per cent more than the better-quality

standard cassettes — or \$2.99 for a TDK 60-minute cassette.

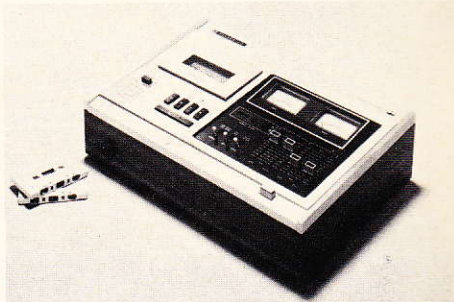
Other manufacturers are busy making the cassette easier to use. Norelco and Ampex first introduced the cassette changer four years ago. Now there are several more, enabling you to stack cassettes like records and play them automatically, one after another. Craig's Model 2805 features a vertical stack, but, unlike Norelco's and Ampex's, it plays both sides of the cassette before changing. The 2805 can handle up to eight cassettes, or some 12 hours of music. Denon takes a different approach, with a horizontal tray, something like a jukebox. It, too, changes automatically and plays one or both sides of a cassette.

The cassette system, introduced originally as a compact dictating machine, quickly came into its own as a highly portable music system. Recorders small enough and lightweight enough to fit into a coat pocket, from manufacturers like Panasonic, Sony, Norelco and others, provide music for an outing, take notes in the classroom, even provide enough music for a party or dance. Because of their small speakers, however, even the best of the portables often don't provide the kind of gut-thumping bass rock aficionados love. So Bell & Howell came up with the Boom Box, an add-on speaker which emphasizes bass in a made-to-match cassette recorder (\$79.95). Now there are cassette portables with built-in radios, even stereo portables with detachable wing or extension speakers.

Portability has made the cassette a great summer favorite. Vacationers take them along not only to provide music away from home, but to record the highlights of a vacation — the aural as well as the visual. A cassette recorder can capture the sonic splendor of the Changing of the Guard at Buckingham Palace, the crash of the surf at Big Sur, the invitation of a Parisian (or New York) *fille de joie*, an impromptu rock concert by a couple of neighborhood kids.

In the car, until recently, the cartridge has reigned virtually supreme. Of the 3.8 million eight-track players expected to be sold this year, most will be under the dashboards of cars, new and otherwise. Even there, things are happening. The first 4-channel cartridge players for cars are available, from Toyo Radio for \$129.95. The CS 721 player, like those of Motorola and others, is capable of playing conventional Stereo 8 cartridges through four loudspeakers, or handling the new Quad-8 cartridges to convert your Volkswagen into a rolling concert hall.

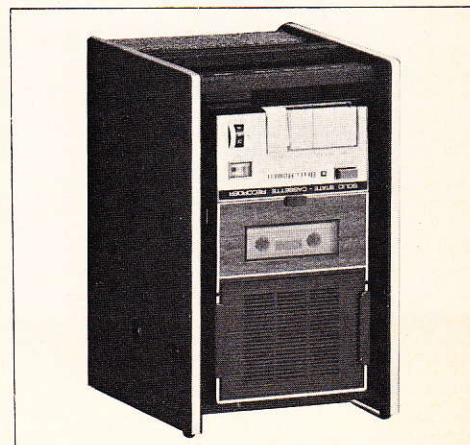
This year, the cassette is making a serious attack on the car cartridge-player — with models by Bell & Howell, Ampex and Aiwa that reverse automatically at the end of each track, thus eliminating the bother of having to remove the cassette, turn it over and reinsert it in the middle of each album while driving. The auto reverse feature, coupled with the do-it-yourself C-90 cassette from TDK or others, gives you almost twice as much uninterrupted listening as is possible with cartridges. The



Panasonic's voice reduction is incorporated into this RS-275 US unit.



Denon's model TRC-798 has a 12-cassette tray.



Bell & Howell's Boom Box is an add-on loudspeaker that takes a cassette portable and boosts its bass.



Koss stereo headphones, model KRD-711, give comfortable private listening.

Prepare yourself for the shock of the Qaudio Sound Experience.

Qaudio* is the unexpected new experience in listening pleasure. It's the living, breathing reality of four-channel sound.

If you remember how stereo put you in the music hall, now Qaudio puts you on the stage. It envelops you in the center of the sound.

Qaudio is our 4-channel high fidelity cartridge tape player music system.

Insert a cartridge and the shock of four distinct sounds from four surrounding speakers creates a completely new musical experience. The ambience is so real, it's unreal.

Qaudio is more than stereo could ever hope to be. The four-channel cartridges deliver the sound with nearly the same kind of natural delineation you'd find at a live concert.

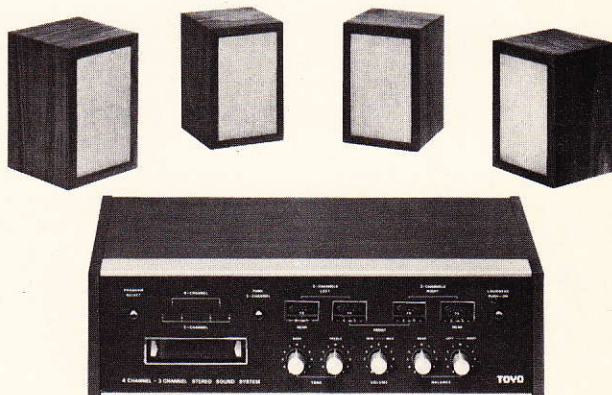
But before you go out and junk your present library of regular 8-track cartridges, keep in mind that our Qaudio system will play them too. And they'll sound better than they do on your present set-up.

Qaudio is available right now at a store near you. Along with a good, solid selection of tapes.

Qaudio prices for your home, automobile, or boat start at under \$170; a rather small price to pay for progress.

There's a shocking little free booklet that tells the whole Qaudio story. Just drop us a line with your name and address.

Toyo Radio Company of America, Inc. 1842 West 169th Street, Gardena, California 90247. Dealers and service centers across the country.



 **QAUDIO**TM
BY TOYO

A SHOCKING EXPERIENCE IN SOUND.

*PRONOUNCED "KWAH-DIO". THE NAME QAUDIO IS BASED ON THE GENERIC "QUADRIPHONIC" AND YOU CAN THANK OUR LAWYERS FOR THE SPELLING.

Teac AC 7 not only reverses automatically, but has some of the best features of Teac's home decks — heavy-duty motor, narrow-gap playback head, rugged construction, etc. It sells for \$129.50. Like the Toyo and other car units, the price does not include speakers. A pair of speakers can be had for less than \$10 or more than \$70, depending on the type of car you drive and the quality of sound you can afford.

Teac also is one of those makes that include an earphone jack. Earphone jacks are common on the battery-operated models to facilitate

listening privately on a bus or in a room with others. The phones designed for use with them are the type you get with transistor radios — inexpensive, reasonably efficient, but uncomfortable for prolonged listening and ineffective in shutting out noise in the listening area around you.

The stereo headphone, so common a part of the complete stereo system for private listening, is coming into its own with the development of high-quality cassette and cartridge playback systems. Phones like the Koss PRO-4AA at

\$60 or KRD-711s (\$30) not only provide better stereo sound than most cassette and cartridge system speakers can deliver, but do it with comfort, thanks to ear cushions of foam (in the 711) or liquid-filled (in the PRO-4AA) which also shut out most external sound.

When you add it all up the new medium comes close to the best sound currently obtainable from records or open reel tapes. Who knows? By this time next year, they may sound even better and offer greater convenience than the familiar stereo record.

AUDIO TERMS YOU NEED TO KNOW TO IMPRESS YOUR FRIENDS

Acoustic (or Air) Suspension Technique for mounting a loudspeaker to increase bass frequency response. An acoustic-suspension loudspeaker comes in a hermetically-sealed box so that the speaker cone rides on a cushion of air trapped behind it. Such systems are generally compact with pleasing bass sound. But the technique, by itself, is no guarantee of speaker quality or performance.

Amplifier The device which boosts the weak electrical signals generated by a phonograph cartridge or tape playback head into a signal strong enough to power a loudspeaker. Every stereo compact or console has an amplifier section. As a hi-fi component, the amplifier forms the heart of a complete audio system. Available as a single separate component, as two units (power amplifier and separate pre-amplifier), or as part of a stereo receiver.

Cartridge Can mean two different things. A *phono* cartridge is the device in the tone arm of automatic turntable or manual record player, which translates stereo record grooves into separate electrical impulses to feed your left and right loudspeakers. An *8-track* cartridge is about the size of a paperback novel and contains an endless loop of magnetic tape. The tape carries the equivalent of an LP's worth of music, with four programs of conventional stereo or two programs of 4-channel stereo music — a total of eight tracks. This cartridge fits an 8-track car player, stereo deck or battery-operated portable.

Cassette About one-fourth the size of a tape cartridge, the cassette contains two tiny reels of tape inside a plastic shell with a length of tape approximately 1/7" wide between them. Designed mainly for use on home recorders and playback decks, the cassette also holds the contents of an LP. Or you can buy blank cassettes and record your own music.

Channel A single channel of sound constitutes monaural; two channels make up conventional stereo; and it takes four channels to create quadraphonic sound.

Compact (or Stereo Compact) A three-piece stereo system, usually consisting of two bookshelf loudspeakers and a center control unit. The control unit may include any of the standard audio program sources — record player, AM and/or FM stereo tuner, open reel tape deck, cassette or cartridge tape deck, or any combination. But the control center always contains a stereo amplifier. The most common combination is a stereo record player and AM-FM stereo receiver, to which other program sources such as tape may be connected. The stereo compact embodies the basic concept of component high fidelity — the physical separation of loudspeakers from the automatic turntable to eliminate the problem of acoustic feedback in older-style phonographs and consoles.

Console A home entertainment system in a single piece of furniture. The better consoles

contain some of the same components that make up a component system — but in order to fit record player and speakers into the same cabinet, it's usually necessary to make compromises in performance.

Cycles Per Second (abbreviated CPS) The frequency response of any piece of audio equipment is measured in cycles per second. A good hi-fi system should deliver a frequency response of at least 50-15,000 cps within a tolerance of 1 or 2 db. The best audio equipment delivers 20-20,000 cps or even more.

Hum An annoying interference with the music on one or both stereo channels. Causes are various but when hum obliterates the music, it is often caused by a break in a connector cable.

Monaural Single-channel sound, sometimes referred to (inaccurately) as hi-fi.

Open Reel Tape recorders or decks using tape on reels rather than in cassettes or cartridges. Open reel recorders usually are larger and cost more than the other types. They have decided advantages for the do-it-yourselfer, but are more difficult to use than a cassette or cartridge system.

Quadrasonic Four-channel stereo sound.

Receiver The heart of most component systems, a receiver combines an FM stereo tuner, power amplifier and stereo preamplifier on a single chassis. A growing number of receivers include AM radio as well. The receiver supplies power to your loudspeakers, and can serve as a control center for tape, automatic turntable or other program sources.

Tape Deck Mechanism that reels magnetic tape (also referred to as the tape transport), plus the erase, record and playback heads necessary to make or listen to a recording. A tape deck must be used with an external amplifier and loudspeakers. There are tape decks for open reel, cartridges and cassettes.

Three-way A term used to describe a loudspeaker system containing at least three separate loudspeakers — for low-frequency, midrange, and high frequency.

Tuner A device which converts broadcast signals to electrical signals which an amplifier can work on. Available separately, or as a part of a stereo receiver or compact. There are separate tuners for AM and FM radio, or the two can be coupled on a single chassis. An FM stereo tuner receives the single signal transmitted by an FM stereo station and splits it into separate left and right channels.

Tweeter A loudspeaker specially designed to reproduce high frequencies or treble tones.

Two-way (see also Three-Way) A loudspeaker system with at least two separate elements — for low-frequency and high-frequency. A two-way system may contain virtually any number of actual speakers by doubling or trebling either or both of the two elements.

Woofer A loudspeaker specially designed to reproduce low frequencies, or bass tones.



"Very Heavy." That's the recording artist's hip way of expressing satisfaction after a recording session because every single sound has been captured exactly as it was created. Ultimate fidelity. Audio perfection. And chances are it was achieved on Ampex sound equipment. Which is why Ampex is in 90% of the world's recording studios.

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The AX-300 is a six head bi-directional stereo tape deck. The Ampex Deep-Gap heads are symmetrically located so that tape is always pulled over heads in either direction for better tape-to-head interface.

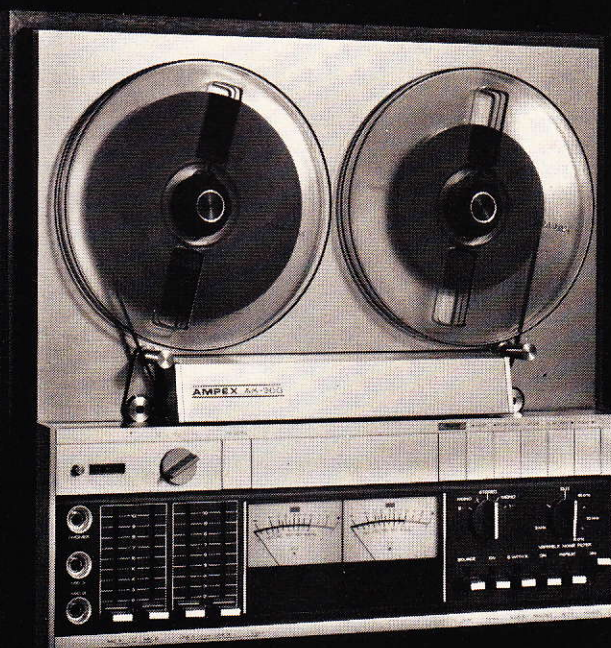
3 motor drive system. Heavy duty hysteresis synchronous capstan motor assures steady, even tape motion regardless of voltage fluctuations.

Symmetrically arranged push-buttons control all tape motion functions thru positive action solenoid operation.

Exclusive motion sensing controlled solid-state logic circuit prevents tape stretch, breaks and spills, even when changing from fast wind directly to play.

Built-in studio 4 line mixer. 4 separate controls let you mix 4 independent sources for mono,

THE AMPEX 45 lb. STUDIO



or 2 stereo sources for stereo recording.

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