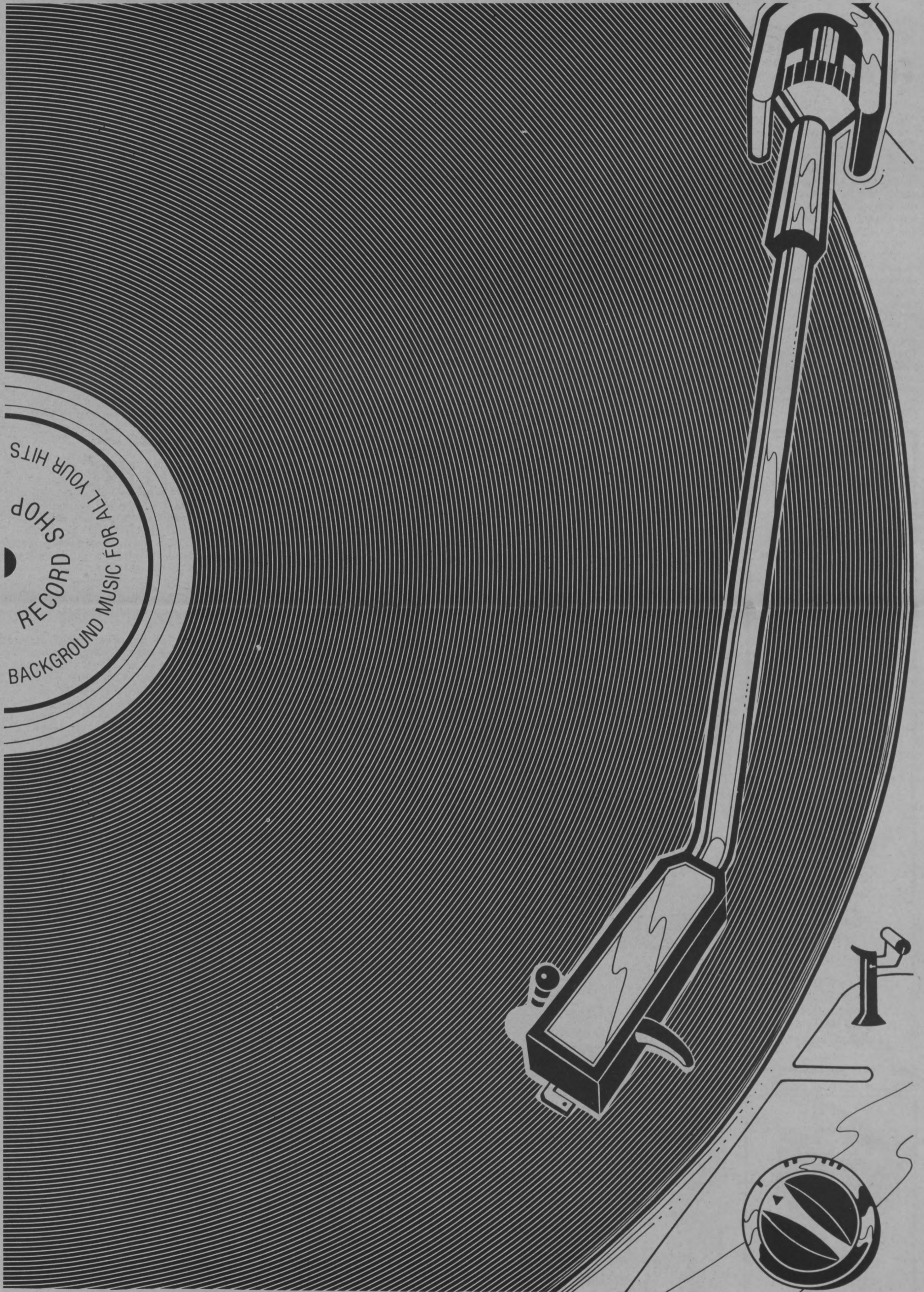


# SIGHT & SOUND



# VCRs

## All You Need To Know



The features you select for your VCR will be the greatest factor in cost of the system. The VHS system is the most popular format, comprising 80 percent of world-wide VCRs.

In these days of video sophistication, it seems that just about everyone owns a video cassette recorder, or at least knows someone who does. The most obvious reason to own a VCR would be for taping movies, commercials, television shows, and important political debates that would otherwise be missed. However, with the availability of major motion pictures on tape, the craze is renting movies to have a nice evening at home with Eddie Murphy, rather than pay for the same pleasure in a strange moviehouse.

VCRs are no doubt very convenient and quite easy to operate. This technical wonder becomes much more of a decadence than a necessity when its features are realized. All VCRs have the same basic capabilities, that is, they can record programs off television and

play them back at your convenience. In this way the viewer can fast forward through commercials, and viewing time is condensed. Practically every VCR comes with a wireless remote control which really adds to the pleasure of fast forwarding, pausing, and rewinding from the couch.

The features become more extravagant and complex as the cost of the machine rises. Top of the line models allow up to fourteen days of advanced programming which can be as long as eight hours depending on the tape speed. A high fidelity recording system which produces audio quality far superior to average models is available on certain Sony models. Most mid-range models offer tape speed selection allowing a choice of two, four, or six hours of recording time on each cassette.

There are two types of cassette recorders available on the market today: Beta and VHS. Introduced by Sony, Beta was first to hit the consumer. The VHS followed offering a competent alternative from which to choose. Although it has been suggested that Beta recorders have superior picture quality, the difference is very slight. Beta machines are also prone to mechanical problems, and because the system is technically more complicated than VHS, this means costlier repair bills. Both machines use tapes that are one-half inch in width, however, the playback procedures differ for each, making cross tape usage impossible. Far and away the most popular of the two is VHS, which comprises 80 percent of the worldwide market.

Video recording and playback is a complicated and highly

sophisticated process. The recording head is only a few microns in width and is tilted at an angle in order for the tape to record at 1800 rpm. For proper playback, the video heads must be lined up and synchronized, turning at an exact number of cycles per second. The video signal passing that must be done is complex, making the VCR something of a video marvel.

Ideally, VCRs will last from four to six years with proper care, approximate usage being one or two hours per day. The tapes themselves will sustain about 60 records or passes until they begin to disintegrate causing serious oxidation flakage on the video heads. The machine will then malfunction and cause you misery, so it is in your best interest to record on more than one tape and avoid re-recording on the same

tape. With normal usage the video heads will wear, much like tires on a car, and replacement cost usually is very high.

Cost of VCRs range from \$275 to \$1200. Factory close-outs and discontinued models can be found for as low as \$200. Most manufacturers such as Sanyo and Toshiba make machines in both Beta and VHS format, however Sony deals exclusively in Beta. Video tape prices start at about \$5, and increase depending on quality.

Although VCRs are tremendously reliable considering the technology involved, they do need service. When the machine gives you problems it should be taken in for preventative maintenance, the cost is approximately \$125. As a general rule, most machines include a 90-day labor warranty and a one-year warranty for parts.

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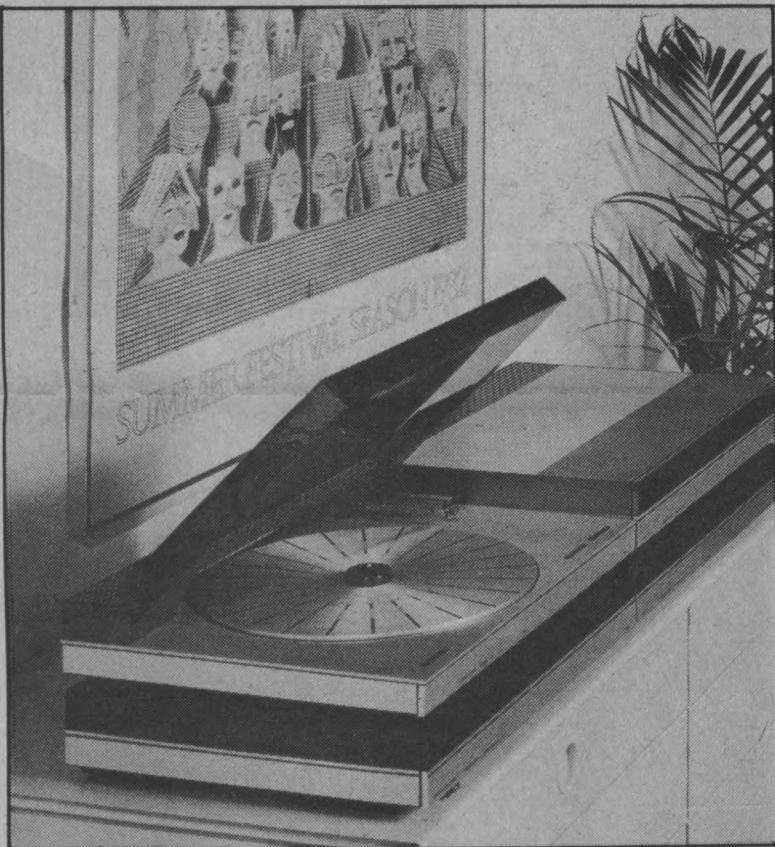
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## What's Coming, What's Here

# THE FUTURE

In Woody Allen's futuristic world of *Sleeper* the realization that progress is inevitable becomes apparent. As you may recall, the orgasmatron has replaced conventional intimacies, fruit and vegetables have grown to epic proportions, and robots are doing the domestic work of humans. Max Headroom, Coca-cola's computer pitchman, tells us "to catch the wave." in other words, to seize the future.

All things, whether automobiles or fashion trends, move forward. Audio and video equipment must be included among the progressive wave of future technology. There are some amazing fidelity components which are fresh to the consumer market, and quite frankly, they are awe-inspiring.

To begin with, the compact disc has expanded. Pioneer has introduced a CD player that holds up to six compact discs. The special thing about this player is that each song on each disc is played in random order, one song from this disc, one song from another, and so on. This is especially convenient for background music or parties. Cost of the player is \$499.

Another Pioneer CD features an option called FTS or favorite track selection, which allows the programming of favorite songs in the order you want them. In this way, the player can be programmed to skip over selections that you don't want to hear, and to rearrange the order of the cuts. The memory can hold up to 785 different combinations. Cost is \$429.

Because background noise on discs is very low, the resulting sound quality of a CD is excellent, and usually the average speakers are not adequate to handle it. As a result, power amplifiers are being used to compensate for the superiority of the recording. The amplifiers allow sound levels to be heard which otherwise would have been unapparent by an untreated speaker. Severe damage to speakers may occur if amplifiers are not used.

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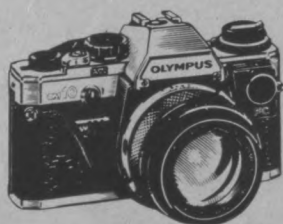
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## Compact Stereos Are Convenient

What's an evening at home without some relaxing music to calm your nerves after a day of bio-psyc and bikepath horrors. It is especially annoying to listen to the clock-radio wake you up in the morning, undoubtedly, it's even worse to depend on that miniscule fidelity system for your every audio demand. Chances are, the average college consumer owns at least one other type of system besides the morning wake-up model.

A smart choice for stereo consumers on a limited budget is the mini, or compact component. The most popular compact stereo item is probably the portable cassette deck. Generally, compact systems are less expensive than their full-sized counterparts. However, the quality of these components is no way near that of the separate components, the main reason being it is impossible to fit the necessary specialized parts into a smaller package and still keep the level of sophistication. What is saved in space is sacrificed in performance.

The market for minis is quite brisk these days because of their intrinsic portability and also for their value. Speakers tend to suffer the greatest in this transition to petiteness. High sound clarity and acoustic perfection are not plausible options in the compact models. Systems offer from 12 to 18 watts per channel; a watt being the measurement of a particular amplifier's output ability below the audible level of distortion.

The most valid argument against mini components is the dive in quality that will be taken. The sets are not energy con-

servative, the compact disc players and cassette decks use poor motors and tape heads, and the turntable is of very low grade. For correct functioning of stereo equipment there must be proper heat dissipation, which is not available in the smaller units. As a result, their life span is limited. Generally, they will last approximately 7 to 8 years as compared to home units which last 12 to 15 years.

These days "mini" has become congruous with "compact". However, when the first idea of manufacturing components that were on a smaller scale appeared, the quality was of a higher standard than today. These original compact components were introduced by Mitsubishi and Aiwa. However, because the consumer ended up spending the same amount of money on compacts as he would if the full size pieces were purchased, the trend fizzled fairly soon.

When mini components hit the market again the price had dramatically declined, and so had the quality. However, because of the convenience and cost of the systems (ranging from \$100 to \$700), they are tremendously popular. Features on the more expensive models include a built in compact disc player, 3 way detachable speakers, graphic equalizers, and up to 30 watts per channel. These miniature portables are great for cramped dorm rooms, offices, or temporary living arrangements, when it would be too difficult to hook up an entire system. Manufacturers to consider include JVC, Aiwa, Sony, and Panasonic.

## Stereo Guide

*The Sound Experience* Buying or upgrading your stereo system can be a fun experience if you know what to look for. If you approach the whole process logically, you can avoid the pitfalls and end up with a professional sounding system.

One of the most important things to keep in mind when buying a stereo system is to balance the components in it. The "weakest link of the chain" philosophy applies very strongly to stereo systems and is the most common reason for a system not sounding as good as it should.

### RECEIVERS

The heart of the stereo system is the receiver, a combination of a preamplifier, amplifier, and tuner in one box. Unless you have some unusual requirement, such as the need for very high power, it usually makes sense to buy a receiver rather than the separate components.

When it comes to selecting a receiver, many of the specifications which were important a few years ago — such as distortion, tuner sensitivity and S/N — have advanced to the level of virtual perfection. Today's receivers are of such uniformly high quality that they are relatively easy to buy. The important factors to consider are the power, the price, and the features.

The power you will need depends on both your listening habits and on your speaker's efficiency. The louder and better the sound sources that you listen to, and the less efficient your speakers are, the more power you will need.

One easy way to determine your power requirements is to take a sample of your favorite music to a stereo store and have them play it through speakers of the same efficiency as the ones you own (or plan to buy). Have them play the music through an amplifier with peak responding power meters, and turn the volume up to the maximum level at which you listen to that music. Note the peak output on the amplifiers meters. This is the approximate power rating you should be looking for in a receiver.

As a rough guideline, if you listen to average music at moderate levels, you will probably find that 15 or 20 watts is enough for most speakers. If you listen to audiophile records at medium-high levels, or regular music at very high levels, you will need 100 to 200 watts for most speakers. If you listen to audiophile records at high levels, you should be looking into separate components with a 200 to 1,000 watt amplifier.

The price of a receiver is directly linked to its power. Small power differences do not make much of a source difference, so don't pay a large increase in price for a small increase in power.

The final factors in choosing a receiver are individual features. This involves a somewhat personal choice, depending on your needs and preferences. For instance, if you have two tape decks, a receiver with two tape inputs would be convenient.

There are two features, however, which are useful to almost everyone. The first feature is a subsonic, or rumble filter. It helps conserve amplifier power and reduce distortion by removing low frequency noise from records. The second feature is a power meter, which helps you avoid overdriving the amplifier and damaging your speakers. Both of these features are usually found only on medium to high power receivers.

Another feature to consider is quartz digital tuning. While it is not a necessity, digital tuning is a convenience that you might want. It does raise the price of the receiver, however, and is also generally available in medium to high power receivers. Finally, when shopping for a receiver, be sure you are getting what you pay for. Look at the different brands available — there are a lot of good receivers to choose from.

(Continued on p.6A)

## Recording Tips

One common error in recording is not performing proper maintenance prior to recording. First, clean the tape head and other components (this will reduce the risk of oxide build-up that could affect your recording. See article page 4A.) Next, demagnetize the tape head.

After you perform the maintenance, load the tape into the machine and set the input level on your recorder using the VU meters. A common mistake is under or

over-recording. If your VU meter reads -3db, you are under-recording. If you read +3db on the VU meter you are over-recording. A good recording level is about 0db on the VU meter.

Making sure that the input level is the same as the output level will ensure that playback will be heard at the level it was recorded. And, as always, record a little bit of what you are taping then play it back to make sure it's a clean recording.

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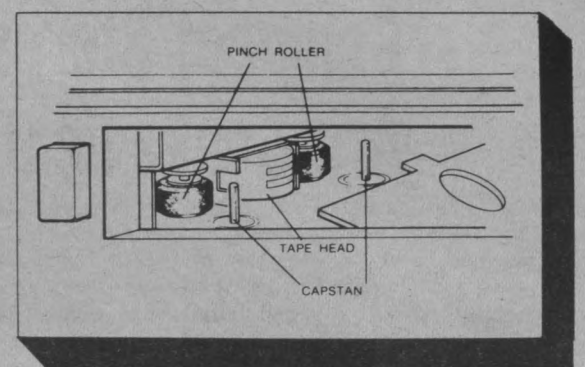
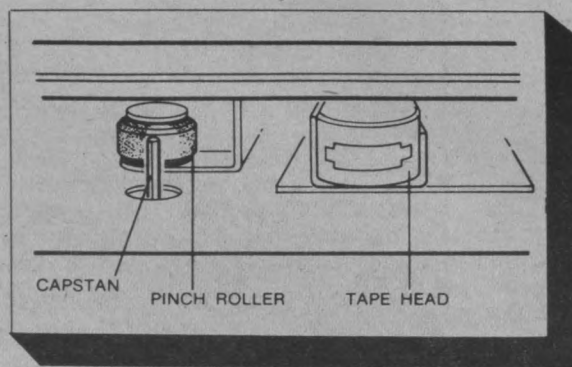
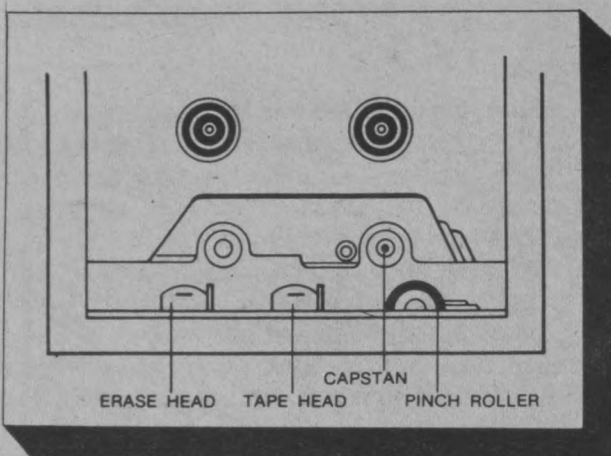
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## CARING For Your System is Easier Than You Think

If you own a car, every now and then you wash it and clean out the trunk and back seat, and sometimes even go so far as to put a coat of wax on the hood. If you own a bike, every now and then you probably put air in the tires and dab some oil on a few vulnerable

spots. But what if you own a stereo system? It doesn't need air, doesn't need to be washed or oiled, doesn't need a thing, right? Wrong.

A popular misconception about stereos is that you can buy them and basically do anything, save spill wine on the components or

play Frisbee with the compact discs and albums, and the system will last forever. Not so. Stereo components are much like goldfish: they need only a little care and attention in exchange for hours and hours of unquestioning enjoyment.

The bare minimum of cleaning aids involves just two things: a demagnetizer and cleaning fluid. A demagnetizer is used with a cassette deck to remove any electrical charge from the tape heads that will cause poor sound quality and high noise levels. The tape is simply "played" once a week to ensure proper functioning; the cost — approximately \$34.

Cleaning fluid is also used with a cassette deck or recorder to remove any oil, grease, tape oxide deposits, or dust that has accumulated on the tape head, capstan, and pinch-roller. Cotton swabs are dipped in the fluid and applied to the specified areas. Albums and compact discs can be cleaned with the same fluid to remove fingerprints, dust and lint.

A bottle of this magic solution is about \$8.

Automatic cassette cleaners are also available. If you don't have time to poke around the system with a Q-tip, then just pop in this cassette, whose cleaning band is laced in cleaning solution, and let it do the work.

Unfortunately, there are no cleaning aids available for amplifiers or tuners. Once bought, these components should be cared for simply by dusting off the surface areas and never placing any liquids on top of them. Components should not be placed in direct sunlight, and, if placed on a shelf, they should have adequate ventilation and support. A stereo should never be left on unattended,

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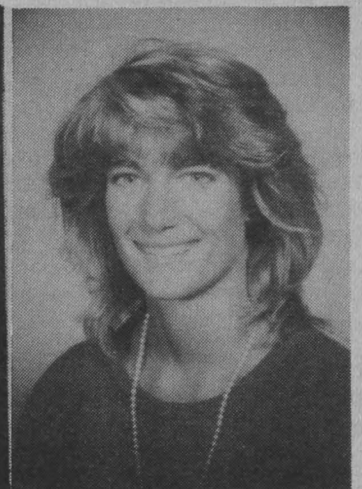
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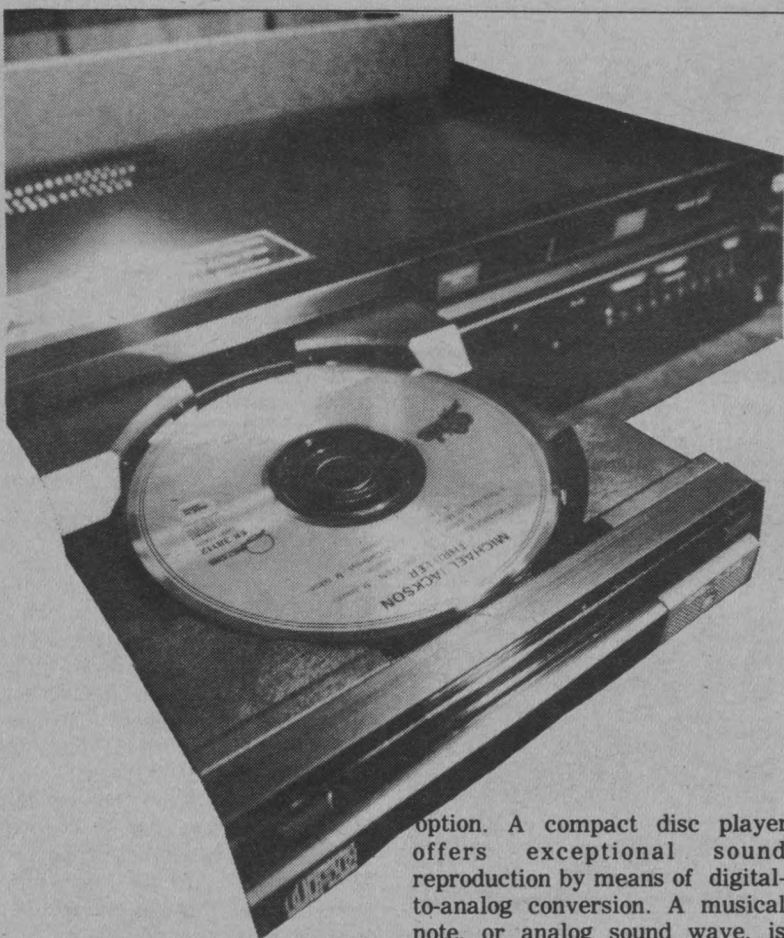
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problems with the average stereo tuner and album.

"Normal albums are not digitally mastered, and the flaws are apparent," said Robert De Lapp, manager of Paris Audio in Los Angeles. A CD player cuts out all the studio "fuzz" that can be found on albums, which are not usually of the best quality. Bass and treble frequencies are not limited as they are with albums, and frankly, the level of fidelity is of no comparison to the average album.

The compact disc itself is about 6 inches in diameter and is loaded into the player for use. Up to 70 minutes of music can be recorded on one side. Therefore the disc never needs to be turned over. Albums will last for approximately

would include manufactures such as Bang & Olufsen, Carver, and Sony for approximately \$700. NAD offers a competent CD for \$350. If you are seriously considering a substantial amount of money for your investment, then Nakamichi or Onkyo offer state of the art CDs for upwards of \$1600. Sony even makes a portable battery operated CD for \$300 which can fit into a car stereo. No turntable can do that.

Why spend \$1700 on a CD when you can pay for college instead? It's the features, which are quite impressive including the isolation of D/A converters for each channel, filtering of sound before D/A conversion even begins, the use of optical fibers to connect the transmitter and receptors, and a number of other technically

## COMPACT DISCS The Latest in Audio

option. A compact disc player offers exceptional sound reproduction by means of digital-to-analog conversion. A musical note, or analog sound wave, is transferred into a binary code number through the D/A converter. As a result of the digital conversion process, the sound reproduction on a compact disc is said to be of the highest quality possible.

A compact disc is played back through a laser beam which reads each binary code number. On the other hand, albums are recorded on grooves, and their playback is through a needle, or cartridge. Background noise, mid-range harshness and limited bass and treble frequencies are common

two to three thousand plays; compact discs are designed to last forever. Compact discs are easy to store, and there is no chance of scratching or warping. Albums seem like a primitive attempt at musical reproduction when compared to the compact disc.

But then cost has not been discussed. Any consumer knows you must pay for quality, and the CD is no exception. Players range in price from \$150 to \$2000, as compared to turntables from \$80 to \$12,000 (yes, twelve thousand dollars). The compact disc itself usually follows an album by about three weeks and costs \$12 as compared to \$7 for the average list LP. A smart mid-range investment

complicated filters all resulting in a fantastic sound. On the conventional side, more expensive players also offer remote control, memory, fast-forward and reverse, random access to any song on the disc, and a number of programmable features.

You're ready to buy a compact disc, so what else do you need? A compact disc player will not function without speakers and a stereo receiver. CDs are easy to install and will hook up to any system. Is it worth it? Well, the model I heard was a \$1700 Nakamichi with every possible feature, and the artist was Sting. It was pure and simple perfection.

Audio technology is fast becoming a sophisticated and complicated field. With the variety of accessories that can be added to an audio system, it's no surprise that the consumer has a difficult time choosing the "right" components. After all, a system, if chosen correctly, should be an investment in sound as well as money.

If quality sound is among your top priorities in stereo, then the compact disc player is a serious

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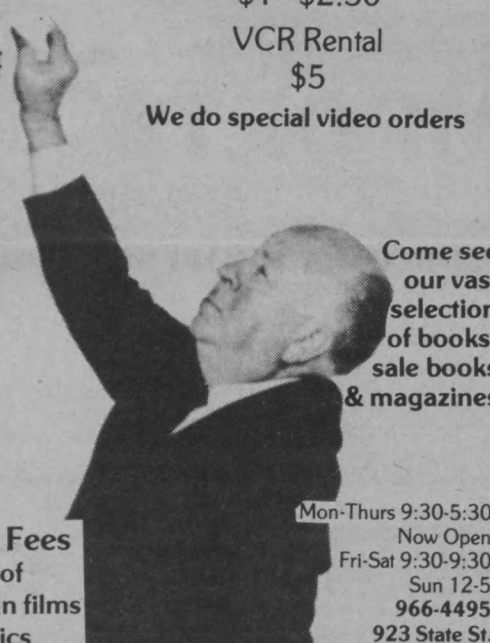
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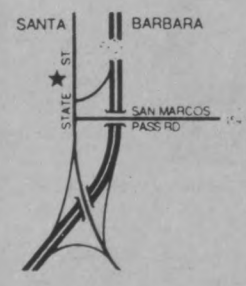
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## Stereo Guide

(Continued from p.3A)  
**TURNTABLES**

Turntables are more of a challenge to shop for than receivers. They range from terrible to terrific. The good news is that good turntables are getting less and less expensive. If you shop carefully, you can pick up a very good turntable for relatively little money.

A turntable is basically a mechanical device. It is very important that it be built solidly and operate smoothly. If it doesn't, it is a telltale sign that it will misbehave when playing a record. The important specifications for a turntable are the rumble and the wow & flutter. Look for a rumble spec of 70db (good) to 80db (excellent). Look for a wow & flutter spec between .05 percent (good) and .025 percent (excellent).

There are three main types of motor drive systems used on turntables: belt drive, direct drive, and quartz direct drive. All three can be excellent, but the performance (and price) will generally rise as you go from one to the next. There are also new linear tracking turntables reaching into the medium price range. These have some real advantages over conventional pivoting turntables, but to nowhere near the degree claimed by their manufacturers. If you are buying a more expensive turntable, linear tracking turntables are definitely worth considering.

Turntables have different degrees of automation to choose from. The days of poorer performance with increased automation are over, but you do pay more for the increased convenience. There are four basic turntable types plus a few variations to choose from. The four types are: manual, semi-automatic, fully automatic, and changer. With manual turntables, you put the tone arm on the record, but the turntable takes it off for you. A fully automatic turntable puts the arm on at the beginning of the record and takes it off at the end. A changer does what an automatic turntable does, plus it will automatically play a "stack" of records.

There are two variations available on the automatic turntable. One is "track select," which allows you to tell the turntable what individual tracks of the record play, and the other is a device which automatically senses the record size and speed for you.

The only one of these automatic features to be careful of is the changer. There are a few good changers on the market, but shop carefully and expect to pay about \$50 more for that feature on a good turntable.

In general, the range of prices for a good turntable is from \$100 to \$1000 (without cartridge), depending on the design and features. If you are looking for one of the high performance, low price turntables mentioned earlier, look for a belt drive manual turntable. If you are looking for a turntable with maximum performance and convenience without a maximum price, look for a direct drive fully automatic turntable. If you are looking for the "ultimate" turntable, look for a quartz direct drive linear tracking turntable

### CARTRIDGES

Next to the speakers, the cartridge is the most important thing in determining the sound of a stereo system. It almost seems unnatural to spend so much money on such a small thing, but do not skimp on the cartridge: this is one of the most common mistakes that people make.

## FUTURE...

(Continued from p.2A)

The newest in video involves laser technology, and it is appropriately named laser vision. This product works much like the compact disc player except the disc is slightly larger. The laser vision player uses a 12-inch disc and visually displays whatever is on it through your own television. Musical soundtracks and motion pictures are the normal fare available on these discs. The laser vision provides excellent picture clarity because there is no tape head and therefore no wear on the disc. This remote controlled unit costs \$900, and the discs themselves range from \$24 to \$49.

If you're thinking about giving or receiving elaborate Christmas gifts, three new products will be available in time for the holidays. The digital-audio recorder is an attempt to create a machine that will produce the finest quality audio recordings. This recorder utilizes a special cassette much like conventional recording cassettes, except that it runs in one direction only, and can record continuously up to one full hour. The digital-audio recorder will tape off of any component, the most obvious being the compact disc. Estimated cost will be \$1000, with the tapes about \$7 or \$8.

On the video front, Sony is introducing a videotape which is 8mm in format. This small cartridge tape is designed for the camera recorder. However, since it is unique in size you must buy the playback recorder if you want to see any film footage. Estimated cost ranges from \$1000 to \$1800 for these units which are not yet available on the domestic market.

In response to Sony's camera, Toshiba offers its

As a rough guide, the list price of the cartridge should be about equal to the list price of the turntable you are buying. In reality you will be spending less for the cartridge, because they are more heavily discounted than turntables. The range of list prices for good cartridges is roughly between \$70 and \$300, with discounts ranging from 10 to 50 percent, depending on the cartridge.

Of all the cartridge specifications, only two are reliable enough for comparison. They are the tracking force and the stylus shape. An excellent cartridge will have a recommended tracking force of 3/4 to 1 1/4 grams; a good cartridge, 1 to 1 3/4 grams; a fair cartridge, 1 1/2 to 2 grams; and poor cartridge will have a recommended tracking force of greater than 2 grams. The best cartridges have hyperelliptical (or shibita, stereohedron, or line tracing) styli. Good cartridges have elliptical styli. Fair cartridges have spherical styli.

Finally, there is the "moving coil vs. moving magnet" debate. Basically, there are both good and bad examples of each — it is best to judge the cartridge by the results, and not the methods of achieving them.

### TAPE DECKS

Cassette decks pretty much dominate the home deck market these days. Eight track decks are almost dead, and open reel decks are more suitable for professional use.

Like turntables, cassette decks are basically mechanical devices, and vary in quality from poor to excellent. Also, like turntables, cassette decks have improved greatly over the last few years. There are some decks on the market today that would outperform decks that cost five times as much only a few years ago.

When shopping for a tape deck, it is important to look at its construction and its specifications. The important specifications for a tape deck are its frequency response, signal to noise ratio, and wow & flutter. When comparing frequency responses, be sure they are plus or minus the same number of db and are using the same type. Frequency response will vary from 30 to 15 KHz + or - 3db (chrome tape) for a deck approaching \$1000.

The signal to noise ratio (S/N) is currently determined more by the deck's noise reduction system than by the deck itself. With regular dolby (dolby B9, decks will have a 65 to 70 db S/N (the higher the number the better). You should expect to see a wow & flutter specification of less than .1 percent. A good deck will have a spec of .06 to .08 percent. An excellent deck, .02 to .04 percent.

Check the quality of the cassette deck. See if it operates smoothly. Look at the record level meters and note how high a resolution they have. For instance, a 15 segment meter is easier to use than a five segment meter. As you start getting into more expensive decks, you will find that they will have two or three motors rather than the one all-purpose motor used in less expensive decks. You will also find two capstans rather than one, and three heads rather than two. On the last feature, beware that unless you are planning on spending over six or seven hundred dollars, you will find that two head decks are better performers than the three head ones. It's simply a matter of what a certain manufacturer offers in your particular price range.

(Continued on p.8A)





Since the time when professional photographers realized the possibilities of smaller equipment, the 35mm camera has become the point at which professionals and amateurs meet. This means that there are many kinds of 35mms designed and built to perform very different kinds of work. Even ignoring the "sure shots", the market ranges from equipment that will do everything but push its own shutter button, to that which allows the experienced photographer more control over the shot — and literally everything in between.

So what to do, what to do? How does one go about choosing the camera which will best suit one's needs?

Well, one of your first considerations when hunting for a 35mm camera is your financial situation. Photographic apparatus can be quite pricey, especially for a student's budget. But, as it is with most things, deals can be found if you shop around. Research at some of the bigger places in town — Brooks, Tony Rose, Anderson, Westen's, Russ's, Del's — will give you some idea of range of prices and variety.

There are also some good buys on reasonable equipment on the used market (BUT beware of purchasing cameras which might have some kind of hidden internal damage or purchasing outdated, obsolete models for which parts and accessories are no longer available). Other options to local photography stores are mail order warehouse stores, whose advertisements can be seen in the back of *American Photographer* and the rest (realize that, in addition to the listed priced, you'll be paying to have the purchase shipped to you).

It is important to know what you are buying. When an ad or display lists a price on a certain 35mm camera body, that's just what

you'd be getting for the money. No lens, no strap, no bag, no flash unit — just the body of the camera. Package deals are easy to find, and are usually cheaper. But you got to get what you want.

Getting the camera you want is a matter of assessing your needs. Determine what model will best suit your present and future needs based on your experience with and planned usage of the equipment.

If you're just going to take spontaneous party snapshots of your friends, and you want to hit the right exposure and focus even when you're wasted, then you're gonna want a camera that will think for you. This is when you should looking at "sophisticated" cameras with computers for brains; the Minolta "Maxxum" series (particularly the 9000) falls in this category.

Photographers who have been practicing for a while come to depend more on themselves than their cameras. Their equipment of choice is usually based on dependability, flexibility, and quality. A 35mm used by many longtime amateurs and professionals is the Nikon F2.

Most students tend to be situated in the middle ground and, thus, are looking for a 35mm model which will grow along with their experience. If this describes you, then you'll be searching for a camera can alternate between several different modes, a various combination of automatic and manual features. (The Nikon N2000 is my growth potential recommendation).

Choosing the right camera, or even the right now camera, is a matter of education. The model which suits you is out there somewhere. The hunt is waiting for you.

# CAMERAS

## Your Buying Guide

### How To Purchase an SLR

- Advantages of an SLR camera
  - Larger negative meaning sharper images capable of enlargement (up to poster size and larger)
  - Interchangeable lenses (for infinite variety in wide angle, telephoto and close-up capabilities)
  - More creative options (made possible with ability to control focus and light; to add on filters, to combine flash and other light sources, etc.)
  - Ease of use — today's SLRs cameras are usually automatic.
- What to look for in purchasing an SLR camera
  - Manufacturer's camera's reliability (Nikon, Pentax, Minolta, Canon, Olympus ¼ major brands; all reliable)
  - Quality of parts/durability
  - Automatic, manual, or combination automatic/manual light metering
  - Camera body weight
  - Price (note: special savings are available through kit purchase)
  - Comfort (how does it feel to you)
  - Ease of using features, seeing gauges, etc.
  - Type of focusing mechanism
  - Special built-in features (motor drive/auto winder, waterproofness)
  - Features that offer additional creativity; an SLR that "grows" as your skill increases.
- Basic Accessories for a 35mm camera
  - Lenses — wide angle and telephoto (a zoom lens in one of those ranges or a wide-to-telephoto zoom offers optimum flexibility)
  - Electronic Flash Unit
  - Protective filter for lens (skylight or Ultraviolet)
  - Equipment case
  - Lens brush/blower and cleaner
  - Protective lens case
  - Lens teleconverter (instantly doubles or triples the focal length of your lens)
  - Tripod (especially important in low-light situations)
- Recommendations — selecting a camera
  - Obtain literature at camera store
  - Talk to dealers; Each has personal bias so see more than one (You're pretty safe with the well-known brand names)
  - If interested, read a photo magazine or Consumer Reports report on the cameras
  - Narrow choice to a few in your price range
  - Try them out in the store; go through the steps of loading a camera, setting gauges, focusing, etc.
  - Ask the dealer about used cameras and check the photo magazines for mail order camera outlets; you can often save money
  - Look into SLR outfits that include a complete "starter" system including such items as a camera, interchangeable lenses, automatic flash, and so on. This is a particularly economical way to get started in SLR photography. (For example, the Vivitar XV System 35 offers a precision quality automatic camera plus accessories and case for a modest investment.)

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# Stereo Guide

(Continued from p.6A)

To a great extent, speakers will determine how good or bad your stereo system sounds. The most common mistake made when buying a stereo system is not placing enough emphasis on the speakers. As a rough guide, you should plan to spend one-half of the total cost of your system on the speakers.

Speakers are basically mechanical devices, and their construction quality has a great effect on how they perform. Look for speakers that are solidly built and use good quality components (woofer, midrange, tweeter, and crossovers). when shopping for speakers under \$300 or \$400 each, concentrate on two-way rather than three way systems. As with tape heads, manufacturers can provide only so much in a given price range without sacrificing quality. Look for speakers with dome or ribbon tweeters, rather

than cones. Be aware that lower efficiency speakers (80 to 88 db one watt/one meter) will require more power than higher efficiency speakers (90 to 98 db 1 watt/1 meter). Also be forewarned that unlike other stereo equipment manufacturers speaker manufacturers have few standards for measurements, so comparing specifications is usually like comparing apples and oranges. Let your ears be the guide here. If you haven't spent much time around good stereo systems (or good live music), get some informal listening time in at stereo stores to get your ears accustomed to the differences in sound.

When you go to listen to speakers, go prepared. Bring in a new copy of a record or records that you are very familiar with, preferably ones that will put a speaker through its paces — low frequencies, high frequencies, voices, transients, etc. Make sure

that the dealer's equipment is all set "flat," except for any special equalizers that are meant to be used with a particular speaker. Listen to how clear and smooth the speaker sounds, how good the stereo image is, and how well it handles high and low frequencies, voices, transients, and loud passages. This information, coupled with your assessment of the speaker's overall quality, will help you choose a superior speaker.

Finally, remember that the sound source is part of the stereo system. A fantastic system will sound only mediocre when playing mediocre stations or tapes. And remember that a little maintenance (see page 4A) is necessary to keep a fantastic sounding system sounding fantastic. Most people clean their records, but cleaning the stylus and tape heads regularly is equally important.

If you are conscientious in selecting and using your system, it will give you many years of good music.

## CARING...

(Continued from p.4A)

because if there is a malfunction, the stereo is history.

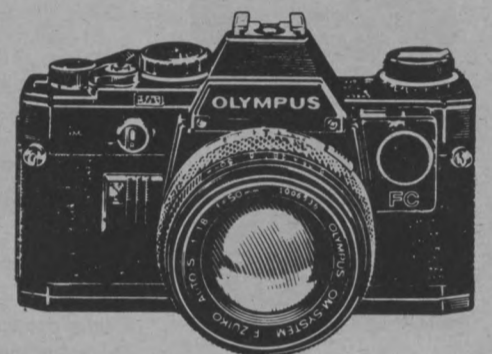
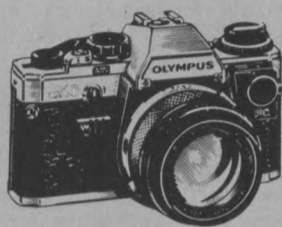
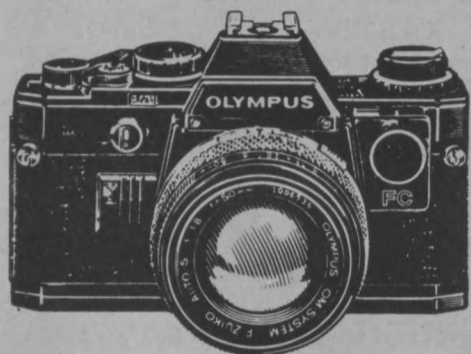
Trying to be a junior repairman if the stereo does malfunction is a good way to cause even more severe, if not irreparable damage. If the problem is not readily apparent, then a qualified stereo repairman should be called. If the problem is obvious and a decision is made to try and fix it then the first and most important step is UNPLUGGING THE SYSTEM. The wrong piece of metal touching the wrong output jack could be deadly, and then you're history.

What seems to be a major concern of stereo owners is volume, that is, just how loud a sound the speakers can produce. Although many enjoy loud music at some time or another, it's important to realize the speakers'

capabilities and maintain the noise level accordingly for the utmost in trouble-free sound. It's quite easy to blow out the speakers in any system if proper precautions have not been taken.

If the speakers do blow out, solving the problem may be as simple as replacing the fuses. When more severe damage to the cassette deck or receiver has occurred, then it's stereo repairman time. To avoid the possibility of speaker blow-out, specialized speaker wire is available. Ranging from \$1.25 to \$3.75 a foot, this copper-stranded wire does not oxidize and can carry more sound than conventional speaker wire.

Stereo components should add pleasure to spare hours, and trouble-free operation through proper care and cleaning will contribute to that enjoyment.



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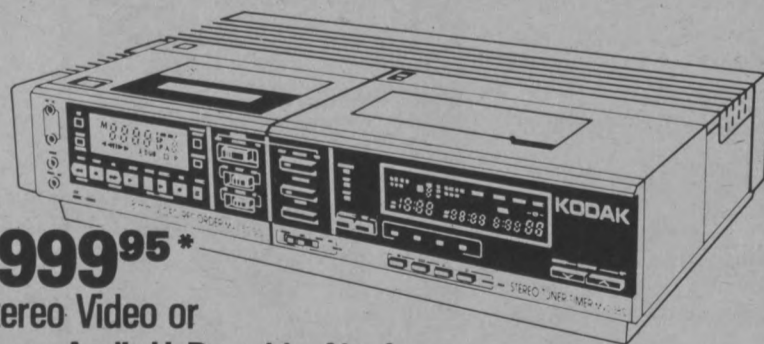
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