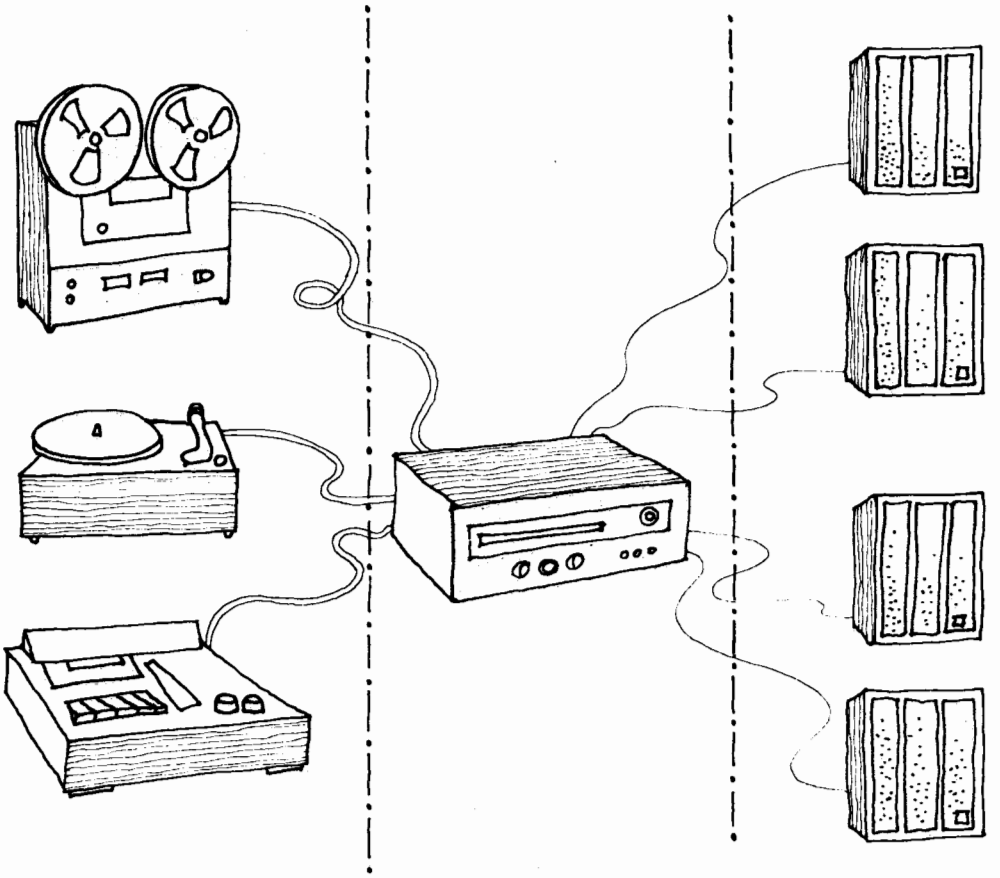

MATCHING hi-fi components of a stereo or four-channel system means that each component must operate compatibly with each other.

For example, your loudspeakers should be efficient enough to deliver satisfactory sound levels—especially in the low bass region—when driven by the amplifier or receiver of your choice. Yet, they should have sufficient power-handling capacity to avoid damage if driven by too much power.

In another sense, compatibility also means that one component should not have substantially better performance than another component in the system. It would be foolish, for example, to have a $300 single-play turntable, $800 receiver, and two speaker systems at $500 each and then add a $19.95 phono cartridge. The latter's electrical/mechanical performance would be well below that of the other components in the system. As a result, one would not get the full performance capability inherent in the better components. Remember that the final reproduced audio will sound only as good as the weakest component link in the system.

One can often ignore electrical and mechanical considerations at the onset of rounding up his choices, however, by viewing compatibility in terms of each component's price tag. Thanks to competition among manufacturers, the quality of each type of component varies almost directly in relation to its price (although exceptions can always be found to virtually any generalization).

Most newcomers to component hi-fi (and some experienced audiophiles, too) have little or no idea of how to apportion their dollars to the various components they plan to buy.

Many audio dealers try to simplify this

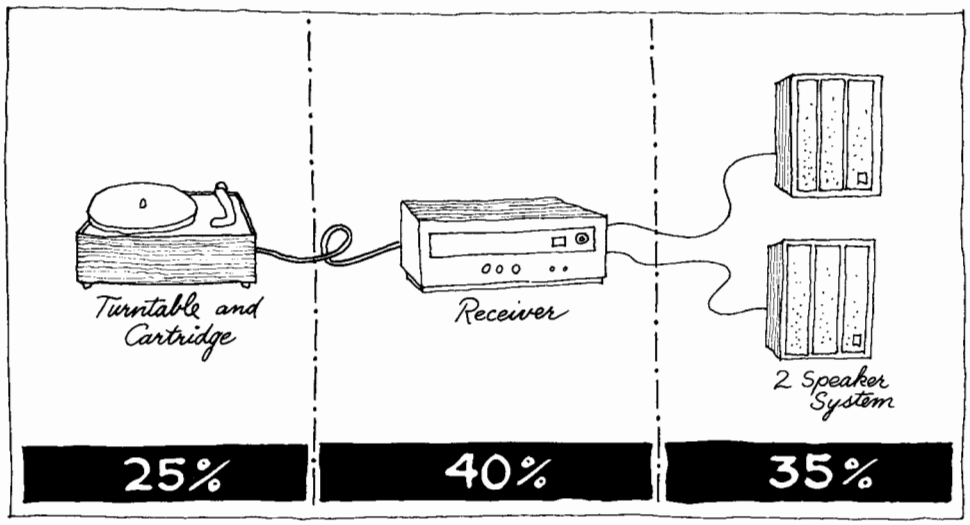

Fig. 1. Apportioning dollars to a stereo receiver/turntable/ speaker system.

problem by "assembling" pre-selected components into a complete system. Such systems usually bear a single price tag and offer significant savings over the prices of the individual components added together. There are both advantages and disadvantages in choosing such a dealer-selected system. Certainly, if the dealer is knowledgeable and reputable, you are at least assured that the components which have been put together in this way will work compatibly with each other—and the savings in making a single purchase from one source are often worthwhile. On the other hand, you may have different ideas about which components you think sound better with which other components. Consequently, your dream system may not be represented by any of the pre-selected groupings offered by the dealer.

In addition, it is common practice for some dealers (but not all) to have loudspeaker systems "custom designed" by local manufacturers who are essentially cabinet makers rather than speaker system designers. Since such speakers are rarely advertised nationally, almost any "suggested retail price" can be assigned

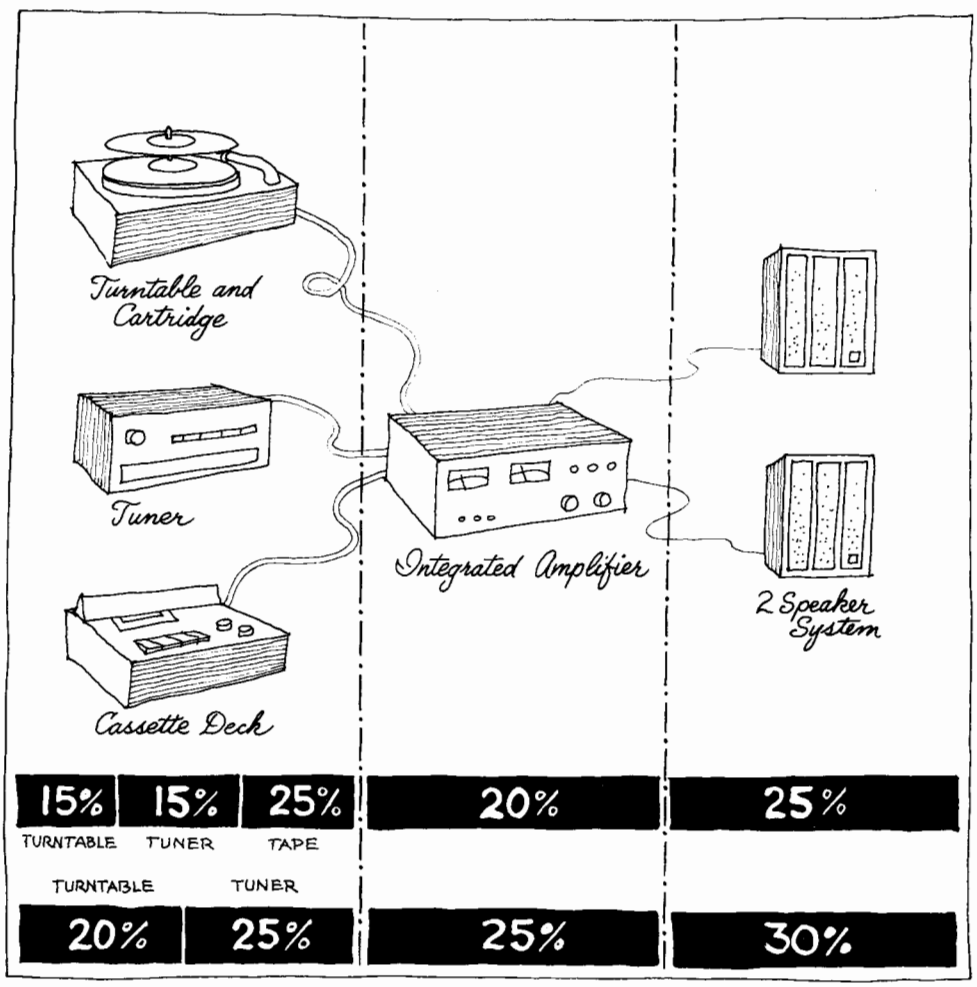

Fig. 2. Percentage of dollars to be spent on components for a system including tuner and cassette deck.

to them. In such instances, the "savings" shown in the final system price tag may actually be the result of reducing these speaker prices to more realistic levels. (This practice is not universal, of course.) What we are suggesting is that each component in such systems be analyzed and evaluated for its own merits and performance—for that is the essence of shopping for components for your own high-fidelity system.

Apportioning Hi-Fi Dollars. By far the greatest number of high fidelity stereo component systems consist of an all-in-one receiver, a turntable system (either single-play or multiple-play) and a pair of loudspeaker systems. This basic layout is shown in Fig. 1. Below it is a typical cost breakdown in percentages of available dollars. As an example, if you have $500 to spend on such a basic system, you might consider a turntable (including the phono cartridge, which is usually purchased separately) selling for approximately $125, a $200 receiver and two speakers for about $87.50 each. There are, of course, no hard-and-fast rules; these are simply rough guidelines. In the system shown, any tape equipment would be considered extra and is not included in the initial percentage breakdown.

Suppose you decided to include a cassette deck as part of your initial hi-fi investment, and that you prefer to have a separate tuner and an integrated amplifier (preamplifier-amplifier combination) instead of a receiver. Your system might then look something like that shown in Fig. 2, with the percentages spent for each component given below. Since such a system is necessarily more expensive than the simpler, 4-piece arrangement, let's start with a budget of $1000. You might spend $150 for a turntable and cartridge, $150 or so for a separate FM/AM tuner, $250 for a cassette deck with Dolby, $200 for an integrated amplifier and perhaps $125 for each of your two speaker systems. If the tape deck is eliminated for the moment, percentages could be reassigned as shown in the lower percentage table.

Quadraphonic systems necessarily cost more than stereo systems of equal quality. In Fig. 3 we have represented a typical quadraphonic system centered around a 4-channel receiver. Again, percentages are shown below for each element of the system. If we assume that you are prepared to spend $3000 for such a system (note that it includes both an open-reel tape deck and a stereo cassette unit) your dollars might be apportioned as follows: $600 for the open-reel deck, $300 for the cassette deck and a similar amount for the turntable/cartridge combination (you will need a cartridge designed to play CD-4 records this time), $750 for the 4-channel receiver and $262.50 for each of the four speakers in the system. If you were to omit the tape decks and had only $2000 to spend, the lower percentage table in Fig. 3 suggests that you might spend $800 on the 4-channel receiver, $200 for each of the four speakers needed, and up to $400 for the turntable/cartridge combination.

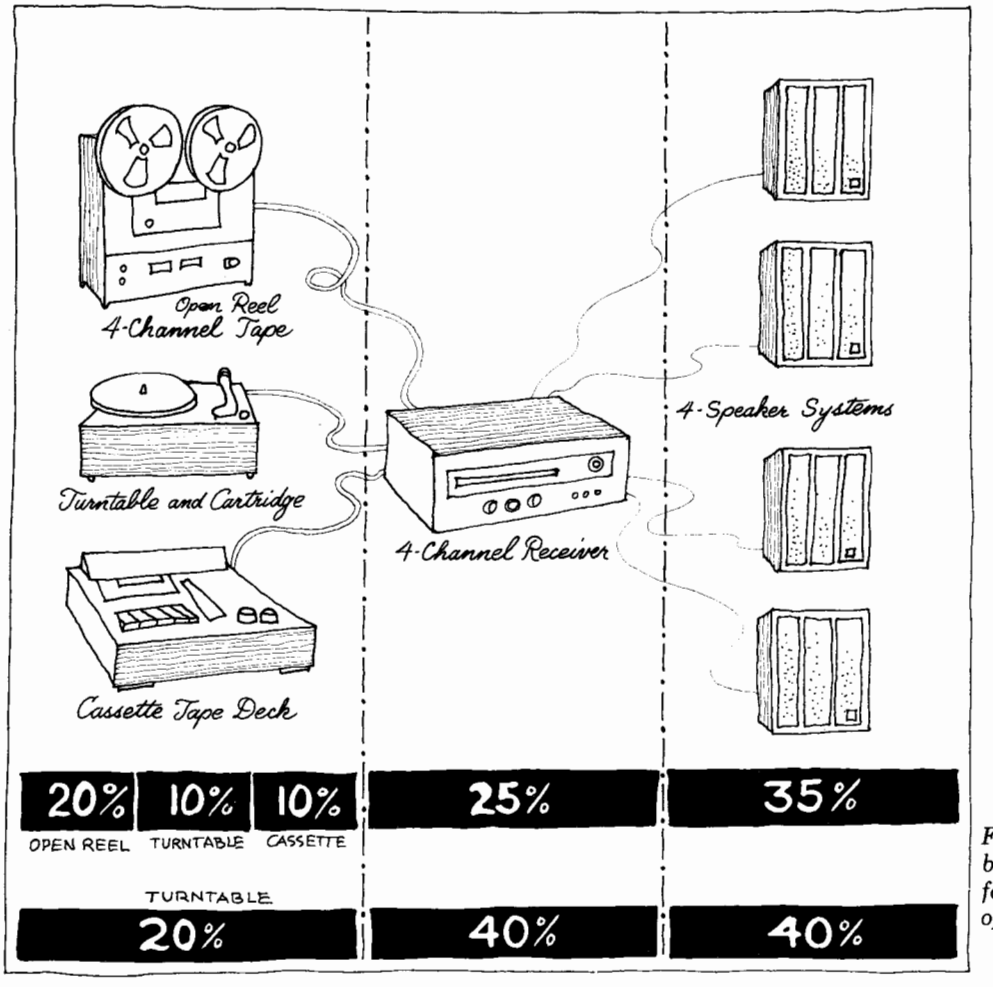

Fig. 3. How dollars should be apportioned for a four-channel system with open-reel and cassette decks.

Specs To Expect. Although specifications are certainly not the only criterion involved in making an intelligent

TABLE I PRICE CATEGORIES

	Low Price	Medium Price	High Price
Tuners	up to $150	$150-350	Over $350
Integrated Amplifiers	up to $200	$200-400	Over $400
Receivers	up to $250	$250-500	Over $500
Turntables (Less Cartridge)	up to $125	$125-250	Over $250
Cassette Decks	up to $200	$200-400	Over $400
Open-Reel Tape Decks	up to $400	$400-800	Over $800

choice of a hi-fi component, they certainly have a bearing on the type of performance you can expect from each component. The specifications which apply to loudspeakers (and, for that matter, headphones) are not easily related to the kind of sound you can expect to hear. Aside from making certain that the speakers you select are efficient enough to provide adequate sound levels when matched with the electronics of your choice, and also rugged enough to handle maximum input power available, choosing loudspeakers is a wholly subjective exercise. The specifications of other components, such as tuners, amplifiers (or receivers, which combine both tuner and amplifier sections), turntable system, and even tape decks are related to their prices. Table I categorizes low-, medium-, and high-priced electronic components, tape decks, and turntable systems in terms of actual 1977 dollars.

With these price ranges in mind, refer to Table II for a general idea of the major specifications you can expect to find for components in each of the price categories. Only the major specifications have been listed, and they are by no means the only ones that should be considered. Remember, too, that you are likely to find that some specifications are better than others for a given product in a given price category. Your evaluation process should take these differences into account, along with your own particular needs. For example, what appears to be a superb tuner in its price class may otherwise have less-than-superb selectivity. If you live in an area where there are only a few FM stations on the dial, this may be of little significance to you, whereas greater sensitivity or 50 dB quieting may be more important. Conversely, if you live close-in to strong signals and are surrounded by a great many nearby stations, selectivity could be more important than sensitivity. ◇

TABLE II TYPICAL SPECIFICATIONS OF SOME COMPONENTS

	LOW PRICE	MEDIUM PRICE	HIGH PRICE
TUNER (OR TUNER SECTION OF RECEIVER)			
IHF Sensitivity μV (dBf) (mono)	3.0 (14.7) or lower	2.0 (11.2) or lower	1.8 (10.3) or lower
50 dB quieting sensitivity μV (dBf), mono/stereo	10(25.2)/50(39.1)	5(19.2)/40(37.2)	3(14.7)/30(34.7)
S/N (dB); mono; stereo	60/50	68/60	70/65
Selectivity (dB)	50 or more	60 or more	80 or more
Capture Ratio (dB)	3.0 or less	2.0 or less	1.3 or less
THD (%) (1 kHz, mono/stereo)	1.0/1.5 or less	0.5/0.8 or less	0.2/0.3 or less
Stereo Separation (dB, 1kHz)	30 or more	35 or more	40 or more
AM Suppression	40 or more	50 or more	60 or more
AMPLIFIER (OR RECEIVER AMP SECTION)			
Power Out/Channel (Continuous watts)	10-30	30-100	over 100
Rated THD (at full output) (%)	1.0 or less	0.5 or less	0.2 or less
Rated IM Distortion (%)	1.0 or less	0.5 or less	0.2 or less
Damping factor	10 or more	30 or more	50 or more
Phono Hum (dB below 10 mV input)	60 or more	65 or more	70 or more
Aux Hum (below rated output)	70 or more	75 or more	80 or more
TURNTABLE SYSTEMS			
Wow-and Flutter (% Wrms)	0.15 or less	0.10 or less	0.05 or less
Rumble (dB, per DIn B)	55 or more	60 or more	70 or more
CASSETTE DECKS			
Frequency Response (Hz ±3dB)	50-12,000	30-15,000	20-18,000
Wow-andFlutter (% Wrms)	0.2 or less	0.12 or less	0.1 or less
S/N (dB, less Dolby)	45 or more	48 or more	50 or more
OPEN-REEL DECKS			
Highest Speed (ips)	7½	7½	15
Freq. Response at highest speed (Hz ±3 dB)	40-15,000	30-20,000	20-21,000
S/N	50 or more	55 or more	60 or more
Wow and Flutter	0.15 or less	0.1 or less	0.07 or less