

INSTALLATION AND OPERATION
of the
BOSE 901 STEREO SPEAKER SYSTEM

I. Introduction

The BOSE 901 represents a fundamental advance in realistic home music reproduction. The unique acoustic design of the speakers provides sound distribution in accurate simulation of live sound. The BOSE 901 Active Equalizer provides unprecedented accuracy and control of frequency response characteristics.

Because the BOSE 901 system differs fundamentally from other speaker systems, IT IS IMPORTANT THAT THESE INSTRUCTIONS BE CAREFULLY FOLLOWED. EACH STEP IS ESSENTIAL FOR PROPER OPERATION AND FULL PERFORMANCE OF THE BOSE 901 . PARTICULAR ATTENTION SHOULD BE PAID TO SECTION V: CONNECTING THE 901 ACTIVE EQUALIZER.

II. Unpacking

The 901 system is carefully packed for shipment in sturdy cartons. Remove the two speaker units, the Active Equalizer and the bundle of four audio cables. These items comprise the 901 system. Any damage should be immediately reported to your dealer.

III. Speaker Placement

Your BOSE 901 speakers have been designed to provide superior sound radiation characteristics. To obtain the best results, you must place them correctly in the room according to the guidelines indicated in this section.

1. Because of their unique radiation characteristics, the separation of the speakers is not highly critical in rooms of normal size. In fact, these speakers may be placed further apart than is possible with most other speaker systems and they will still yield excellent stereo without the common "hole in the middle". Therefore, in most rooms you are free to use either a short or a long wall for the placement of your speakers as indicated in Figure 1. You may experiment with the distance between the speakers to suit your taste but if possible the separation should be at least six feet.

2. Note in Figure 1 that the front of the speaker is the flat surface and the rear is the "vee" surface with the angled panels. This orientation of the speaker is important to obtain the proper distribution and reflection of sound radiated from the speaker. So, point the "vee" toward the wall.

3. The distance of the speakers from the wall is very important. For best results, the point of the "vee" should lie from 12 to 18 inches from the wall - in any case never closer than 6 inches or further than 24 inches.

4. If possible, keep the area between the speaker and the wall relatively clear and open. The sound emerging from the rear of the speakers must reach the nearby walls and re-radiate freely for the best results.

5. The ideal height of the speakers is in the range from 36 to 48 inches off the floor - the height of most musical instruments during a concert. At a minimum, keep the speakers 12 inches from the floor.

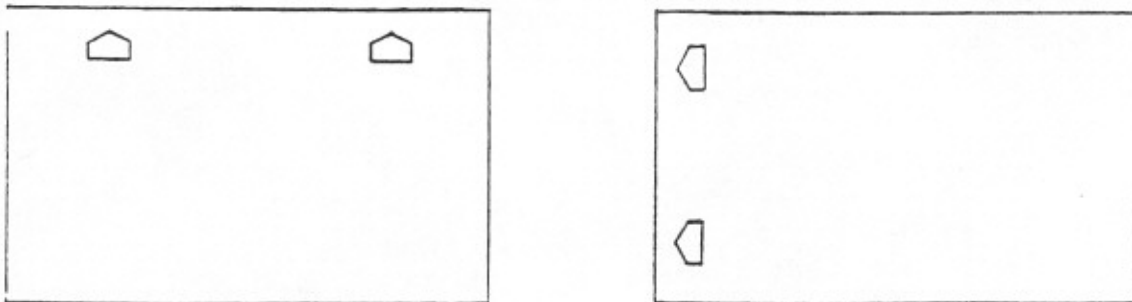


FIGURE 1

IV. Connecting the Speakers

The speakers must be connected to the outputs on your amplifier (connect to the 8 ohm outputs if more than one output is available). Any good quality two-conductor wire (#18 wire size or bigger) can be used, such as ordinary lamp cord. Preserve the speaker phasing by connecting the speaker terminal marked "8Ω" to the "hot" or

positive

ungrounded terminal on your amplifier. Connect the other speaker terminal to the "common" or ground terminal on the amplifier. If stranded wire is used be sure that loose strands do not short the speaker or amplifier terminals. Be sure the terminals are securely tightened.

V. Connecting the 901 Active Equalizer

THIS PART OF THE INSTALLATION DIFFERS FROM THAT OF OTHER SPEAKER SYSTEMS. FOLLOW THESE INSTRUCTIONS STEP BY STEP.

In order to provide proper equalization of the frequency spectrum, the 901 Active Equalizer must be connected between the signal sources (AM-FM tuners, tape recorder or phonograph) and the power amplifier section of your system. The connections described in this section can be used with virtually all amplifiers, preamplifiers and receivers. (If your system contains a separate preamplifier and power amplifier, an alternate method of connection may be preferred and is described in Section VI. Read both Sections V and VI and if you choose the procedure described in Section VI, do not follow any of the steps in this section.)

The 901 Active Equalizer is normally connected to your amplifying equipment as if it were a tape recorder, utilizing the tape monitor function on your preamplifier or receiver. (A new tape monitor switch is supplied on the Equalizer. Instructions for connecting your tape recorder to the Equalizer are also given in this section.) Refer to Figure 2 and connect the Equalizer as follows:

1. Turn off the power to all equipment.
2. If you have a tape recorder, disconnect it from the rear panel of your preamplifier or receiver. The tape recorder will be reconnected later.

STEPS 3 TO 6 WILL CONNECT THE EQUALIZER TO YOUR PREAMPLIFIER OR RECEIVER. READ THEM CAREFULLY.

3. Take one of the cables supplied with the Equalizer and connect the RIGHT channel EQUALIZER OUTPUT terminal on

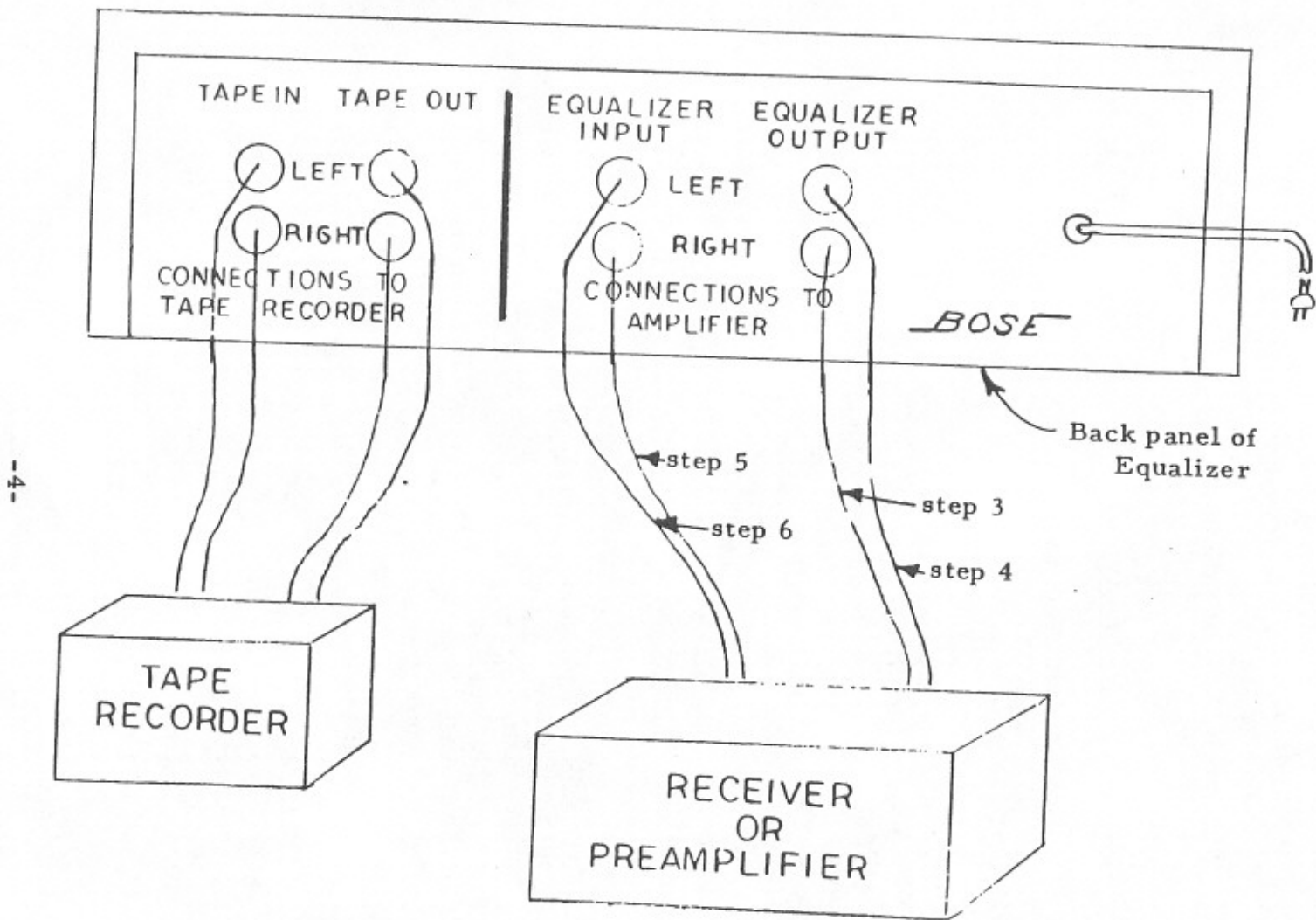


Figure 2

the Equalizer to the RIGHT or B channel TAPE INPUT terminal on your preamplifier or receiver. (This preamplifier terminal may alternatively be labeled TAPE PLAYBACK or TAPE MONITOR.)

4. Similarly, using a second cable connect the LEFT channel EQUALIZER OUTPUT terminal to the LEFT or A channel TAPE INPUT terminal on your preamplifier.

5. Using a third cable, connect the RIGHT channel EQUALIZER INPUT terminal on the Equalizer to the RIGHT or B channel TAPE OUTPUT terminal on your preamplifier. (This preamplifier terminal may alternatively be labeled RECORDER OUTPUT.)

6. Similarly, using the fourth cable connect the LEFT channel EQUALIZER INPUT terminal to the LEFT or A channel TAPE OUTPUT terminal on your preamplifier.

7. Connect the power cord from the Equalizer to an AC receptacle. You may prefer to use a receptacle on your preamplifier or receiver so that the Equalizer will be automatically switched on and off by the power switch on the preamplifier or receiver.

THE NEXT 5 STEPS ARE TESTS WHICH MUST BE PERFORMED TO INSURE PROPER OPERATION AND CORRECT INSTALLATION.

8. Place the TAPE switch on the Equalizer to the NORMAL position. Place the three frequency contour controls so they coincide with the indicated dots. These are the "normal" positions of the Equalizer controls.

9. Place the TAPE MONITOR or TAPE FUNCTION switch on your preamplifier to the NORMAL or OUT position.

10. Turn on the entire system except for the Equalizer, which should be turned off.

11. Play your system as you normally would using a phonograph or AM-FM source (NOT a tape recorder) to be sure it is

operating properly. This tests the rest of your system since the Equalizer has not yet been switched into the system. If you cannot obtain any sound from the speakers, then there is an error elsewhere in your system. Any such errors must be corrected before proceeding further.

12. With the system still playing, move the TAPE MONITOR or TAPE FUNCTION switch on your preamplifier to the MONITOR or IN position. (The Equalizer power switch should still be in the OFF position.) The sound should stop. This TAPE MONITOR switch on your preamplifier should then be left in this position permanently. If the sound does not stop, then the Equalizer is incorrectly connected. Recheck steps 1 through 11.

13. Place the Equalizer POWER switch on. The pilot lamp in the POWER switch should light and the system should again be operating. If the pilot lamp does not light, check the power cord connection of the Equalizer. If the pilot lamp lights but sound does not return, then the Equalizer is probably connected incorrectly and should be rechecked. Recheck steps 1 through 12.

If you do not have a tape recorder, the installation of the 901 is now complete and the system is properly operating. The functions of the various controls on the Equalizer are described in Section VII. If you wish to connect a tape recorder to the system, then the following procedure is necessary.

Connecting a Tape Recorder:

Since the Equalizer has been connected to what are normally the tape recorder terminals of your preamplifier or receiver, extra terminals are provided on the Equalizer for the connection of a tape recorder. Four cables similar to those supplied with the Equalizer will be needed. These may be supplied with the recorder. They are connected as follows:

1. Turn all power off.
2. Connect the RIGHT channel TAPE IN terminal on the

Equalizer to the RIGHT or B channel OUTPUT terminal on the tape recorder.

3. Similarly, connect the LEFT channel TAPE IN terminal on the Equalizer to the LEFT or A channel OUTPUT on the tape recorder.

4. Connect the RIGHT channel TAPE OUT terminal on the Equalizer to the RIGHT or B channel INPUT terminal on the recorder.

5. Similarly, connect the LEFT channel TAPE OUT on the Equalizer to the LEFT or A channel INPUT on the recorder.

These connections are illustrated in Figure 2. Installation of the recorder is now complete. The TAPE switch on the Equalizer replaces the TAPE MONITOR switch on the preamplifier or receiver and performs the identical function. Consult your amplifier manual for a description of its use.

VI. Alternative Method: Connecting the 901 Active Equalizer Between a Preamplifier and a Power Amplifier.

If you have a separate preamplifier and power amplifier, then the Equalizer may alternatively be inserted between these pieces of equipment. With this method of connection, the preamplifier is used and connected to other components of your system (except for your power amplifier) as if the Equalizer were not present. If this connection is desired, use the following procedure and refer to Figure 3.

1. Turn all power off.

2. If your system is already installed, then remove the two audio cables connecting the INPUT terminals on your power amplifier to the OUTPUT terminals on your preamp (These preamp terminals may alternatively be labeled PREAMP OUT or OUTPUT TO AMPLIFIER).

3. Using one of the cables supplied with the Equalizer or one of the cables you have just disconnected, connect

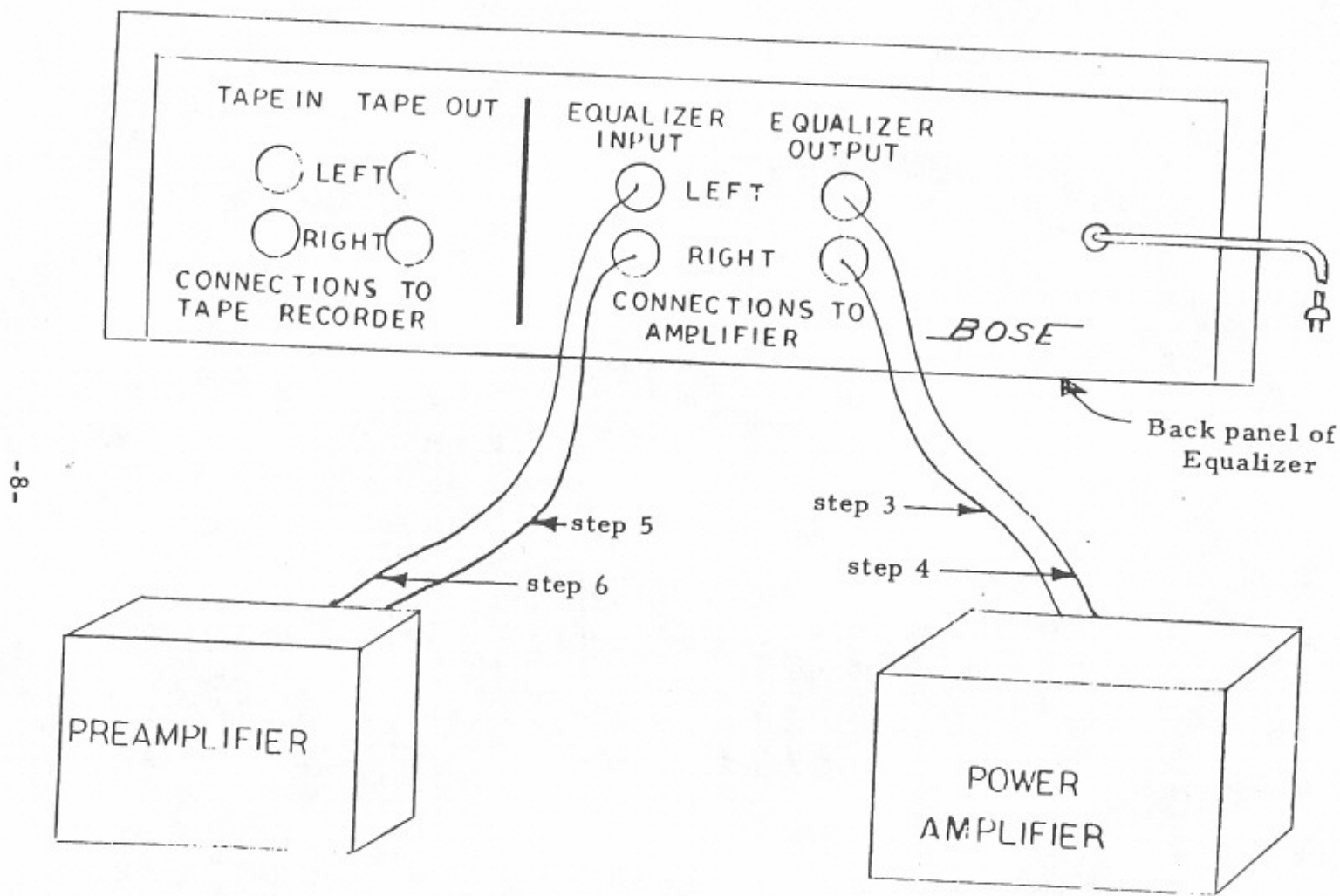


Figure 3

the RIGHT channel EQUALIZER OUTPUT terminal on the Equalizer to the RIGHT or B channel INPUT terminal on your power amplifier.

4. Similarly, use a second cable and connect the LEFT channel EQUALIZER OUTPUT to the LEFT or A channel INPUT terminal on the power amplifier.

5. Using a third cable, connect the RIGHT channel EQUALIZER INPUT terminal on the Equalizer to the RIGHT or B channel OUTPUT terminal on your preamp (the preamp terminal may alternatively be labeled PREAMP OUT or OUTPUT TO AMPLIFIER).

6. Similarly, using a fourth cable connect the LEFT channel EQUALIZER INPUT terminal to the LEFT or A channel OUTPUT terminal on your preamp.

7. Connect the Equalizer power cord to an AC receptacle. You may prefer to use a receptacle on your preamp so that the Equalizer will be automatically switched on or off by the power switch on the preamp.

The Equalizer is now installed in your system. No other connections should be made to the Equalizer. If you have a tape recorder, it is connected to the preamp in the normal manner described in the preamp and recorder manuals. THE REMAINING STEPS SHOULD BE FOLLOWED TO INSURE PROPER INSTALLATION AND OPERATION.

8. Place the TAPE switch on the Equalizer to the NORMAL position. This switch should be left permanently in this position when the Equalizer is connected as described in this section. Place the three frequency contour controls so they coincide with the indicated dots. These are the "normal" positions of the controls.

9. Turn the Equalizer and the rest of the system on. The pilot lamp in the Equalizer POWER switch should light.

If it doesn't, check the power connection to the Equalizer. With the Equalizer on, your system should operate normally. If it doesn't, recheck steps 1 through 8.

10. With the system operating, turn the Equalizer POWER switch off. The system should cease to operate. If it still plays, recheck steps 1 through 6.

The 901 system is now completely installed and ready for use. The functions of the various controls are described in the next section.

VII. Operating the 901 Equalizer Controls

The 901 Active Equalizer has a TAPE switch which replaces the function of the TAPE MONITOR switch on your preamplifier or receiver if you have connected the Equalizer as described in Section V. (The Equalizer connected to the tape monitor function on your preamplifier or receiver.) In this case, the TAPE switch on the Equalizer is used as described in your preamplifier manual. The TAPE MONITOR switch on the preamplifier should be left in the MONITOR or IN position permanently.

If the Equalizer has been connected as described in Section VI (the Equalizer connected between your preamplifier and power amplifier), then the TAPE switch on the Equalizer should be left permanently in the NORMAL position. The function of the TAPE MONITOR switch on your preamplifier has not been disturbed.

The Equalizer also features three program contour controls that can be used to adjust for the program source, the acoustic properties of the room and personal taste. These controls are specifically designed to offer flexibility not provided by any controls currently available on high fidelity equipment.

The response of the system is flat when all controls are in the positions indicated by the dots. The effects of the remaining positions are described below.

BELOW 40 - When this switch is placed in the DECREASE

position, it reduces turntable rumble and other low frequency disturbances in a manner that has much less effect upon music than that caused by conventional rumble filters. This is achieved, as shown in Figure 4, by a unique filter design which provides a uniform attenuation below 40 Hz while causing no audible amplitude or phase deviations above 50 Hz.

TREBLE LEVEL AND TREBLE CONTOUR - The combination of these two switches provides a wide range of control over the reproduction of notes in the higher octaves of the musical scale. It has long been recognized that the better speaker is more sensitive to the quality of program material and the more selective the listener must be in choosing his recordings. The purpose of these switches is to extend the excellent performance attainable with good recordings to an extremely wide range of commercial recordings and to enable you to exercise personal taste with respect to music reproduction in your particular listening room.

When the TREBLE LEVEL control is in the dot position, the high frequency response of the system may be varied by moving the TREBLE CONTOUR switch. The highs may be either increased or decreased as shown in Figure 4.

When the TREBLE LEVEL switch is in the DECREASE position, the system reduces the response in the midrange and highs. The degree of reduction obtained may be selected by the TREBLE CONTOUR switch. Unlike ordinary tone controls, the response of the system remains at a fixed level for high frequencies and does not continue to fall, as shown in Figure 5. This enables a reduction of response in the midrange (such as the sound of violins) without destroying the timbre of the instruments and without eliminating the very high frequencies (affecting percussion, for example).

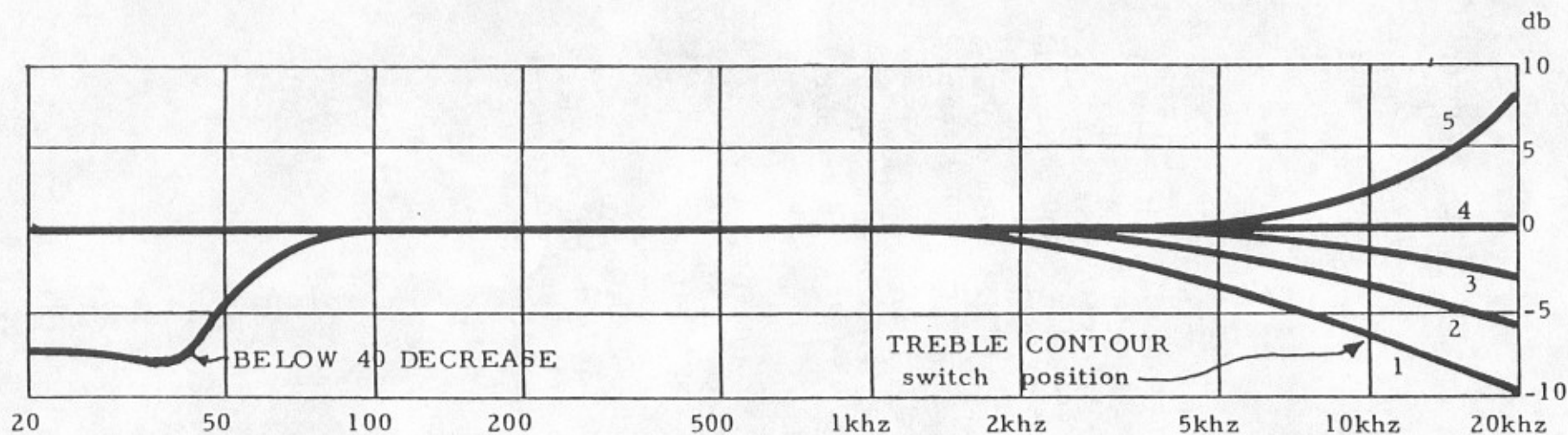


Figure 4. Contours available with the TREBLE LEVEL switch in the normal or dotted position.

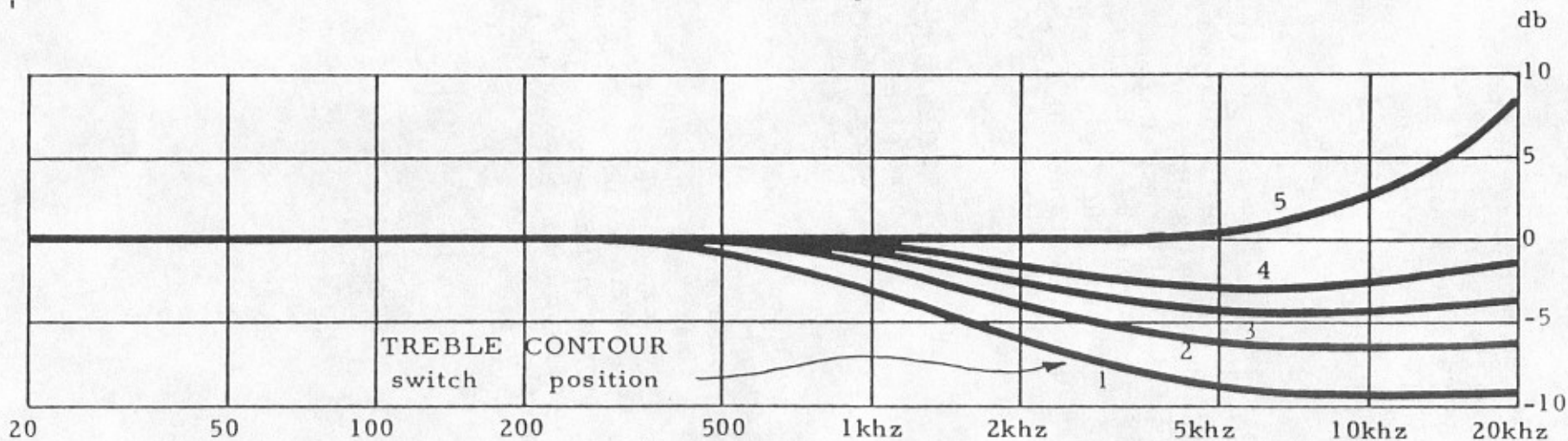


Figure 5. Contours available with the TREBLE LEVEL switch in the DECREASE position.

SPECIFICATIONS

SPEAKER (EACH UNIT)

Percentages of Reflected and Direct Sound.

Power radiated by reflection 89%

Power radiated directly 11%

(Design percentages based upon concert hall measurements.)

Speaker Complement.

Each unit contains nine high compliance, full range speakers with high energy magnets to allow large excursions without audible distortion on any program material. The speakers are acoustically coupled to eliminate audible resonances.

Power Handling Capacity.

The 901 can be used with any high quality amplifier. Its efficiency enables operation with moderately powered amplifiers, yet it can be used with the highest powered amplifiers to reproduce undistorted orchestral peaks at high volume levels.

Nominal Impedance 8 ohms

Dimensions 12 3/4" high, 20 9/16" wide, 12 7/8" deep.

Weight 33 lbs.

ACTIVE EQUALIZER (TWO CHANNELS)

Program Contour Controls.

The normally flat radiated power spectrum can be adjusted, by means of three front panel switches, to yield twenty different frequency contours designed for compensation of recording techniques and room acoustics.

Installation.

The Active Equalizer is easily connected to any preamplifier, amplifier or receiver using the audio cables supplied.

Construction.

The Active Equalizer contains over one hundred components, including ten transistors, mounted on a military quality circuit board. Thirty of these are precision 1% and 5% tolerance components to insure precise control of the entire audio spectrum in every production unit.

Dimensions

2 13/16" high, 9 1/4" wide, 6 3/4" deep.