

**OPERATING
MANUAL**



MODEL 335

H·H·SCOTT

LEADER IN AUDIO ENGINEERING AND DESIGN

OPERATING INSTRUCTIONS FOR THE MODEL 335 WIDE-BAND MULTIPLEX ADAPTOR



This superb Wide-Band adaptor has been designed to provide maximum quality when used with any H. H. Scott Wide-Band tuner to receive multiplex stereo broadcasts. We do not recommend using this adaptor with tuners of other manufacture although it is perfectly possible that this adaptor will function with some other tuners. We cannot, however, guarantee that multiplex reception under these conditions will match FCC transmission specifications. These specifications can be matched when you use an H. H. Scott Wide-Band tuner with the H. H. Scott Model 335 Wide-Band Multiplex Adaptor.

To get the best results, it is essential that you read these instructions completely and carefully.

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

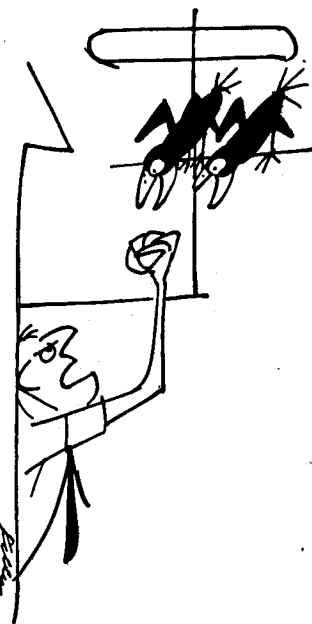
First high fidelity AM-FM Stereo tuner using wide range AM design. First to successfully use wide-band circuitry in high-fidelity FM tuners. First to market The Stereo-Daptor, a stereo control unit that prevents obsolescence. First to provide center channel output on Stereo amplifiers for added realism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

INTRODUCTION

Multiplexing is a method of superimposing two or more programs on a single FM transmission. Thus a person tuned to a single FM station broadcasting multiplex stereo can receive a full stereophonic signal provided he also has a stereo amplifier and two speaker systems. The main FM carrier transmits the basic information from both right and left channels so a person with no adaptor would still not be missing anything (although he would not be hearing in stereo). It is the multiplex sub-carrier that conveys the difference (or stereo) information. The multiplex adaptor automatically combines this difference material with the monophonic information provided by the main FM carrier and then separates out the right and left channels for full stereophonic reception.

When operating the adaptor, keep in mind that it is the subcarrier which is most prone to background noise due to its lower signal to noise

ratio. We have provided a special subcarrier noise filter which works only on the difference information of the subcarrier. The full frequency response from the main FM channel which conveys the basic material from both the right and left channels is completely unaffected when subchannel filter is engaged. When the main FM carrier itself is also plagued by background noise, a full stereo noise filter is provided which filters both the main FM carrier and the multiplex subcarrier. Because of the potential increase in noise it is important that you use a good antenna to get the best possible signal to noise ratio. If you have been using a simple dipole on the floor you may have to move it to a different location, or get a better antenna. You also have to keep the pickup of reflections from tall buildings and hills nearby to a minimum. In areas over 30 miles from the transmitter, it is quite likely that a directional FM roof antenna may be needed.



The possibilities of stereo multiplex transmission are tremendous and the combination of this adaptor with your H. H. Scott tuner lets you obtain the best performance possible at this state of the art. However, a modest effort is needed on your part to insure this quality of reproduction. You must provide the strongest signal possible to the tuner antenna terminals, and insure the maximum rejection of reflection pickup.

DESCRIPTION OF CONTROLS

Red light indicates power on.

Amber light indicates adaptor set for stereo multiplex reception.

Adaptor Switch

In – for regular operation of the adaptor. In this position, all the controls on your tuner are inoperative except for power and tuning knob (and the Normal-Distant switch in 310C and 310D).

Out – when the **Adaptor** switch is in this position, your FM tuner func-

tions exactly as it did before you added your adaptor to the system. Use the *out* position when there are no stereo multiplex broadcasts.

Selector

Off – turns off the power to the adaptor.

Mono – permits you to listen to the main FM channel only. Useful when the subcarrier is of extremely poor quality.

Stereo – Subchannel noise filter in – provides stereo reception, but reduces noise in the multiplex subcarrier. Does not affect main FM carrier.

Stereo – Subchannel noise filter out – for normal stereo reception.

Stereo Noise Filter

In – reduces high frequency noise on both the main FM carrier and the multiplex subcarrier. Does not reduce stereophonic separation.

Out – removes the filter for normal operation.

Level

When the **Adaptor** switch is in the *in* position, this control adjusts the volume level of both channels.

CONNECTIONS

The following diagrams supply the simple information needed to connect the adaptor to your H. H. Scott tuner and your stereo amplifier.



In cases where your tuner has both a high level and a low level output (variously described as tape, audio, etc.) it is recommended that you use the low level outputs. This assumes that you are using a high gain amplifier with better than 0.7 volt sensitivity on the tuner inputs (any H. H. Scott amplifier meets this specification). If you are using a low gain amplifier you may have to use the high level outputs on your FM tuner to get sufficient volume.

this special switching on the 399, it is not necessary to move the 335 Adaptor switch away from *in* at any time.

THINGS TO WATCH FOR

Multiplex stereo broadcasting is a new experience for most FM stations. Certain problems may arise since their own equipment and operating techniques may not be developed to the point where you can consistently expect the ultimate in performance in the beginning. Here are some hints and suggestions to help you improve on poor radio station broadcast techniques:

Background music – Multiplexing has been used by many broadcast stations to transmit background music to restaurants, offices, factories, etc. The FCC-approved stereo multiplex system does not interfere with this additional source of station revenue in any way. Without this additional income, many FM stations would not be able to stay on the air and bring you their wonderful good music programs.

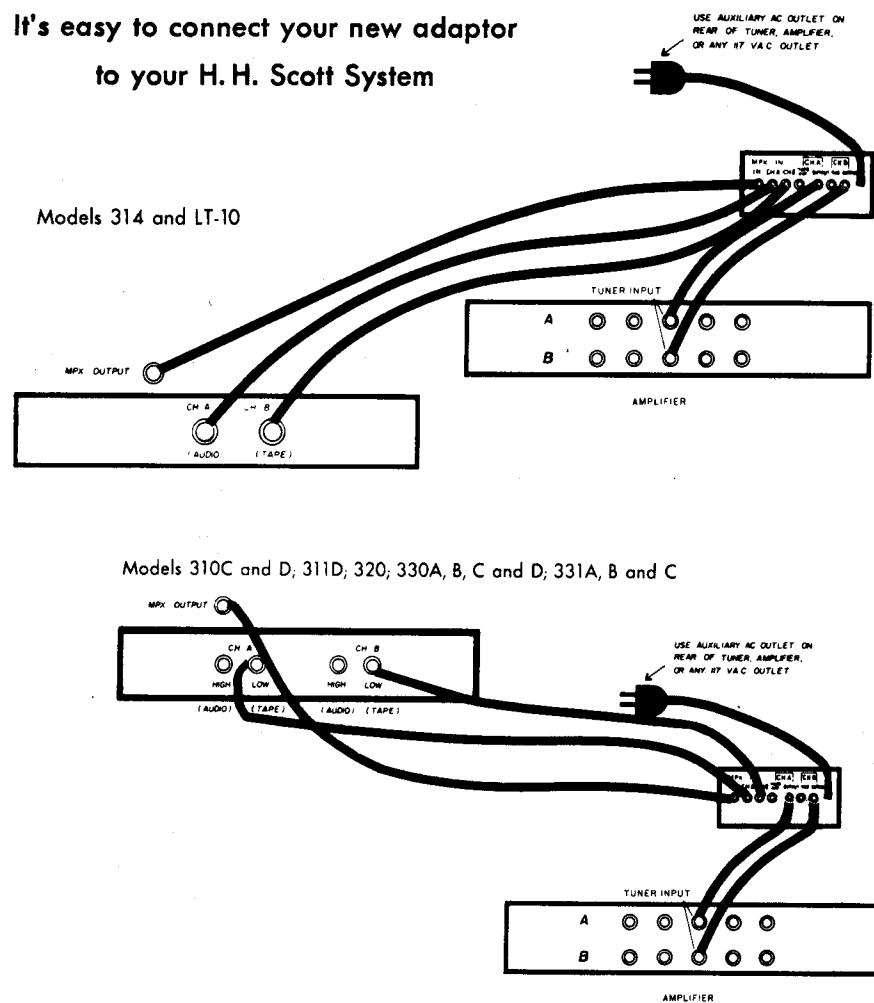
You will not be able to receive these background music programs with any adaptor which meets the new FCC specifications. However, occasionally, if a station is using a subcarrier in the range of the stereo subcarrier channel for background music, you may hear some interference effects (like whistles) on your music system. This will only happen if you are using your FM tuner for regular FM reception and the 335 Adaptor switch is in the *in* position. This interference will not appear with a station using their subcarrier for stereo. It can easily be eliminated by keeping the Adaptor switch in the *out* position for normal FM reception as we suggested in the operating instructions.

Also, on very rare occasions you will find broadcasting stations that are transmitting two multiplex subcarriers, one for stereo and one for background music. In such cases there may be some interference between the two subcarriers. This can be corrected by any or all of the following suggestions:

- (a) Tune in the station more carefully.
- (b) Reposition your antenna.
- (c) Reverse the antenna leads.
- (d) Use a better and more directional antenna.

Distortion when the Selector is set for *stereo*, which disappears when the Selector is turned to *Mono* is primarily due to transmitter problems as discussed above. This can easily happen in areas with many hills or tall buildings that cause reflections. However, some improvement is possible in many cases by any or all of the above four suggestions.

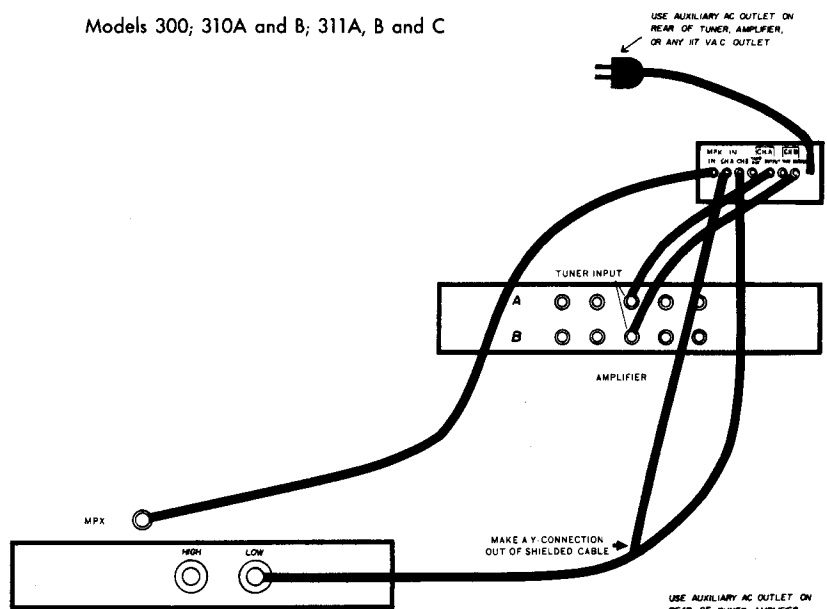
It's easy to connect your new adaptor
to your H. H. Scott System



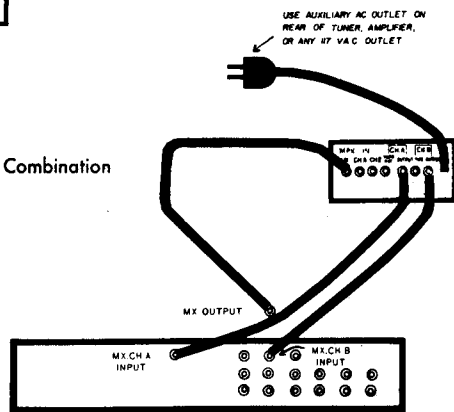
Notes:

1. On Models 310C, 310D and 311D the two low outputs are next to each other, rather than as depicted in diagram. Also use MPX output as shown on diagram.
2. On Model 320, you are now using Channel A and B outputs to your amplifier. Disconnect these cables from amplifier and run them to adaptor. Keep 320's front-panel slide switch in "normal monophonic" position. Also use MPX output as shown on diagram.
3. On Models 330A and B, and 331A, B and C, correct outputs are labeled "Binaural." Also use MPX output as shown on diagram.

Models 300; 310A and B; 311A, B and C



Model 399 Tuner/Amplifier Combination



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.

**MULTIPLEX SERVICES DEPT.
H. H. SCOTT, INC.
111 POWDERMILL ROAD
MAYNARD, MASS.**



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.