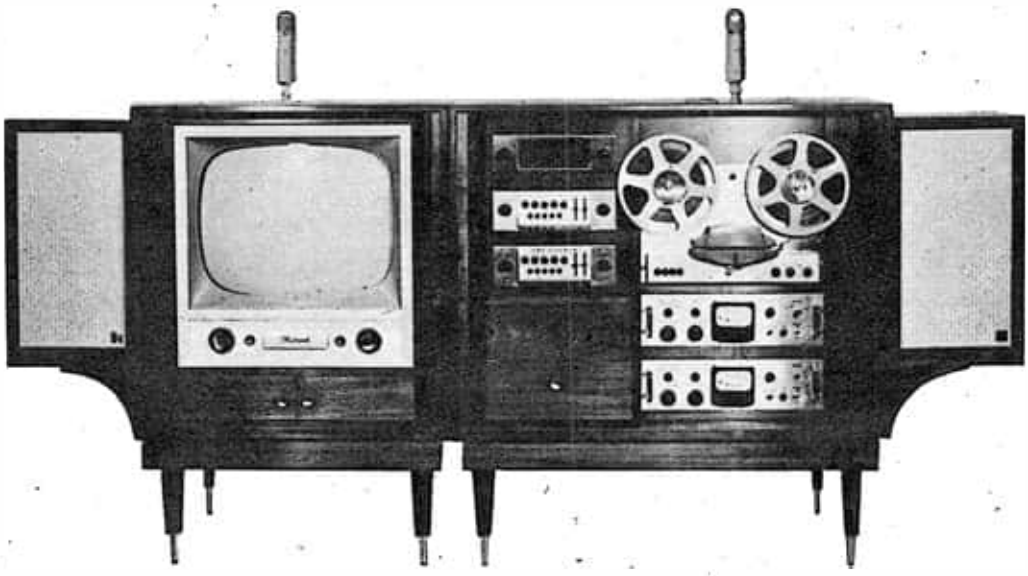
Chapter 12

Your Complete System

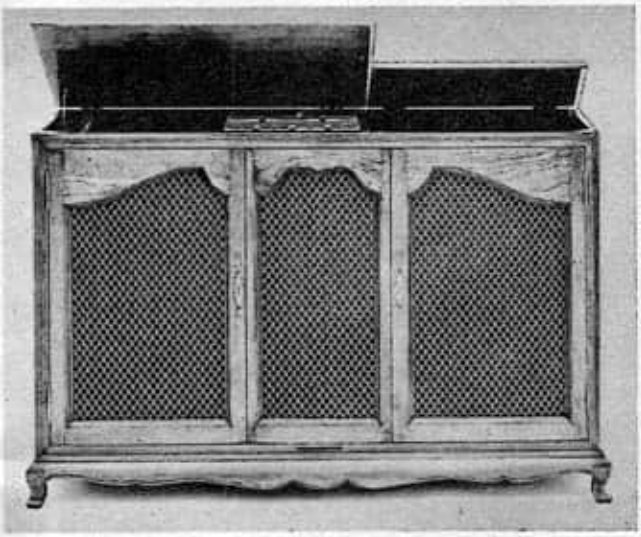


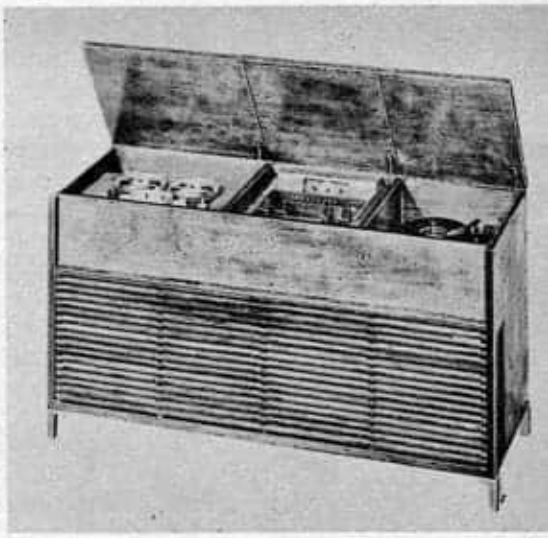
Complete stereo system shown here includes Fisher AM-FM tuner, two Fisher control-preamps, Magnecord tape recorder with two preamplifiers, a Fleetwood TV set, two AR speaker enclosures, two mikes.

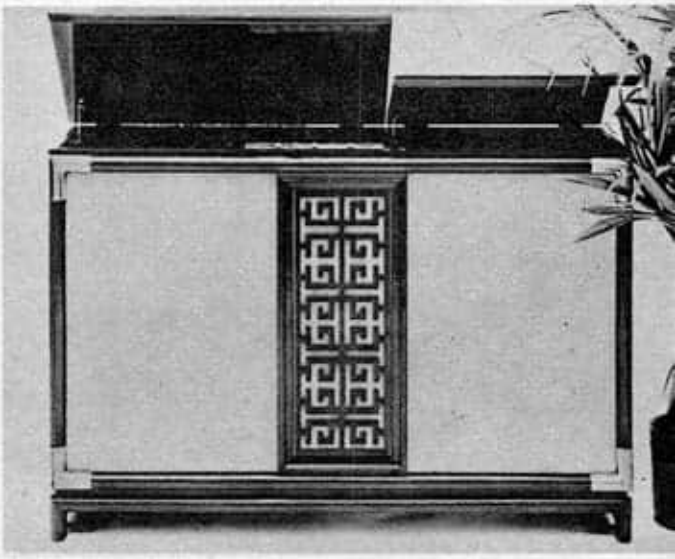
AS we enter the home stretch, with you perhaps champing at the bit, eager to step out and acquire your new hi-fi system, let's just see where we've been, and recall the useful information you now have at hand to guide you in the selection of your equipment.

To begin with, we discussed just what hi-fi is all about, as an art, a science and a hobby. Then we discussed the various sources of hi-fi sound, and how they fit into the overall scheme of things. After that we talked about each individual component in the hi-fi system, one by one, to discover its relationship to the complete installation. And, of course, we couldn't overlook the real do-it-yourself endeavor, the hi-fi kit.

Throughout this book we have been talking about the only hi-fi systems we believe in, those based on *components*. Early hi-fi components were intended for professional applications, and for use by professionals. They were complex in design and—to be charitable—spartan in appearance. But as more and more hobbyists became interested in the field, audio manufacturers realized that they had their jobs cut out for them.







Above: Stromberg-Carlson SP-963 sells for $1,095, has AM FM tuner, Garrard RC-88 changer, 60-watt amp., acoustic labyrinth stereo speakers. Isolated cabinet eliminates feedback.

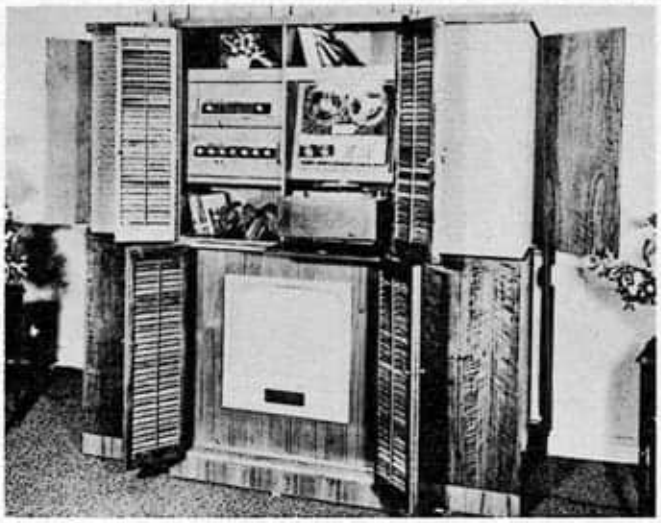
Above, right: Voice of Music Model 1000 "Stereo Fidelis," incorporates AM-FM tuner, record changer and a tape recorder with program timer.

Right: Stromberg-Carlson "Oriental" includes the components listed in the model shown at top left of this page, sells for the same price. A "stereo choice switch" enables the listener to choose degree of stereo separation for any program material.

Hobbyists were not interested in getting an engineering degree, just so they could listen to good sound. And no homemaker who takes pride in her decor will permit sound, no matter how beautiful, to come out of equipment which makes her living room look like a haywired radio shack.

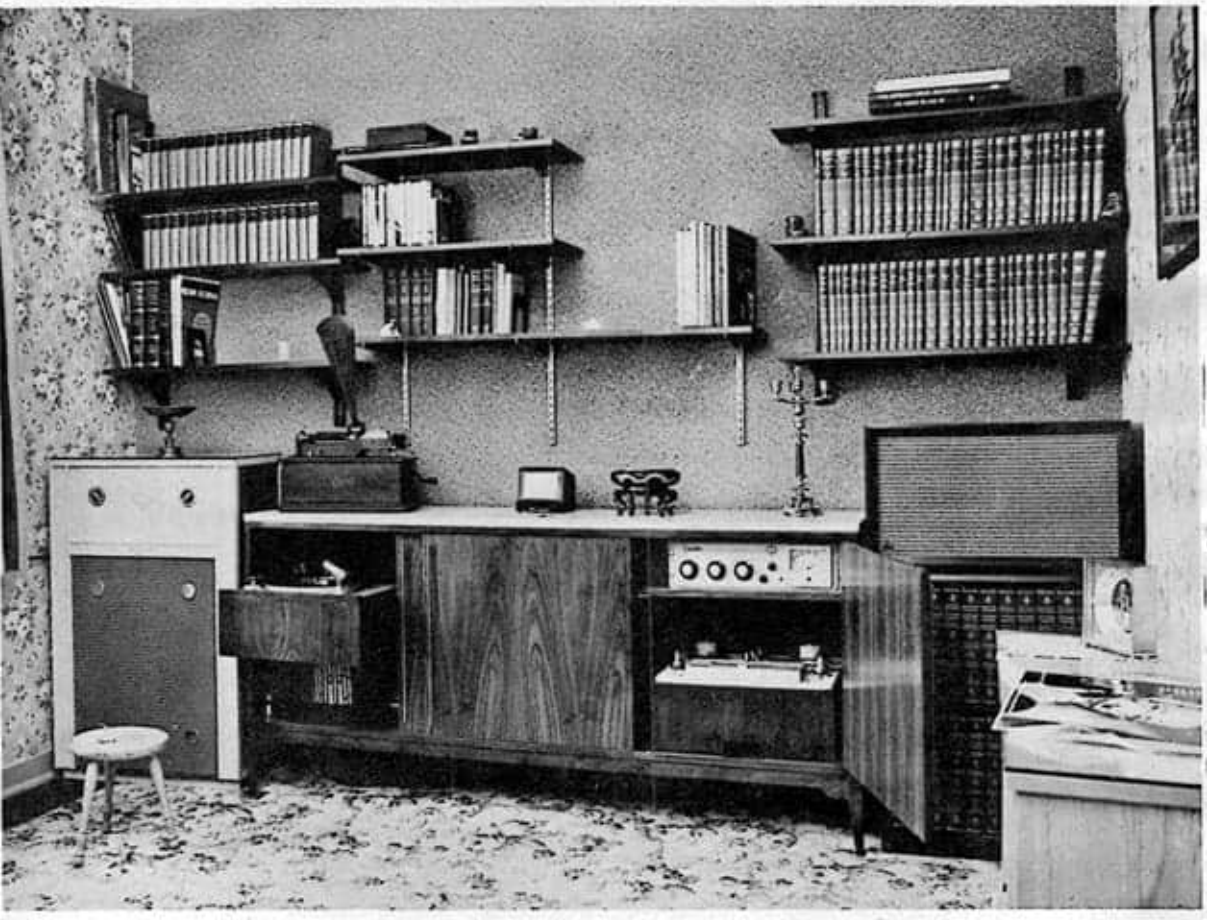
Happily, these primitive situations are now history. Today's components are not only simpler in design and in means of interconnection, but they have been reduced in size and placed in well-styled enclosures. Even so, you might argue, "Why should I go to all that bother? Why not simply go out to an appliance store and buy a hi-fi set, with looks that suit my wife, and that I can plug in and play as soon as I get it home?"

Well, dear friend, there are many reasons why not. Let's begin with the simple flat statement that any system which has both the loudspeaker, the record player, and the electronic components all in one box, is not—repeat *not*—hi-fi! It is a physical impossibility to have a strongly vibrating system delivering full-range sound in such close proximity to sensitive tubes and pickups, without causing all sorts of havoc



Installation below boasts Concertone tape recorder with preamp, a slide-out turntable with two tone arms, Jensen speaker enclosure and an AR.

Bell home music center is equipped with Bell stereo components. Featured are the 2-channel stereo amp and the tape transport for stereo record and playback.



Built-in stereo system includes a Fisher AM-FM tuner and 400-C stereo preamp, two Fisher amps (not shown), Garrard changer, Model RC-88, a JBL 001 speaker system and Ampex 910 stereo deck.

Professional Ampex 350 ($1,284) is featured in this installation. Below is a D&R turntable with a Pickering 190D arm. A Fisher 80C preamp and AM-FM tuner are at bottom above disc storage.

in feedback, rumble, motorboating and distortion.

But the home instrument makers are doing it every day, you say. How? The answer is that the system is deliberately and necessarily designed to be deficient in bass response. If the loudspeakers are capable of complete bass response, which is unlikely, then the amplifying system is purposely emasculated by filtering out some of the bass. If that seems hard to believe, make a direct comparison of a home instrument, any home instrument, against a true hi-fi system. You will quickly detect the phony bass in the pretty box when you compare it against the real thing.

For another thing, when you buy a home instrument, the most important consideration—the sound—becomes secondary. Your selection will almost invariably be based on the cabinetry, its design, size, shape and finish.

Of course, you want something which is pleasing to the eye as well as the ear. So why not buy an equipment cabinet which suits your decor, and put in it whatever tailor-made components you want? This is the sensible way.

If you are budget conscious, then the component system wins hands down. When you buy a home instrument, a wholly disproportionate part of your hi-fi dollar goes for fancy cabinetry and middleman profits. Components are now attractive enough in appearance so that no cabinets are needed at all, and the profit markup on components is definitely less. Unquestionably, components are your best buy. And you can shave costs even further if you build your own from kits.

As for quality, the differences are astonishing. Even apart from the gimmicking necessary in the bass response because of the unitized construction, it simply is not possible to find, even in the most expensive home instruments, the quality of design, construction and performance to be regularly found in hi-fi components.

There is also greater convenience in a component system. Since cabinetry is not really necessary, it can be dispensed with if desired, and there is therefore no decorating problem. Equally important, small and inconspicuous components can be placed where they will be most convenient to use.

Say you want the controls near your favorite chair, within easy reach. If you use that arrangement with a home instrument, then the speaker has to be right beside you as well. This is no good for hi-fi listening. So you put the speaker down at

Allied Radio Corp.

the end of the room where it belongs. But with a home instrument, then you would have to get up every time you wanted to adjust the controls, change a record, or tune another station. With components, you can put each one right where it will do the most good.

As for flexibility in the home instrument, there is none. When you buy the factory-built job, that's it. You can't change it or improve it, and you probably can't add to it. When you have lived with it for a while, and find out how bad it really does sound, there isn't a thing you can do about it, except throw the whole works out and start over again.

With a component installation, you can make additions, changes, improvements, even deletions, at any time. The entire system can be kept completely up-to-date, at the very minimum of expense.

There's also the personal angle. Anything has more value and importance to you when it is the result of your own creative efforts. When you have done all the planning, and have come up with a system which is truly tailor-made to your own special requirements, then you can honestly say, "There's a part of me built into that job!" This strikes home even more when you have spilled sweat, blood and tears over a kit system.

To summarize, the scale is tipped heavily in favor of components. Because the home instrument is an inseparable combination of electronic equipment and furniture, any selection is inevitably a compromise between appearance, performance and convenience. There is no protection whatever against obsolescence. The cost is high and the quality is low.

Components, on the other hand, eliminate any compromise because of furniture. They provide maximum flexibility and protection against obsolescence. And they add that very important element of personal accomplishment, while giving you better sound at lower cost.

The Altec Lansing component cabinet and speaker enclosure, above, contain an automatic changer, AM-FM tuner, amplifier and preamp. This company makes many similar structures.

Photo left: Stretching along a whole wall is this stereo installation, which includes a Fisher 90R AM-FM tuner, two McIntosh C4P preamplifiers, two Fisher 100 power amps, a Garrard RC-88 changer with Shure stereo cartridge, Zenith TV, Ampex 902, Tannoy speakers.

A stereophonic room divider is used in a small apartment to great advantage. Hi-fi components installed here include a Bell stereo tape transport with Bell stereo amplifier and tuner-amp. Speakers are AR and Electro-Voice; Rek-O-Kut turntable, Garrard changer.

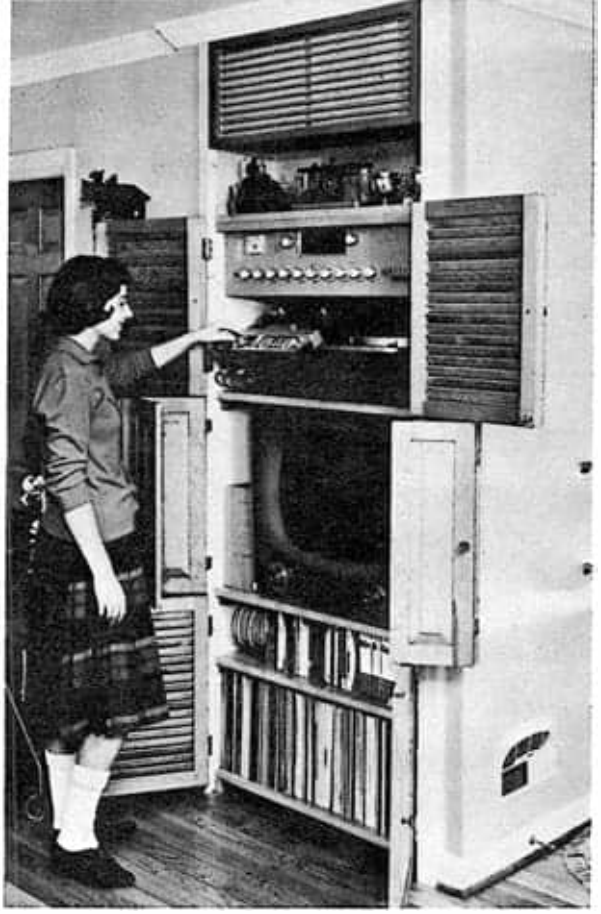
With the wide variety available in components of every type, the only accurate way for you to make a selection is to hear with your own two ears the various units you have under consideration. Since no set of test instruments and no one else's ears can determine precisely what you like to hear, it would be very desirable for you to run your own series of listening tests before you finally make up your mind.

Most of the electronic distributors in the larger cities have high fidelity salons which provide facilities for A-B testing of a wide variety of components. Connections to and from all of the units terminate at a master control panel, which permits interconnection of any combination of components which you select. And while this method cannot duplicate the acoustic environment of your own listening room, and even though you will often be subjected to various distractions, it nevertheless affords an opportunity for a better direct comparison between units than almost any other items you normally buy. Have you ever had the chance to A-B test a series of automobiles, for example, or power tools, or cans of beans, trying first one and then the other?

Despite the fact that hearing is largely a subjective process, you can nevertheless approach your listening tests with logic and objectivity. Perhaps we can offer a few hints which will enable you to get the most out of them.

You should bear in mind at the outset that this sort of testing (and consumer ratings as well) fall into the category which the statistician describes as "sampling." That is, a single unit of given manufacture is placed under test, and it is inferred from the results that all such units coming off the same production line are identical. But this is not always the case, as many of the companies engaged in high fidelity manufacturing are small, young organizations, and their quality controls are not always held to as narrow tolerances as would be desirable. Consequently, there occasionally rolls off the line an exceptionally good unit, and now and then there appears a "lemon" or two.

This is not true of all manufacturers, of course, but you can hedge against it by being sure that you can hear the identical unit which you will carry out of the store. Normally you will not hear the same unit which is to be delivered to you, since those on the shelves are more or less permanently installed. But once your decision is made, it is not unreasonable for you to ask that the fresh unit which you receive be connected up for an on-the-spot test



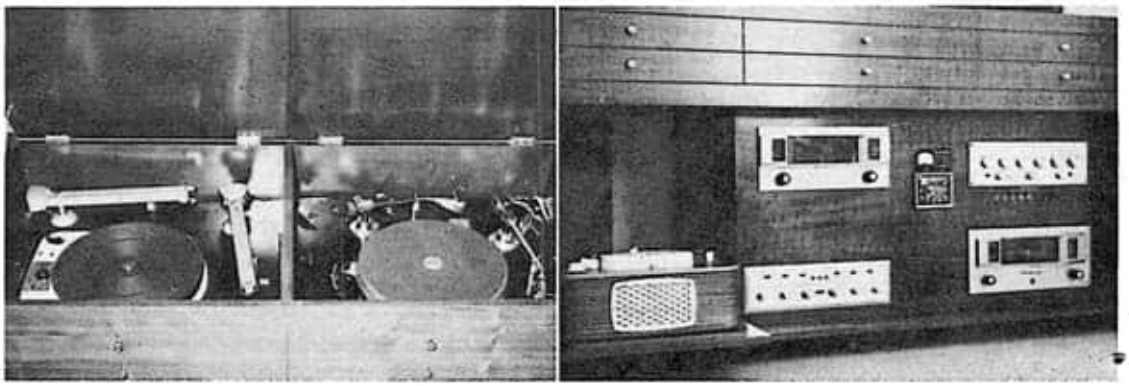
Three feet of wall space contain AR-2 enclosure, Bell 3030 stereo amplifier, Bell 2520 AM-FM tuner, Bell stereo tape deck, Garrard 301 turntable, custom auxiliary switches and VU meter.

Custom cabinet holds Sargent-Rayment AM-FM tuner with stereo preamp, controls, S-R 70-watt and Acrosound 60-watt power amps, Miracord changer, Ampex 950, RCA color TV. Stephens speakers.

Well-planned installation takes up little room, fits in with rest of decor. Fisher AM-FM tuner sits above preamp. A Zenith TV set is at bottom right. Slide drawers hold tape recorder and a record changer.

Elegant "music wall" contains Ampex A-122 tape deck, two Fisher 90R AM-FM tuners, two Bogen 35-watt amps, Thorens turntable and Rek-O-Kut arm, Garrard changer. Speakers at each end are James B. Lansing.

Bakersfield Audio



Components of system shown above include a Fisher AM-FM tuner, H. H. Scott 299 stereo amplifier, Fisher 90X FM tuner, Marantz preamplifier, VU meter and program clock, Tandberg stereo tape recorder. Closeup view of turn table setup shows, left, stereo arrangement with Garrard 301 turntable and two Pickering arms. At right is a Presto K-10 turntable with two Rek-O-Kut 120 arms. Total cost of system: $4,855.40.

Compact installation in cabinet, front and rear view, includes two McIntosh MR-55 AM-FM tuners, two McIntosh preamplifiers, Magnadette tape recorder and stereo preamp with two VU meters. Turntable is a Miracord XS-200 automatic. Rear view shows two 60-watt McIntosh basic amplifiers installed vertically. Note ample area provided for good circulation of cooling air currents.

before you accept it. If you are buying by mail-order and are unable to hear your system in advance, then you should make doubly sure of the reliability of the distributors and manufacturers, and of their guarantees. All of the reputable houses bend over backwards to insure your satisfaction, and will readily make good on defective merchandise.

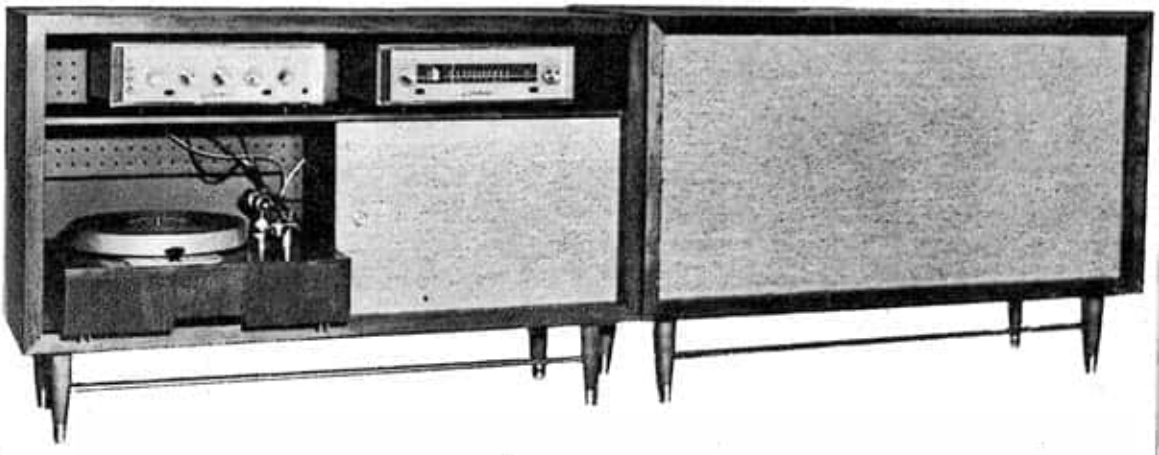
Since the loudspeaker and its enclosure are so susceptible to variation, it is a good plan to select them first. If you intend to make your own enclosure or console cabinet, see to it that the speaker is mounted in an enclosure which is very similar to the one which you intend using. Ask that the speakers which you are considering be connected to a high quality amplifier and program source, preferably records or tape with which you are quite familiar. Listen at various loudness levels for frequency response, freedom from distortion, and transient response. Play some material having a lot of high frequency sounds, such as triangle and cymbal, and walk back and forth in front of the speaker to test the angle of radiation. The speaker should be able to disperse the high frequencies well enough for you to hear them in full when you are 45 degrees away from the center axis. Then having finally decided on a speaker system, continue to use it for the remainder of your tests.

Next try out various amplifiers, again listening at several loudness levels. Notice the performance of the controls at all levels. Does the equipment have a loudness control, or can the deficiency of the ear at low levels be compensated by the tone controls? You should test this with several records of different manufacture, as practice varies between companies. Note particularly the bass boost, and determine whether the lowest bass range is being increased, or whether the control is actually operating only over the lower midrange. If the bass response is smooth, there will be no "one-note" bass, an indication of low-frequency resonance.

The male voice is a good test for hi-fi systems, affording an examination of the smoothness with which the system reproduces the low frequencies, while at the same time providing sibilant sounds which require a clean treble response, free from thinness or harshness. Even if you haven't attended many concerts in your lifetime, you do hear human voices every day, and you will quickly spot any unnaturalness of reproduction.

Selection of the pickup, compensator and preamplifier follows the same general procedures. Note particularly the action of the compensator. Does it really make a difference in the quality of reproduction when it is varied while playing the same record? And does the position which is recommended for a given make of record actually provide unmistakably the best results? Although the recording industry has agreed on a standard characteristic curve, if your record library is already extensive and varied, you will do well to select this component with great care, for inaccurate compensation can easily ruin otherwise flawless reproduction.

Simple, well-designed cabinet holds a Sherwood AM-FM tuner and a Sherwood stereo preamplifier-amplifier combination. The turntable is a 2-speed Rek-O-Kut with 120 arm, Shure stereo cartridge.



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Combination bar and music room contains two 40-watt Marantz amplifiers, McIntosh MR-55 tuner, Ampex 351-D tape recorder, Rek-O-Kut B-16H turntable, Fairchild 248 stereo preamp, two JBL D-130 speakers.

Professional looking installation includes RCA color TV, three McIntosh preamps and three 60-watt amplifiers, two Viking tape decks and preamps, Thorens turntable, Electro-Voice speakers.

Installation of your components is now simplicity itself. The electrical connections are mostly by means of phono plugs, which makes the procedure just about as difficult as plugging a lamp into a wall socket. Mounting is likewise a small problem. If any drilling or cutting of cabinets or shelves is necessary, templates are supplied with the various components.

The variety, flexibility and operating simplicity of high fidelity components today is something undreamed of even five years ago. But you no longer have to dream. You know now how it's done.

The Stereo Story

The ideal stereo system is basically two monophonic systems side by side. Although all sorts of gimmick circuits and short-cut speaker systems are now being offered the public as true stereo systems,

the fact is that every one of them is a compromise of sorts, and performance in some cases can only be described as pseudo stereo.

The hi-fi neophyte should start out with the very best monophonic system he can afford, and then build up his stereo system on that solid foundation. For while the aural effect of stereo is revolutionary, the equipment which produces it is not. The entire system is simply a logical extension of monophonic techniques.

This means that very little of an existing monophonic system must be thrown into the discard. Some must be modified, it is true, and there must be additions for the second channel. But the conversion to stereo from a solid monophonic basis is primarily a process of building up, not tearing down.

If you are definitely committed to the idea of having stereo ultimately, then your phono pickup initially should be of the stereo type. Remember that, although stereo discs cannot be played on monophonic cartridges without severe damage to the record, a stereo cartridge can reproduce either type of recording, even through a monophonic system. With a stereo cartridge, then, you can begin building up your library of stereo records, playing them monophonically until your stereo system is complete.

Your first addition should definitely be a second loudspeaker, and if at all possible it should be identical to the first. Your single power amplifier will easily drive two speakers, and very likely has output connections for this very purpose. Then the only problem is phasing of the two speakers, and this is a simple matter. You could install a phase switch at this time, but it isn't necessary. All you need do is experiment with reversing the leads to one of the speakers only. Whichever arrangement gives the better bass reproduction is the in-phase condition. •

Two JBL 001 speaker systems give stereo sound to this installation. It holds a Fisher AM-FM tuner, Garrard changer, Ampex A-124 stereo tape deck, two Fisher 30-watt amplifiers, Pickering cartridge.