How stereo works

1 Two separate microphones are placed at opposite sides of the orchestra. 2 The separate signals from the microphones are recorded on two separate sides of a record groove. 3 The stereo cartridge senses the two signals, separates them and feeds them into a dual stereo amplifier. 4 The amplifier strengthens the weak signal from the cartridge and provides you with controls to tailor the sound to your room and your cars. 5 The two separate signals are fed into two speakers placed at opposite sides of your room. This gives you 3-D sound . . . two slightly different sound pictures, one for each ear, that create a dimensional effect. 6 As an alternate system the sound can be fed from the two microphones to an FM multiplex stereo station. 7 These stereo signals are then picked up by an FM multiplex tuner and fed to the stereo amplifier.
INSTRUCTIONS FOR THE MODEL 296
100 WATT COMPLETE DYNAURAL STEREOPHONIC AMPLIFIER

The 296 is a complete two-channel stereo amplifier consisting of dual 50 watt power amplifiers and dual preamplifiers on a single chassis. Conservatively designed and skillfully constructed, this amplifier will bring you years of trouble-free performance.

The 296 is extremely flexible and offers a wide variety of operating features, including the famous H. H. Scott Dynaural Rumble Suppressor. Careful reading of this booklet will enable any member of the family to operate the 296.

INSTALLATION

The 296 can be placed on a table or bookshelf, in existing furniture like an end table, buffet, or room divider, or in a specially designed equipment cabinet. A handsome oil finished wood accessory case is available from your dealer in finishes to blend with your decor.

Wherever the 296 is placed, adequate provision should be made for ventilation. If this is not done, the life of the internal components will be appreciably shortened. By adequate ventilation we mean some space above and behind the unit where air may circulate freely, or, if it is installed in a cabinet, an open back. Remember that this model draws about 200 watts of electricity, and if you placed a 200 watt bulb in a cabinet, you would need a fair amount of moving air to keep it from getting too warm.

To help disperse heat rapidly, the 296 employs aluminum in the construction of the chassis and panel. Aluminum is an excellent conductor of heat. Therefore, the panel may seem warm to the touch. As long as the unit is adequately ventilated, this is not of any consequences.
CONNECTIONS

(Refer to connection diagram at end of book illustrating all of the following connections)

Power

The power cord should be plugged into any 105 to 125 volt, 50 to 60 cycle AC source. DO NOT attempt to use with DC.

Speakers

Terminal strips for making speaker connections are located on the back . . . The one marked Left Channel is for connecting the left speaker (as you face them). The one marked Right Channel is for the right speaker. Use standard twin lead lamp wire. Simply connect one end of the twin lead wire to the two terminals on the speaker or speaker enclosure, as the case may be. Connect the other end to the “O” and “High” screws respectively on the speaker terminal strip. When making the connections, be extremely careful to prevent any strands of wire from one screw accidentally touching a strand on the other screw, as the speaker will not perform properly.

Each speaker is rated by its manufacturer at a certain “impedance” either 4, 8, or 16 ohms. This information is either marked on the speaker or noted in the literature that comes with the speaker. The cable with the spade lug on the end should be connected to the proper terminal screw marked 4, 8, or 16.

After the speakers are connected, they should be properly phased to give a full stereo effect with good bass. Phasing instructions are to be found under Phase Switch operation.

Stereo Headphone Output

The Headphone Output is located on the front panel between the two base controls. This is a low impedance output and will accept the standard three conductor phone plug found on popular stereo headphones. When using this jack, be sure the headphone plug is pushed in firmly. When the headphone plug is inserted it will automatically turn off the loudspeakers. All the front panel controls affect the headphone output.
How to Connect Your Record Player (with magnetic cartridge)

The shielded leads from your stereo changer or turntable should be connected to the inputs marked Mag 1 on the back of the 296. The lead carrying the left channel information should be inserted in the top, left input jack; the lead carrying the right channel information should be inserted in the lower, right input jack. If you have both a turntable and a changer, one set of leads should go into Mag 1 inputs, and the other into Mag 2 inputs. By moving the Pickup switch on the front panel, you can select either of the two record players.

If only a monophonic cartridge is being used, the single shielded lead should be inserted in Mag 2, right input jack. The Stereo Selector Control on the front panel should then be set to Right Input.

If the cartridge is not completely shielded against hum, it is suggested that the two leads be twined around each other. Also, because of the extremely powerful transformers used in the 296, it would be advisable in this case to keep the record player at least two feet away from the unit.

Before the amplifier is used, it is essential that the phono level controls on the front panel be set properly. Instructions for setting these controls are given in the section entitled Phono Level Controls.

How to Connect Your Record Player (with crystal or ceramic cartridge)

Magnetic cartridges produce low outputs. Crystal and ceramic cartridges produce stronger signals on the order of $\frac{1}{4}$ to over 1 volt. With record players using these cartridges, the shielded leads should be inserted in the Extra inputs. The lead carrying the left channel information should go into the left input, while the lead carrying the right channel information should go into the left input. The Input Selector on the front panel should, of course, be set to Extra whenever you want to listen to the phonograph.

Otherwise, the information given in the previous section is applicable here, too.
How to Connect Your Tape Recorder

For playback of pre-recorded tape on a regular tape recorder with stereo playback provisions, the shielded leads from the tape machine should be inserted in the Playback jacks on the back of the 296. The lead containing the left channel information should be inserted into the left or top jack, while the lead containing the right channel information goes to the right or lower jack. The Tape Monitor on the front panel should be in the In position. It now will make no difference where the Input Selector is set; the pre-recorded tape will be heard through the speakers regardless. Remember, unless you are listening to tape, the Tape Monitor must be in the Out position.

If the pre-recorded tape is to be played on a Tape Deck, a different system should be employed. A tape deck is a mechanism which consists simply of the tape transport and heads with no recording or playback amplifiers or preamplifiers whatsoever. Such a device produces a very small electrical signal similar to that obtained from a magnetic phonograph cartridge. Because of this, the connections are made to Mag 2 on the back panel.

The system is then considered identical to a standard phonograph and the same rules apply as outlined before, including the proper setting of the Phono Level control, with one exception. The Input Selector on the front panel should be placed in the NAB Tape Position.

If monophonic tape is being played on a stereo tape recorder or tape deck, the connections described above still apply. The only change is that the Stereo Selector is set to either Left input or Right input as the case may be. If a monophonic tape deck or tape recorder is used there is only one shielded lead to connect, and this should go into the left input.
To record directly from the 296, a special set of outputs is available on the back panel. These are the Tape Recorder jacks. Connect a shielded wire from the left or top jack to the Radio or high level input of the tape recorder. The tape recorder will automatically record directly from the 296, whatever is playing over the left channel of the system (be it FM, phonograph, etc.) completely unaffected by any of the 296's controls. If the lead is connected from the right or bottom jack of the Tape Recorder Output, then the recorder will receive whatever is on the right channels of the system (be it AM, phonograph, etc.). If a stereo record tape recorder is used, then a pair of leads will be required . . . one from the left channel and one from the right channel of the Tape Recorder Output. It is now possible to record stereophonically any program material being carried by the 296.

If your tape recorder has separate erase, record, and playback heads you can take advantage of the special monitoring provisions of the 296. This will be discussed under TAPE MONITOR operation.

Microphone

Provision is made for the connection of a microphone to the 296. If a single microphone is used, connect it to the left channel, Mag 2 input. If two microphones are being used for stereo, connect the second microphone to the right channel input. The pickup selector switch on the front should be set for 2, and the Input Selector to Mic.

The instructions for setting the Phono Level should be followed for microphone use as well.

Tuner (FM or AM)

To connect an AM or FM tuner, insert one end of a shielded lead into the audio output of the tuner and the other end into the left Tuner input on the back of the 296. The Stereo Selector switch should then be set for left input, in order for the FM signal to appear at both speakers. If the tuner has a level control, this should be adjusted so that the overall volume does not vary when rotating the Input Selector from RIAA, NAB, ORTHO to Tuner.

With H. H. Scott tuners, Model 310B and 311 A, B, and C, both a high level (or audio) output and a low level (or tape) output are present. It is advisable to use the low level (or tape output) on these models. In addition, on Models 310 D, 311 D, 314 and 320
there are sets of Channel A (left) and Channel B (right) outputs. With these tuners, connect one shielded lead from the Channel A output to the left tuner input on the 296. Connect another lead from the Channel B output to the right tuner input on the 296. With this exclusive H. H. Scott feature it is NOT necessary to turn the Stereo Selector to left input in order for the FM signal to appear at both speakers. The Stereo Selector switch can now be left in the Stereo position when using the tuner.

With tuners, such as the H. H. Scott 330 or 331 series, the FM output is connected to the left input, the AM is connected to the right input. The same provisions concerning the high level and low level outputs on the tuner apply. If the tuner contains separate AM and FM level controls, these should be balanced with the phono input and with each other as well. With the H. H. Scott models 330 C and 330 D switching between AM and FM is controlled on the tuner. The 296 Stereo Selector can be left in Stereo position. With other makes, you may have to turn the Stereo Selector to left input for FM monophonic or right input for AM monophonic.

**FM/Multiplex**

With the Model 350 or LT-110 FM Multiplex Stereo tuner, connections are identical to that described for the 310 D. The 296 Stereo Selector can be left in Stereo position.

Instructions for the connection of other multiplex receiving equipment will be given by the manufacturer of that equipment.

Note: If you are planning the addition of FM multiplex receiving equipment to your system, helpful information may be found in the back of this manual.

**Extra**

The extra input can be used for any high level source such as sound from TV, phonograph with crystal or ceramic cartridge, etc. Instructions for connections were given under the section for connecting a record player with crystal or ceramic cartridge.
Derived Center Channel

One of the many exclusive stereo features pioneered by H. H. Scott is the derived third (or middle) channel. This extra output is used in conjunction with an auxiliary amplifier to fulfill several important needs: 1. It gives fuller sound, particularly in large rooms where it is desired to separate speakers by more than eight feet. 2. It allows ideal seating for full stereo in a much greater portion of your listening room giving you greater freedom in placement of speakers and furniture. 3. It lets you feed a full signal to extension speaker systems in other rooms like kitchen, den, porch, bedroom or bath. With an ordinary two channel system you feed just half the signal to an extension speaker.

Connect the Derived Center Channel Output jack to the input of the power amplifier. Use the 1.5 volt input on all H. H. Scott power amplifiers and a high level input (such as tuner, extra, etc.) on complete amplifiers. Set the level control so that the center loudspeaker’s sound is equal in volume to the left and right stereophonic speakers. If the center channel is driving extension speakers, the individual loudspeakers can be equalized by using individual T pads on each speaker.

The center channel output is controlled by the Derived Center Channel Level and all the front panel controls. It is essential that the center channel speaker be in phase with the right and left channel speakers for proper operation. The proper method will be described later.

Accessory Outlet

Several accessory switched 117 volt outputs are available on the back panel to supply current for a phonograph, tape recorder, and tuner. The outlet is rated at 2 amperes so the total current drain of all the devices connected should not exceed this amount. When the 296 is turned off, all items plugged into these outlets will also be turned off.
DESCRIPTION AND USE OF CONTROLS

On-Off Switch

The 296 is turned on by pulling the Loudness Control towards you. IMPORTANT: Unless the 296 is being used to play back tape, Tape Monitor Switch must be in the Out position.

Input Selector

This control selects the sound source for your system.

Mic — For microphones.
NAB Tape — For playing a tape deck.
RIAA, NAB, ORTHO — Use this position for playing all stereophonic or monophonic long playing records made since 1955. For long playing records made before that date, use this position but adjust the tone controls to get the best sound.
Tuner — For FM or AM tuner.
Extra — For anything connected to the extra inputs.

Stereo Selector

Controls the mode of operation of the 296.

Bal Left — Both channels coming into the 296 are combined and sent only to the left speaker.

Bal Right — Both channels coming into the 296 are combined and sent only to the right speaker.

(Use of these positions for balancing output will be discussed under Stereo Balance.)

Monophonic Records — If a stereophonic cartridge is being used to play monaural (or, more properly, monophonic) records, use this position. It automatically combines the dual outputs of the stereo cartridge, effectively cancelling out any vertical rumble and noise in the signal.

Stereo — Whenever the 296 is being used stereophonically, the control should be in this position.

Stereo Reverse — Basically this is identical with the above position except that it permits the user to “move the violins from the left side of the orchestra to the right, and the drums from the right side to the left” if he desires.
Left input — When switch is in this position, the left channel signal source you selected with the Input Selector will play over both power sections and speakers. In other words, if the Input Selector is set to phono, the left channel of the phono will go through both amplifiers and into both speakers.

Right input — Same as above, except that now the right channel input source will be transmitted to both amplifiers and speakers.

Left and Right Channel, Treble and Bass

These controls modify the sound to suit the user’s taste, the room acoustics, and the program material being used. H. H. Scott provides a separate set of controls for each channel, permitting the operator to adjust for differences between speakers, and differences due to room placement. The bass control modifies the low frequencies, while the treble control modifies the high notes. Rotating the controls clockwise causes an increase in the amplitude of the frequencies, while rotating counter-clockwise causes a reduction.

Feel free to use these controls as you see fit. You are the one who must be satisfied with the over-all sound, and the tone controls are the principal way of seeing that you are. However, boosting the treble will accent surface noise on phonograph records and hiss on tapes, while boosting the bass will emphasize record player motor noise.

Phono Level

The phono level controls are designed to govern the amount of signal entering the amplifier from a variety of pickups, tape decks, and microphones. By properly setting this control, you will obtain a maximum amount of clean, undistorted sound, as well as optimum use of the Loudness control.

If only one cartridge is being used, the level control can be set once and not changed thereafter. If two cartridges (or a tapedeck and microphone) are being used interchangeably, it will be necessary to reset the control each time. However, once the optimum position for each device is known, it can easily be relocated.

The method of setting the phono level is quite simple. Here are the easy step-by-step instructions:
1. Set Loudness to "4", Input Selector to RIAA, Stereo Selector to Channel A, Stereo Balance to "0", tone controls to "0", and all other controls to the dots.

2. Play an orchestral phonograph record, typical of the music you ordinarily play.

3. Rotate the Phono Level until the sound in your listening room is room-filling without being annoyingly loud. With some cartridges this may be "10" and with some "1" to "3". The number is not important, only the volume of sound.

4. The Phono Level is now set properly for that cartridge. If you use different cartridges, microphones, or tape decks, keep a record of the optimum settings so you can quickly adjust the Phono Level when switching between units.

Stereo Balance

Whether the system is being used stereophonically or monophonically, it is important that the sound from the two speaker systems be of equal volume. They may sound different because of any of the following reasons: room acoustics, differences in speaker efficiencies, differences in output between the two channels of a stereo cartridge, speaker placement, slight discrepancies between the two channels of the source material, and a multitude of other possibilities. The Stereo Balance is designed to correct this. By rotating the knob clockwise, the right channel will be increased in volume in comparison to the left channel. Rotating counter-clockwise will have the opposite effect. By moving the control to its extreme position, it is possible to completely eliminate one channel if desired.

To simplify the balancing operation, the 296 incorporates the unique H. H. Scott balancing circuit. Unlike other methods, this insures that you will hear equal sound level from each speaker system. Turn on any program material and rotate the Stereo Selector switch to Bal left and then to Bal right. Quickly switch back and forth between these two positions, while at the same time varying the Stereo Balance. At the position of the Stereo Balance where Bal left and Bal right sound equally loud, the system is in balance. Unless there are discrepancies introduced by faulty program material or cartridges, the control should not have to be varied appreciably.
Loudness and On/Off

Pulling this control toward you will turn on the 296. This control also varies the volume of sound emanating from the system. As the knob is turned clockwise, the volume will increase. Ordinarily, the control should be pointing to 2 or higher at normal listening level. The actual position is not important as long as it is at least 2. If the control cannot be turned past 1 without the sound becoming too loud, it would be advisable to make sure that the Phono Level control is correctly adjusted, and that the FM and AM level controls on your tuner are set properly.

Pickup Switch

In position 1 this switch will select the record player that is connected to Mag 1 on the rear panel. In position 2 the switch will select the record player, microphone, or tape deck connected to Mag 2 on the rear panel.

Tape Monitor Switch

The switch should always be in the Out position except when you are listing to the playback of tape, in which case it would be moved to In.

If your tape recorder incorporates a separate playback head it is possible to listen to the recording a fraction of a second after it is made as a quality check. Let us assume that a recording is being made from an AM-FM tuner. The Input Selector will be in the Tuner position. With the Tape Monitor switch in the Out position, the system will be playing the actual broadcast. With the switch move to In, the system will now be listening to the tape recording of the broadcast as it is being recorded. By moving the switch back and forth it is possible to hear whether the recording is equivalent to the actual broadcast.

This method will work only for recorders with separate record and playback heads.
Dynamic Rumble Suppressor

The patented H. H. Scott Dynaural Suppressor is one of the most valuable features of the 296. Stereophonic sound has brought with it a great increase in low frequency noise problems such as motor noise, turntable rumble, hum, and record rumble. The Dynamic Rumble Suppressor eliminates the noise without affecting the audible music, unlike fixed filters which cut out both.

The performance of the suppressor depends on the proper setting of the control. Rotate the control clockwise until the low frequencies noises just disappear in the quiet passages. Leave it at this point. For varying program material, the control will have to be set higher or lower. The criterion is the same, however.

To remove the Suppressor from operation, simply turn the control to “off”.

Scratch Filter

If the surface noise of a phonograph record is particularly objectionable, move the scratch filter to In. It will reduce the high frequencies. On especially old records (such as 78’s), it may be necessary to turn down the treble controls, too.

Derived Center Channel Level

This control permits easy adjustment of the volume of your center channel speaker. If you are using the derived center channel output to supply sound to extension speakers you can control their volume without affecting the sound in your main listening room.

The level of the derived center channel output is also controlled by the Loudness Control. If the Loudness Control is set too low, it will not be possible to get adequate volume from the derived center channel output.
Phase Switch

A loudspeaker cone produces sound by moving back and forth, pushing the air in such a manner that our ears detect sound. When two loudspeakers are in operation in a stereo system, it is essential that the cones move back and forth at the same time. If the right speaker cone is moving forward at the same instant that the left is moving backward, there will be a noticeable reduction in bass response as well as a poor stereophonic effect.

To insure that the system is in phase at all times, the 296 incorporates a phase reversal switch on the front panel. To set switch properly, the following method is suggested:

Tune in a monophonic broadcast with a male voice speaking, or else play a monophonic record with a male singing voice. Set Stereo Selector so that the program material is heard through both speakers. Turn the volume to full room level. Stand in front of the two speaker systems and midway between them. Have someone slide the Phase switch back and forth. In one position, the voice will sound full and appear to be coming from directly between the two speakers. In the other position, the voice will lose some of its bass response and will appear to be coming from both speakers. The first is the correct position, the second is the incorrect one. If the correct position occurs when the slide switch is in Rev position, reverse the speaker wire connections on one of the speakers. The correct phase position will now be Norm.

If a center channel speaker is used, the same procedure can be employed except that the Stereo Selector should be turned to Bal A. The lead to the center speaker is then reversed until the center and left speakers are in phase.

Once the speakers are properly phased, it should not be necessary to move the Phase switch for most records or broadcasts. Occasionally a phonograph record will be recorded out of phase accidentally, or an FM multiplex stereo broadcasts will be transmitted out of phase. This can be corrected by simply moving the Phase switch to Rev. After some experience in listening to stereo broadcasts it will not be hard to detect when the program material is in or out of phase. Having the control on the front panel makes it easier to keep your system in phase.
Loudness-Volume Switch

It is a phenomenon of the human hearing mechanism that when volume is low, the ear is less sensitive to extreme low notes and extreme high notes. Thus, whenever the system is being operated at a low level, the sound will not seem to be as good as it is at higher levels. To compensate for this deficiency, the 296 incorporates a special circuit which automatically boosts the extreme lows and highs whenever the volume is reduced. To introduce this compensating network into the system, move the slide switch to L. When the sound level is increased, this compensation automatically decreases since it is no longer needed. When the switch is in the V position the compensation network is out of the circuit.

A FINAL WORD . . .

If you have any questions concerning the operation of this instrument, a letter to the following address will bring a prompt, personal reply.

TECHNICAL SERVICES DEPT.
H. H. SCOTT, INC.
111 POWDERMILL ROAD
MAYNARD, MASS.
A Note About Multiplex Stereo . . .

Now that the FCC has approved, stereo FM multiplex is another fine source of high quality stereo program material. The H. H. Scott Model 350 Wide-Band FM Multiplex Stereo Tuner gives remarkable performance. If you already own an H. H. Scott Wide-Band Tuner that does not have complete multiplex circuitry you can enjoy FM stereo multiplex broadcasts by adding the Model 335 Wide-Band Adaptor to your stereo system. The 335 can be connected to your system in minutes . . . no internal changes are necessary.

Model 335 FM Multiplex
Stereo Adaptor

Model 350 FM Multiplex
Stereo Tuner
H. H. SCOTT MODEL S-2 WIDE RANGE SPEAKER SYSTEM:

This four-driver, acoustic compliance system consists of a low resonance, high excursion woofer, two dual-cone mid-range units, and a special wide dispersion spherical tweeter mounted in a matched cabinet. Mid-range units acoustically isolated to eliminate undesirable coupling and intermodulation. Actual impedance 16 ohms. Dimensions: 23½" H x 14½" W x 12½" D. Available in mahogany, oil finish walnut and unfinished.

H. H. SCOTT MODEL S-3 WIDE RANGE SPEAKER SYSTEM:

A three-way acoustic compliance system of true bookshelf size. Consists of a specially designed low resonance woofer, a mid-range unit and a wide dispersion super-tweeter, mounted in a matched enclosure. Actual impedance 16 ohms. Dimensions: 23½" H x 11¾" W x 9¾" D. Available in mahogany, oil finish walnut and unfinished.

FAMOUS MUSICIANS FIRST TO HEAR REMARKABLE
NEW H. H. SCOTT SPEAKERS!

To assure perfection in his new speaker systems, Hermon Scott subjected them to home listening as well as technical tests. For the listening test he invited the most critical audience available... highly skilled professional musicians from Boston’s famous symphony orchestra... to hear their own performances reproduced over the new H. H. Scott speakers. Here are their enthusiastic reactions:

“The closest I have heard to the true sound of the violin. I was not even aware I was listening to a recording.” Leonard Moss, Violinist. “The trumpet sound was uniform and consistent in every range, from the lowest to the highest note... a feat virtually unheard of in any other speaker.” Roger Voisin, First Trumpet; Recording Artist, Kapp Record. “I have never heard any reproduction of organ which sounded so faithful to the original. I felt I was sitting in the center of Symphony Hall.” Berj Zamkochian, Organist. “Every other speaker I ever heard sounded nasal and artificial. This was the first one that did not.” Bernard Zighera, First Harpist and Pianist. “I was in the control room when this recording was made. Played through these new speakers, the reproduction was closer to the original performance than I’ve ever heard before.” James Stagliano, First Horn; Recording Artist Boston and Kapp Records. “The percussion came through with amazing clarity. The cymbals, the snare drum, the tympani and the bass drum all were equally true to the way they sound when I play.” Everett Firth, First Tympanist.

As with its tuners and amplifiers, H. H. Scott uses new techniques in both construction and testing that represents a significant advance in the state of the art. New construction methods assure excellence in performance... New testing techniques and quality controls substantially reduce variations in quality from speaker to speaker, common until now.

Every H. H. Scott speaker is individually tested to assure rigid adherence to specifications. Each speaker carries a 2 year guarantee. Hear the new S-2 and S-3 at your dealer soon. We are sure you will agree that these speakers are the finest musical reproducing systems ever made.
H. H. SCOTT . . . a history of leadership in the Acoustic field

To insure that every H. H. Scott component meets the highest standards of quality, H. H. Scott maintains this ultra modern plant for the design and manufacture of all its components.
This new plant, located in Maynard, Massachusetts, includes a machine shop, sheet metal facilities, coil and transformer department, electrical assembly department and fully equipped laboratories for design and research.
The engineering department is staffed by 12 graduate engineers who are primarily concerned with developing new and better components for high fidelity sound.
Every high fidelity component receives over 50 electrical and mechanical tests before it leaves the factory. Special electrically shielded "screen rooms" are used for aligning FM tuners. There are life test facilities where components are run for thousands of hours under strict controls to test their durability.
These extensive investments in facilities back up H. H. Scott's philosophy that there will never be any compromise with quality.
HERMON SCOTT . . .
AUDIO PIONEER

Hermon H. Scott received B.S. and M.S. degrees from M.I.T.
Inventor of the RC Oscillator, RC tuned circuits and filters, the Dynamic Noise Suppressor and other devices, he has many U. S. and foreign patents. His technical leadership was recognized by election as Fellow in the Institute of Radio Engineers, Acoustical Society of America, and Audio Engineering Society, and by numerous awards, including the Potts Medal. He is the author of many technical papers and articles.

IMPORTANT FIRSTS . . .
by H. H. Scott

First high fidelity AM-FM Stereo tuner using wide range AM design. First to successfully use wide-band circuitry in high-fidelity FM tuners. First to market The Stereo-Daptor, a stereo control unit that prevents obsolescence. First to provide center channel output on Stereo amplifiers for added realism in playback.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOW STEREO WORKS</td>
<td>1</td>
</tr>
<tr>
<td>INSTALLATION</td>
<td>2</td>
</tr>
<tr>
<td>CONNECTIONS</td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>3</td>
</tr>
<tr>
<td>Speakers</td>
<td>3</td>
</tr>
<tr>
<td>Stereo Headphone Output</td>
<td>3</td>
</tr>
<tr>
<td>Record Player (with magnetic cartridge)</td>
<td>4</td>
</tr>
<tr>
<td>Record Player (with crystal or ceramic cartridge)</td>
<td>4</td>
</tr>
<tr>
<td>Tape Recorder</td>
<td>5</td>
</tr>
<tr>
<td>Microphone</td>
<td>6</td>
</tr>
<tr>
<td>Tuner</td>
<td>6</td>
</tr>
<tr>
<td>FM/Multiplex</td>
<td>7</td>
</tr>
<tr>
<td>Extra</td>
<td>7</td>
</tr>
<tr>
<td>Derived Center Channel Output</td>
<td>8</td>
</tr>
<tr>
<td>Accessory Outlet</td>
<td>8</td>
</tr>
<tr>
<td>DESCRIPTION AND USE OF CONTROLS</td>
<td>9</td>
</tr>
<tr>
<td>On-Off Switch</td>
<td>9</td>
</tr>
<tr>
<td>Input Selector</td>
<td>9</td>
</tr>
<tr>
<td>Stereo Selector</td>
<td>9</td>
</tr>
<tr>
<td>Left and Right Channel, Treble and Bass</td>
<td>10</td>
</tr>
<tr>
<td>Phono Level</td>
<td>10</td>
</tr>
<tr>
<td>Stereo Balance</td>
<td>11</td>
</tr>
<tr>
<td>Loudness and On/Off</td>
<td>12</td>
</tr>
<tr>
<td>Pickup Switch</td>
<td>12</td>
</tr>
<tr>
<td>Tape Monitor Switch</td>
<td>12</td>
</tr>
<tr>
<td>Dynamic Rumble Suppressor</td>
<td>13</td>
</tr>
<tr>
<td>Scratch Filter</td>
<td>13</td>
</tr>
<tr>
<td>Derived Center Channel Level</td>
<td>13</td>
</tr>
<tr>
<td>Phase Switch</td>
<td>14</td>
</tr>
<tr>
<td>Loudness-Volume Switch</td>
<td>15</td>
</tr>
<tr>
<td>SIMPLIFIED CONNECTION INSTRUCTIONS</td>
<td></td>
</tr>
<tr>
<td>Typical Connections</td>
<td>16</td>
</tr>
<tr>
<td>Tape Connections</td>
<td>17</td>
</tr>
</tbody>
</table>