

OWNER'S MANUAL FOR
901 SERIES II
DIRECT/REFLECTING[®]
SPEAKER SYSTEM

BOSE[®]



901 SERIES II OWNER'S MANUAL

TABLE OF CONTENTS

	Page
I. Introduction	3
II. Unpacking Your 901s	3
III. Installation of Your 901s.....	3
A. Speaker Placement	
B. Connecting The Speakers	
1. Selecting The Speaker Wire	
2. Phasing Your 901 Speakers	
3. Fusing Your 901 Speakers	
C. Connecting The Equalizer	
1. Preferred Method (Using The Tape Monitor Circuit)	
2. Alternate Method I (Using PRE-AMP OUT and MAIN IN Connections with Receiver or Integrated Amplifier)	
3. Alternate Method II (Using separate PREAMPLIFIER and POWER AMPLIFIER)	
4. Alternate Method III (Using FOUR-CHANNEL DECODER)	
D. Connecting A Tape Recorder	
E. Connecting Headphones or Conventional Speakers	
IV. Getting The Most Out of Your 901 Speakers.....	10
A. Adjusting Speaker Placement	
B. Adjusting The Equalizer Controls	
C. Improving Room Acoustics	
D. Selecting The Right Amplifier	
E. The Only System Better Than A Pair of 901s	
V. In Case of Difficulty	14
VI. Technical Information	14
VII. Accessories and Options	15
VIII. Five Year Warranty	16

I. INTRODUCTION

Thank you for purchasing the BOSE 901 Series II Direct/Reflecting® speaker system. The listening enjoyment experienced with your BOSE 901s culminates many years of research and dedication to the art of bringing the finest musical reproduction into your home.

THE BOSE 901 with its unique shape, 9 drivers, and Active Equalizer incorporates a number of major advances in speaker technology. It is designed, installed, and connected differently from conventional loudspeakers. These major differences contribute directly to the new level of realism of music reproduction provided by the 901 speaker system.

The detailed installation and placement instructions are important. PLEASE TAKE THE TIME TO READ THIS MANUAL, as this is the only way you will obtain the full benefits of the 901's unique design. You will be amply rewarded by the listening pleasure which your 901s provide, when properly installed.

II. UNPACKING YOUR 901s

The 901 speaker system is packed in two cartons marked "Part 1" and "Part 2." THE ACTIVE EQUALIZER IS CONTAINED IN A CARDBOARD WEDGE FOUND IN PART 1. Unpack both cartons carefully. (Save the cartons and packing materials for possible use later.) If either the speakers or the Equalizer are visibly damaged when you unpack them, do not place the system in operation. Repack the speakers and the Equalizer in the original cartons and notify your dealer immediately. (See Section V.)

III. INSTALLATION OF YOUR 901s

A. SPEAKER PLACEMENT

One of the most important advantages of the BOSE 901 speaker system is that it is designed to operate properly in most listening rooms, not in anechoic test chambers. The superior dispersion characteristics of the 901 allow considerable freedom of placement and an unusually large "best listening area." To obtain the full performance of the 901, you must follow the placement guidelines in this section.

The angled (vee shaped) grille cloth panels are the back of the 901. Point the vee toward the wall. The distance of the speakers from the wall is very important. The point of the vee should be 12 inches from the wall. (Although the 901 was designed to be placed 12 inches from a reflecting wall, satisfactory performance can be obtained anywhere within the range from 8 to 24 inches.) The point of the speaker should be aimed directly at the reflecting wall, and NOT directly into a corner (See Fig. 1).

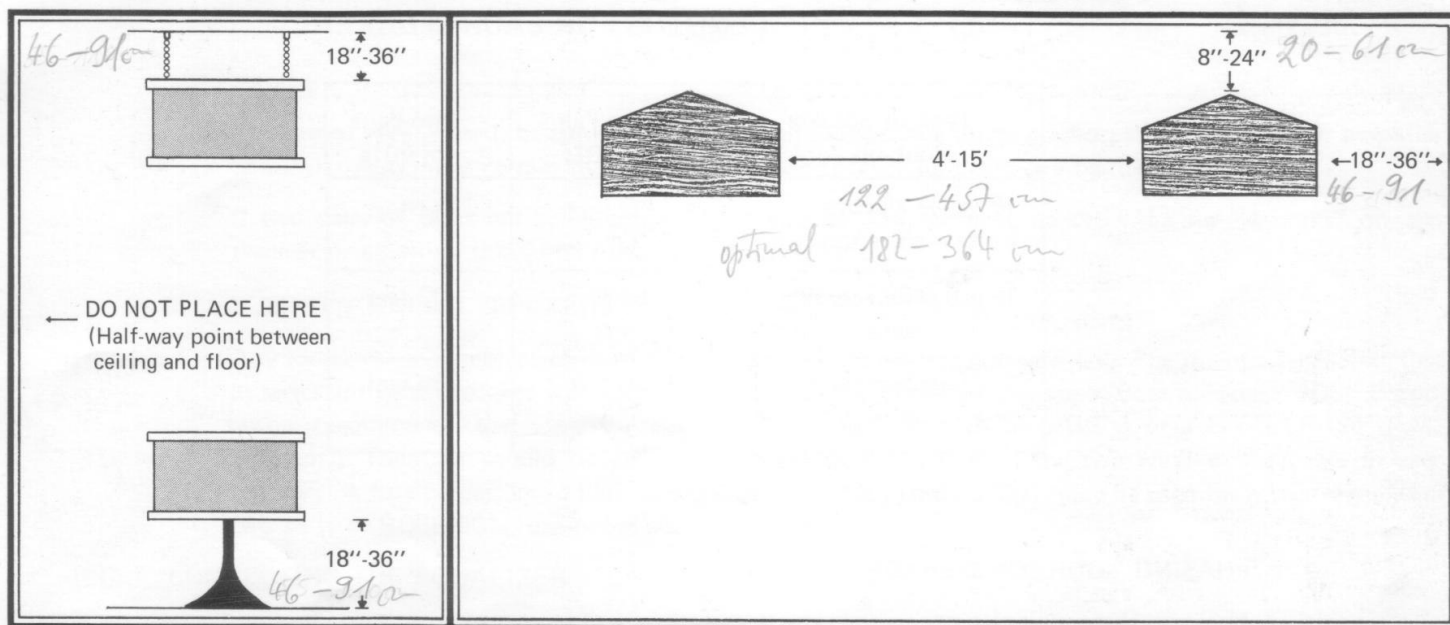


FIG. 1

The reflecting wall ideally should be made of a dense, solid substance such as wood, brick, cement block, plaster, or sheetrock. Substances like glass, pegboard, cork, or acoustic tile make ineffective reflecting walls. (The Equalizer is designed to accommodate surfaces which might otherwise present problems. [See Section IV B.])

The following guidelines should be followed in placing the speakers relative to other surfaces in the room. The basic idea is to provide space around the speakers to allow sound waves coming from the rear of the speaker to properly disperse.

1. The speakers should be placed 18 to 36 inches from the floor. *46-91*
2. If you are hanging the speakers from the ceiling, they should be positioned 18 to 36 inches from the ceiling. DO NOT place your speakers exactly half-way between the floor and the ceiling. (See Fig. 1.)
3. The speakers should be 18 to 36 inches from the side walls or from openings into adjacent rooms. *46-91*
4. The speakers should be at least 18 inches from nearby massive objects such as bookcases, cabinets, or other large pieces of furniture. *46*
5. The separation between the speakers should be between 4 and 15 feet. (Best results will be obtained with a separation of 6 to 12 feet.) *122-49 cm*
182-364 cm
6. In general, you should use common sense and be sure to select an arrangement which does not appear to block the radiation and reflection of the sound into the room. The 901s can be placed on pedestals or tables, on top of cabinets, or on shelves, as long as the preceding guidelines are followed.
7. If the speakers are in a room with a color television, DO NOT place the speakers closer than 3 feet to the television. All loudspeakers are equipped with powerful magnets which may disturb the delicate adjustments of your color TV.

B. CONNECTING THE SPEAKERS

1. SELECTING THE SPEAKER WIRE

If the wire chosen for connecting the speakers to your amplifier has too much resistance, audible coloration of the sound and loss of power can result. The table below summarizes the permissible wire lengths for 18, 16, and 14 gauge two-conductor copper wire for one or two pairs of BOSE 901 speaker system(s). Copper zipcord wire is readily available at most electrical and hardware stores. This wire usually has a ribbed line running along one of the two conductors so that the conductor can be identified at each end for obtaining the proper phasing of your BOSE 901 speakers.

TABLE 1 — WIRE LENGTHS FOR EACH SPEAKER

Type of Speaker Hook-up Wire	One Pair of 901s	Two Pairs of 901s
18 gauge zipcord (or two-conductor wire)	33 feet <i>930 cm</i>	14 feet
16 gauge two-conductor wire	54 feet <i>1620 cm</i>	23 feet
14 gauge two-conductor wire	86 feet <i>2580 cm</i>	36 feet

2. PHASING YOUR 901 SPEAKER

It is important that the connections to the speakers and the receiver or amplifier be the same for both channels so that the two speakers are in phase with each other. The two terminals on the bottom of the 901 are marked "8 OHMS" and "COM."

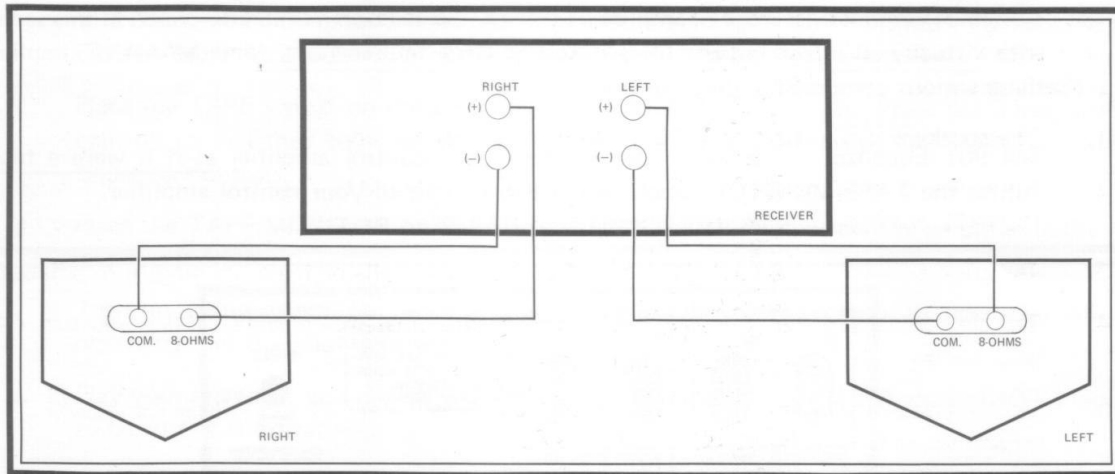


FIG. 2

Start with the Part 1 portion of your 901 system. Place it on the left side of your room. Connect this left speaker to the left channel speaker output terminals of your amplifier or receiver. (If there is a choice of impedances on the amplifier output, use the terminal marked "8Ω" or "8 OHMS".) *

Connect the "COM" terminal on the left speaker to the "COM" terminal on the left channel output of your receiver or amplifier output. Connect the "8 OHMS" terminal on the left speaker to the "8 OHMS" terminal on the left channel amplifier output. Connect the right speaker (Part 2) in the same manner to the right channel amplifier outputs (See Fig. 2).

Because of the differing terminology which various manufacturers use on their receivers and amplifiers, we have provided the chart below to assist you in identifying the proper connection points.

STANDARD RECEIVER/AMPLIFIER TERMINAL MARKINGS

"COMMON" Terminal	"COM"	"8 OHMS" Terminal	"8Ω"
also known as	"O"	also known as	"Hot" or
	"Ground" or		"Positive" (+)
	"Negative" (-)		

If stranded wire is used, be sure that the loose strands do not touch or short-out the speaker or amplifier terminals. Also make certain that all amplifier and speaker terminals are tightened securely.

* If two pairs of 901s are being connected in parallel, the terminal marked "4Ω" or "4 ohms" on the receiver or amplifier should be used. (See Section IV E.)

3. FUSING YOUR 901 SPEAKERS

Any loudspeaker is subject to damage if the amplifier powering it should fail. The use of a fast-acting fuse in series with each speaker will minimize the possibility of serious damage to your speakers. BOSE Corporation recommends the use of a 3-ampere fuse, such as a BUSS AGC 3 or a LITTELFUSE 3 AG (3 amp). The fuse should be connected in series with either of the two wires in the cable to each speaker. A fuse holder, like a BUSS 3833-1 or a LITTELFUSE 356001, may be used for convenience. (For two pairs of BOSE 901s, use two 6-ampere fuses.)

C. CONNECTING THE EQUALIZER

THIS PART OF THE INSTALLATION DIFFERS FROM THAT OF CONVENTIONAL SPEAKER SYSTEMS. BE CERTAIN TO FOLLOW THE INSTRUCTIONS GIVEN BELOW, STEP BY STEP.

1. PREFERRED METHOD (Using The Tape Monitor Circuit)

To provide the proper balance at all frequencies, the 901 Active Equalizer must be connected in your sound

system before the final stage of amplification. The connection method described in this section can be used with virtually all integrated amplifiers, preamplifiers, and receivers. For the sake of simplicity, we will call these various components the "control amplifier."

The 901 Equalizer is normally connected to your control amplifier as if it were a tape recorder. It utilizes the TAPE MONITOR function and connections of your control amplifier.

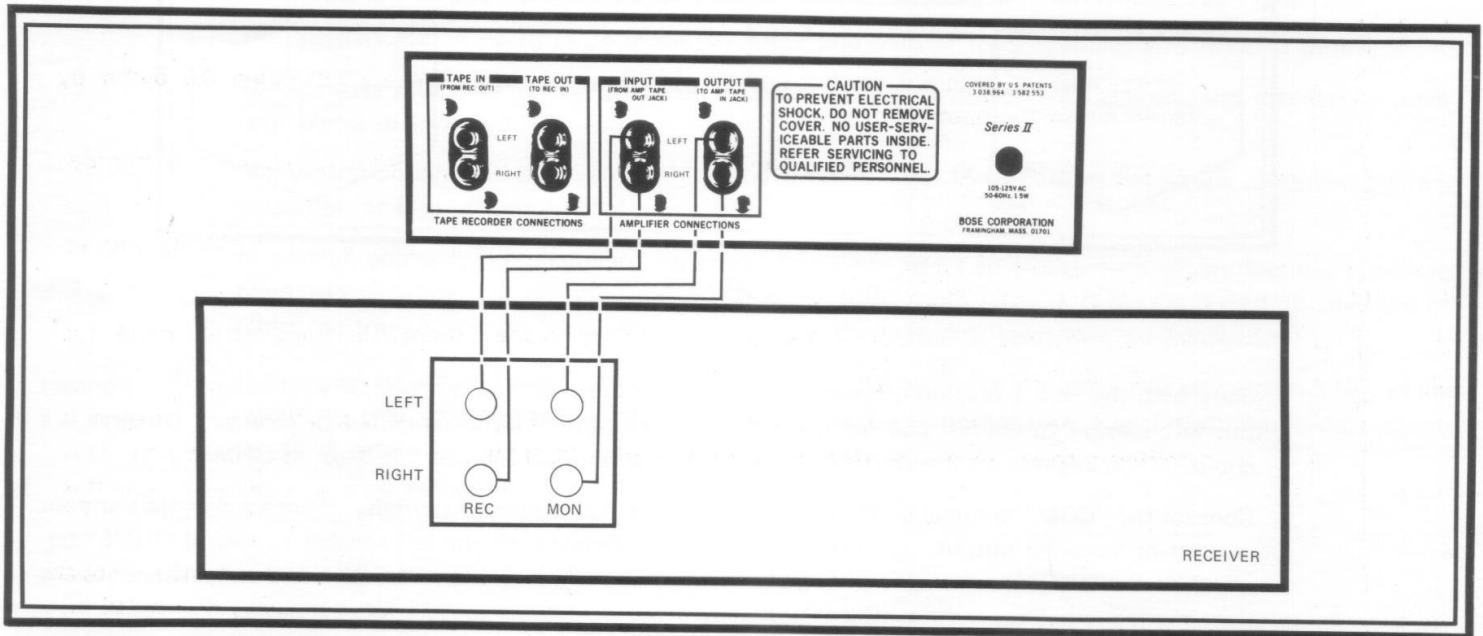


FIG. 3

Referring to Figure 3, connect the Equalizer according to the instructions in Steps a through n:

- a. Turn off all power to your equipment.
- b. If you have a tape recorder, disconnect it from the rear panel of your control amplifier. Instructions in the next section will show you how to reconnect your tape recorder to the system after the Equalizer has been installed.

THE FOLLOWING STEPS WILL CONNECT THE EQUALIZER TO YOUR PREAMPLIFIER, RECEIVER, OR INTEGRATED AMPLIFIER. READ THEM CAREFULLY.

- c. Using one of the cables supplied with the Equalizer, connect the RIGHT channel OUTPUT terminal of the Equalizer to the RIGHT or "B" channel TAPE MONITOR terminal of your control amplifier. (This terminal may also be labeled TAPE PLAYBACK or TAPE IN.) If your control amplifier has two tape monitor circuits, see Page 9.
- d. Connect the LEFT channel OUTPUT terminal of the Equalizer to the LEFT or "A" channel tape monitor terminal of your control amplifier.
- e. Connect the RIGHT channel INPUT terminal of the Equalizer to the RIGHT or "B" channel TAPE RECORD terminal of your control amplifier. (This terminal may also be labeled TAPE OUT or REC OUT.)
- f. Connect the LEFT channel INPUT terminal to the LEFT or "A" channel TAPE RECORD terminal of your control amplifier.
- g. Connect the AC power cord of the Equalizer to a switched outlet of your control equipment so that the Equalizer will automatically be switched on or off by the power switch of your integrated amplifier, receiver, or preamplifier.

If the preceding steps are unclear, it may be due to the different nomenclature which various manufacturers employ. Consult your integrated amplifier, receiver, or preamplifier instructions and refer to the section describing steps for connecting a tape recorder to the tape monitor circuit. Remember that the Equalizer connects like a recorder.

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

- h. Place the TAPE switch on the Equalizer in the MONITOR position. Place the 3 frequency contour controls so that they coincide with the indicated dots. These are the "NORMAL" positions of the Equalizer controls.
- i. Place the TAPE MONITOR or TAPE FUNCTION switch on your control amplifier in the NORMAL or OUT position.
- j. Turn the entire system on. Be sure that the Equalizer is plugged into an operating AC outlet by observing that the pilot light on the Equalizer is on.
- k. 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. Any errors must be corrected before proceeding further.

- l. Turn the BALANCE control of the control amplifier to the extreme right and left to check for correct placement of the right and left channels.
- m. With the system playing, move the TAPE MONITOR or TAPE FUNCTION switch on your integrated amplifier, receiver, or preamplifier to the MONITOR or "ON" position. The sound should stop. This TAPE MONITOR switch on your integrated amplifier, preamplifier or receiver should be left in this position. If the sound does not stop, recheck Steps a through l.
- n. Place the Equalizer TAPE switch in the NORMAL position. The sound should return. If the sound does not return, and the Equalizer pilot light is on, then the Equalizer is probably connected incorrectly. Recheck Steps a through l.

NOTE: If the TAPE MONITOR switch of your control amplifier is later switched out, the system will continue to play but the Equalizer will no longer be functioning in the circuit. Since the system will be playing and the Equalizer pilot light will be on, it will be possible, especially at low-volume levels or with certain musical selections, for you to be unaware that the Equalizer has been removed from the circuit. Check the TAPE MONITOR switch on your control equipment periodically to make certain it is still in the ON position.

If you do not have a tape recorder, the installation of the 901 system is now complete, and the system is operating properly. If you do have a tape recorder, its connection to the system will be explained in Section III D.

2. ALTERNATE METHOD I
 (Using PRE-AMP OUT and MAIN IN Connections with Receivers or Integrated Amplifiers [Refer to Fig. 4.])

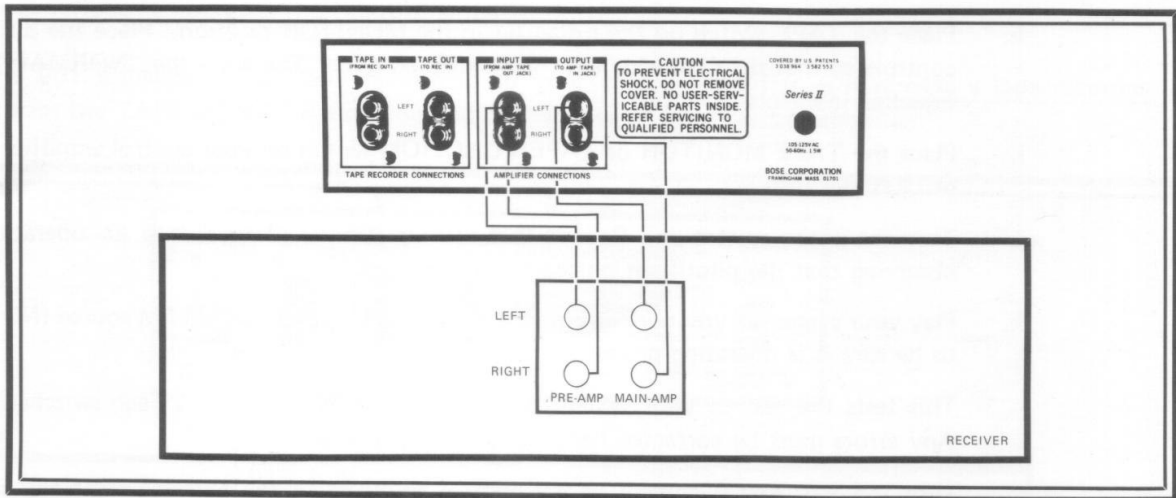


FIG. 4

An alternate method of connecting the BOSE Active Equalizer makes use of the PRE-AMP OUT and MAIN IN jacks provided by many manufacturers on their receivers or integrated amplifiers. To do this refer to your receiver and integrated amplifier owner's instruction manual for separating the main and preamplifier sections of their units. (This is usually accomplished by removing shorting wires or plugs and/or moving a slide switch). Connect the PRE-AMP OUT terminals to the Equalizer INPUT terminals, and connect the EQUALIZER OUTPUT terminals to the MAIN IN terminals of the receiver or integrated amplifier. With this method of connection, leave the TAPE switch on the Equalizer in the NORMAL position. Tape recorders are connected to the receiver or amplifier in the conventional manner. The disadvantage of this method of connection is that it is difficult to use conventional speakers or headphones, because the Equalizer is always in the circuit.

3. ALTERNATE METHOD II
 (Using separate PREAMPLIFIERS and POWER AMPLIFIERS)

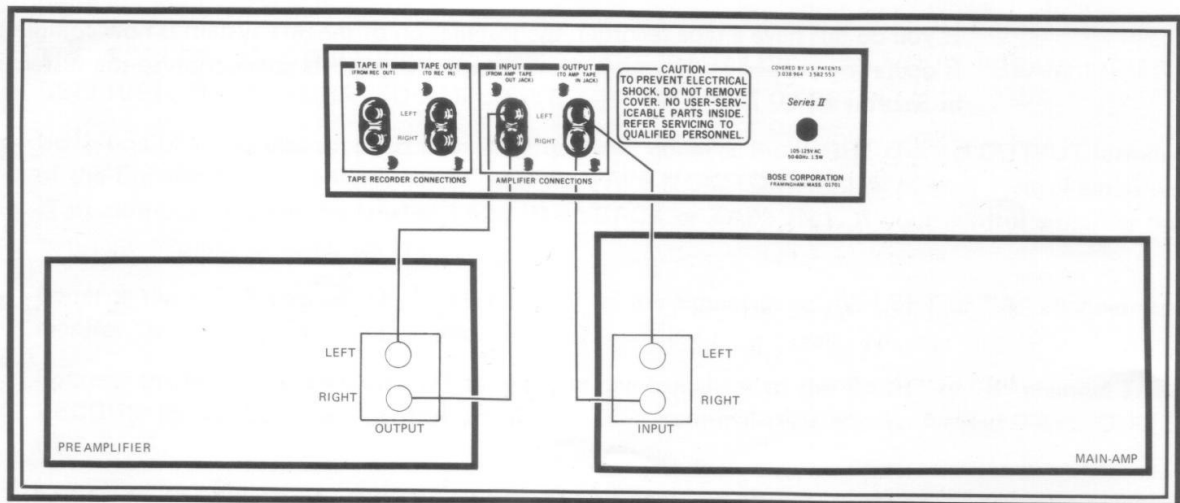


FIG. 5

The Equalizer can be connected in systems that include separate preamplifiers and power amplifiers, between the preamplifier and power amplifier (See Fig. 5). The advantage of this method of connection is that the tape monitor functions of the preamplifier are still available for connection to a tape recorder in the conventional manner. One disadvantage of this method of connection is that it is difficult to use an additional pair of conventional loudspeakers or headphones because the Equalizer is permanently in the circuit. It is advisable with most power amplifiers having gain controls that these controls be turned fully clockwise (consult your amplifier manufacturer's owner's manual for recommendations).

ted before the final stage of amplification, the Equalizer should be connected to prevent any possible overloading of the amplifier. To avoid any possible damage to the amplifier, we suggest carefully reading the instructions regarding system connection. How you connect the Equalizer and/or your associated

BOSE
 Frammingham, Massachusetts 01701
BOSE 901 - SERIES II WARRANTY

Thank you for choosing a BOSE speaker system as your link to good listening for many years to come. We warrant your BOSE speaker system to be free from defects in workmanship and material under normal use for a period of FIVE YEARS from the date of purchase, subject to the following terms and conditions.

1. You purchased your BOSE system new from an authorized BOSE dealer. Proof of purchase by original sales slip or otherwise is required to expedite repairs under warranty.
2. Speaker is used in accordance with instructions in Owner's Manual. Such defect was not caused by abuse, neglect or accident, and no unauthorized repairs have been made.
3. Our responsibility is limited to the repair and replacement of units properly packed and returned PREPAID to the BOSE Factory or BOSE Factory-Authorized Service Agencies. Return freight charges will be paid by BOSE.
4. Shipping cartons can be obtained from BOSE Dealers or from the BOSE Factory. ANY DAMAGE IN TRANSIT due to improper packing is not covered by the warranty and will not be recognized as an insurance claim by our transportation companies. DO NOT SHIP BOSE SPEAKERS PARCEL POST.
5. We assume no liability for installation labor or consequential damages.
6. All service must be provided by BOSE Factory or Factory-Authorized Service Agency. Failure to comply invalidates your warranty.
7. The serial number must not be defaced, removed, or otherwise obliterated, and must correspond to the number on the completed Warranty Card on file with BOSE.

There are no warranties, expressed or implied, other than as stated above. Please return your warranty registration card to us within fifteen days of the date of purchase.

SHOULD YOUR UNIT APPEAR TO BE DEFECTIVE, DO NOT RETURN THE UNIT TO THE FACTORY. TAKE THE UNIT TO YOUR DEALER. HE WILL ARRANGE FOR REPAIRS. IF IT BECOMES NECESSARY TO RETURN YOUR UNIT TO THE FACTORY, DO NOT RETURN YOUR SPEAKERS WITHOUT FIRST RECEIVING A RETURN AUTHORIZATION NUMBER.

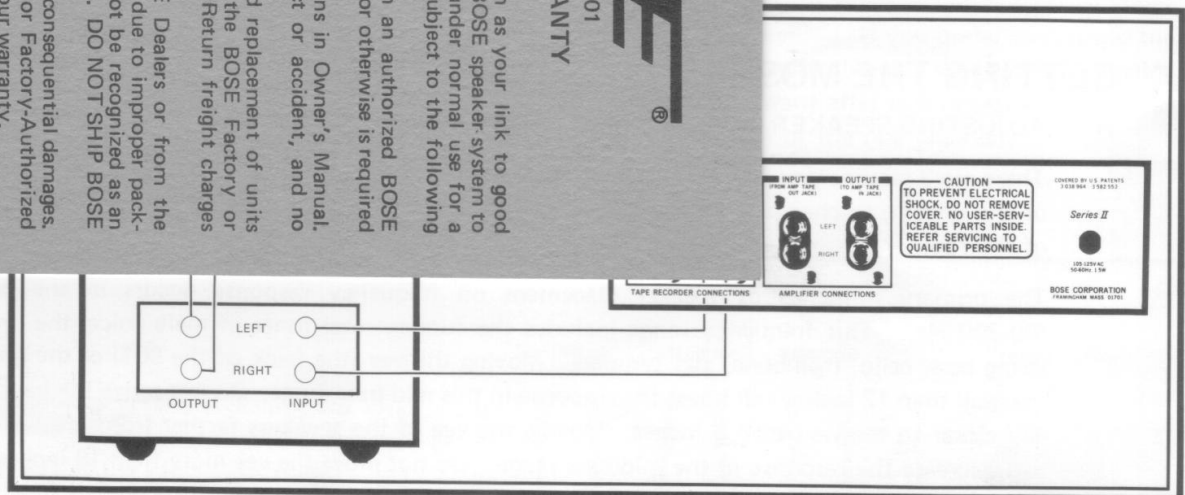


FIG. 6

Since the Active Equalizer has been connected to what are normally the tape recorder terminals of your integrated amplifier, preamplifier, or receiver, extra terminals are provided on the Equalizer for the connection of a tape recorder. Follow the next five steps carefully: (Refer to Fig. 6.)

- a. Turn all power off.
- b. Connect the RIGHT channel TAPE IN terminal on the Equalizer to the RIGHT or "B" channel OUTPUT terminal on the tape recorder.
- c. Similarly, connect the LEFT channel TAPE IN terminal on the Equalizer to the LEFT or "A" channel OUTPUT terminal of the tape recorder.
- d. Connect the RIGHT channel TAPE OUT terminal on the Equalizer to the RIGHT or "B" channel INPUT (or LINE IN) terminal of the recorder.
- e. Similarly, connect the LEFT channel TAPE OUT terminal on the Equalizer to the LEFT or "A" channel INPUT (or LINE IN) terminal on the recorder.

Installation of the tape recorder is now complete. To play the tape recorder, simply place the TAPE switch on the 901 Active Equalizer in the MONITOR position (down).

CONTROL AMPLIFIERS HAVING TWO TAPE MONITOR CIRCUITS

Many modern preamplifiers, integrated amplifiers, and receivers have two tape monitor functions providing the same monitoring features for two tape recorders instead of one. However, most of these controls are constructed to prevent both monitoring switches from being turned on or "activated" at the same time. Since the BOSE Active Equalizer must be in the circuit while the 901 speakers are being used, connecting the Equalizer in either TAPE 1 or TAPE 2 will require connecting your tape recorder to the BOSE Equalizer tape monitor circuit, not the unused TAPE monitor position found on your control amplifier.

4. ALTERNATE METHOD III
(Using FOUR-CHANNEL DECODERS)

As previously stated, the BOSE Active Equalizer should be connected before the final stage of amplification of the amplifier channels powering the 901 speakers. Additionally, the Equalizer should be connected at a point in the signal path following the four-channel decoder to prevent any possible overloading of the decoding equipment. Because of the many different decoders available, we suggest carefully reading the owner's instruction manuals of all of the associated equipment regarding system connection. How you connect the decoder will depend upon your own needs for control of the Equalizer and/or your associated equipment.

D. CONNECTING A TAPE RECORDER

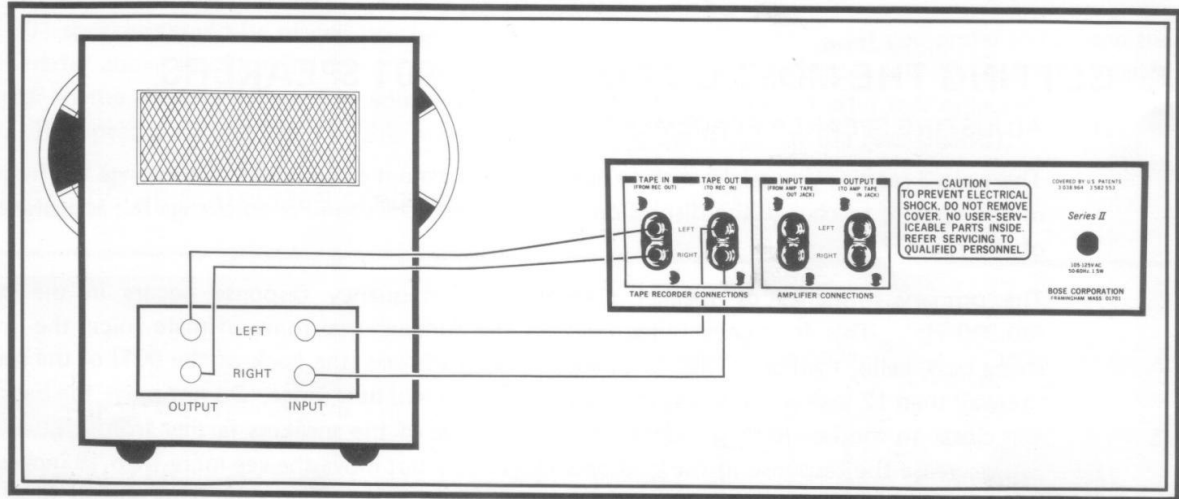


FIG. 6

Since the Active Equalizer has been connected to what are normally the tape recorder terminals of your integrated amplifier, preamplifier, or receiver, extra terminals are provided on the Equalizer for the connection of a tape recorder. Follow the next five steps carefully: (Refer to Fig. 6.)

- a. Turn all power off.
- b. Connect the RIGHT channel TAPE IN terminal on the Equalizer to the RIGHT or "B" channel OUTPUT terminal on the tape recorder.
- c. Similarly, connect the LEFT channel TAPE IN terminal on the Equalizer to the LEFT or "A" channel OUTPUT terminal of the tape recorder.
- d. Connect the RIGHT channel TAPE OUT terminal on the Equalizer to the RIGHT or "B" channel INPUT (or LINE IN) terminal of the recorder.
- e. Similarly, connect the LEFT channel TAPE OUT terminal on the Equalizer to the LEFT or "A" channel INPUT (or LINE IN) terminal on the recorder.

Installation of the tape recorder is now complete. To play the tape recorder, simply place the TAPE switch on the 901 Active Equalizer in the MONITOR position (down).

CONTROL AMPLIFIERS HAVING TWO TAPE MONITOR CIRCUITS

Many modern preamplifiers, integrated amplifiers, and receivers have two tape monitor functions providing the same monitoring features for two tape recorders instead of one. However, most of these controls are constructed to prevent both monitoring switches from being turned on or "activated" at the same time. Since the BOSE Active Equalizer must be in the circuit while the 901 speakers are being used, connecting the Equalizer in either TAPE 1 or TAPE 2 will require connecting your tape recorder to the BOSE Equalizer tape monitor circuit, not the unused TAPE monitor position found on your control amplifier.

E. CONNECTING HEADPHONES OR CONVENTIONAL SPEAKERS

It is important to remember that the BOSE 901 Active Equalizer introduces substantial boost in the range below 100 Hz and above 3000 Hz to match the power response of the 901 speakers. This means that if other speakers or headphones are played while the Equalizer is in the circuit, they will radiate far too much energy in the low bass and high treble ranges.

MORE IMPORTANTLY, HEADPHONES OR CONVENTIONAL SPEAKERS MAY BE DAMAGED BY PLAYING WITH THE BOSE 901 EQUALIZER CONNECTED IN THE CIRCUIT.

For these reasons, you should switch the Equalizer out of the circuit by placing the TAPE MONITOR switch of your preamplifier, integrated amplifier, or receiver to the OFF (or NORMAL) position when playing your system through headphones or a pair of speakers other than BOSE 901s.

IV. GETTING THE MOST OUT OF YOUR 901 SPEAKERS

A. ADJUSTING SPEAKER PLACEMENT

There are 3 reasons you might wish to adjust the placement of your 901s: to change the frequency response of the system; to change the dispersion of sound into the room; or to change the appearance or usefulness of the room.

The primary influence of speaker placement on frequency response occurs in the mid-bass region (80-300 Hz). This frequency range includes the fundamental tones of male voice, the low guitar range, string bass, cello, trombone, and tympani. Moving the vee (the back of the 901) of the speakers closer to the wall than 12 inches will boost the response in this mid-bass range. Do not move the back of the speaker any closer to the wall than 8 inches. Moving the vee of the speakers farther from the wall than 12 inches will decrease the response in the mid-bass range. Do not move the vee more than 18 inches from the wall. The frequency response in the mid-bass range can also be modified in the same way by moving the speakers closer to or farther from the floor, the ceiling, or the side walls.

The dispersion of sound into the room can also be affected by moving the two 901 speaker cabinets. If the stereo image of the music is too narrow, simply move the two speakers farther apart. It is recommended that the speakers be placed no farther apart than 15 feet. If the image of the sound is too broad, or if there appears to be "too much space in the middle," the speakers can be moved closer together. It is recommended that the speakers be moved no closer together than 4 feet.

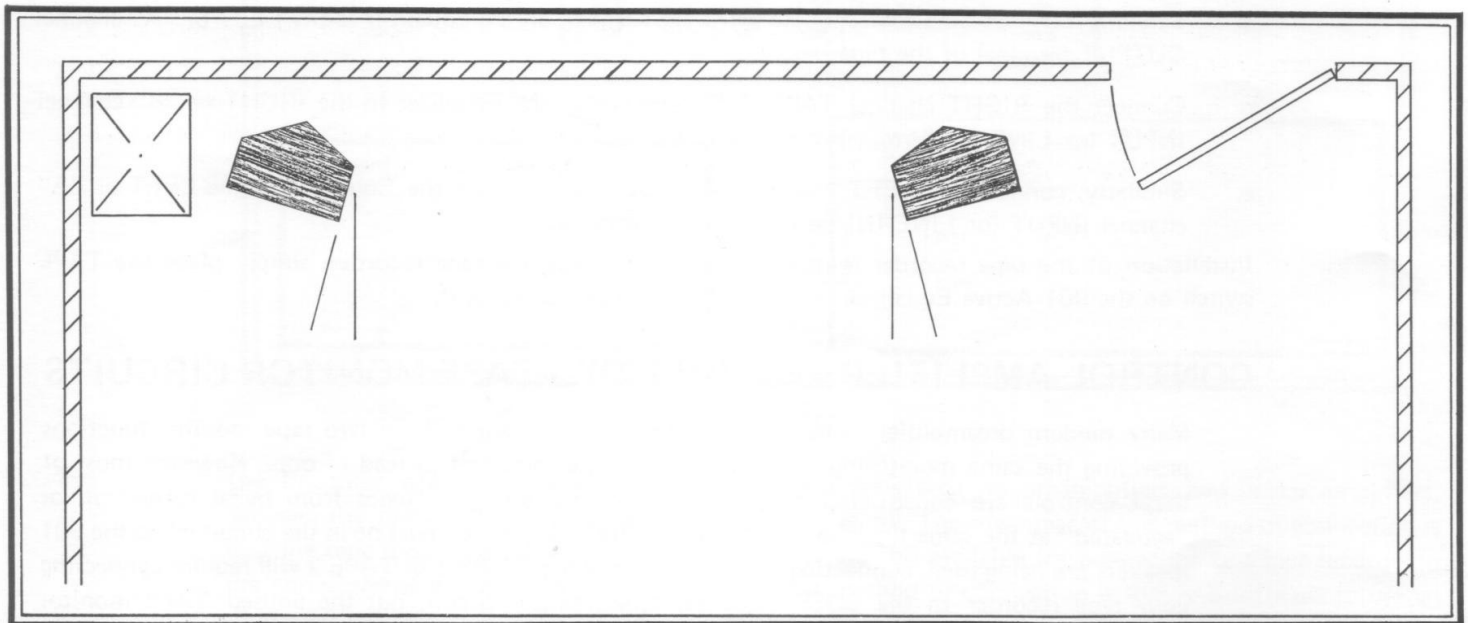


FIG. 7

Additionally, the dispersion can be adjusted by rotating the speakers. For instance, if you wish more sound to come from the left side of one of the speakers, rotate the rear of the speaker (the vee) to the left. This technique can also be used to direct sound away from an obstacle (for example, a piece of furniture) or an opening into an adjacent room. (See Fig. 7.)

The 901s also can be hung from the ceiling. As well as being an effective and interesting decorating approach, this is a useful method of installation where speaker placement might be difficult due to furniture, location of doorways, and/or small children. The hardware is readily available at most stores carrying decorative lighting accessories. We recommend using a three or four point suspension, with three or four pieces of decorative chain or other strong material. These are attached to the bottom of the 901 cabinet via decorative hooks or eyelets screwed into the cabinet. Keep in mind that each 901 weighs 33 pounds; therefore, use hardware strong enough to support this weight.

The 901 speaker should be placed no closer than 18 inches from the ceiling. If you prefer to suspend the speakers far above the listening area in a high ceiling room, the sound can be directed downward by angling the rear of the speaker down. The sound will then be directed downward after it is reflected off the rear wall. The speaker can be tilted in this manner by adjusting the length of the rear chain(s).

B. ADJUSTING THE EQUALIZER CONTROLS

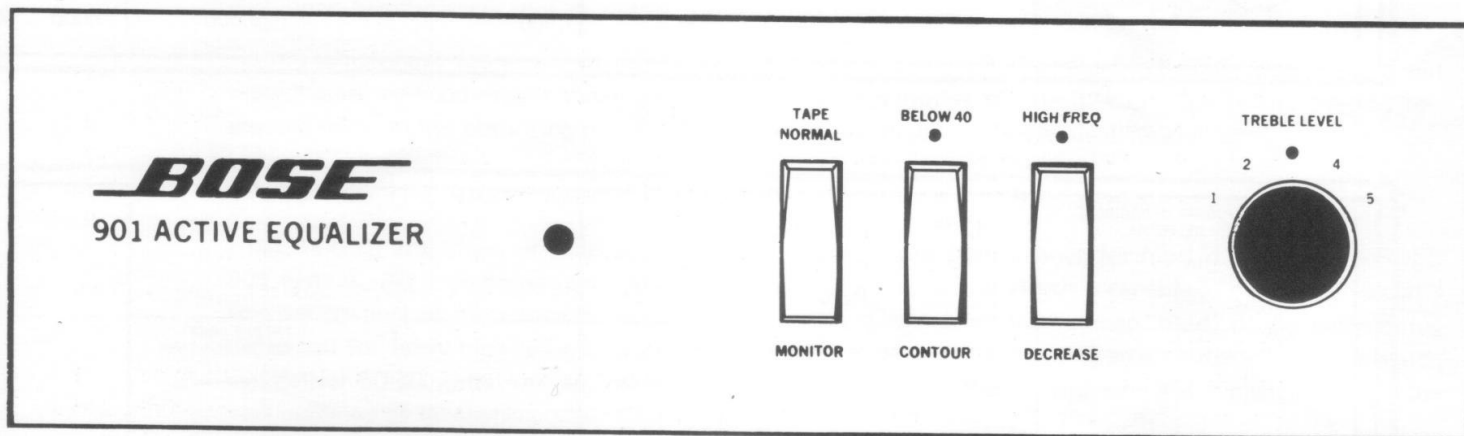


FIG. 8

BELOW 40

Another way of altering the performance of the 901 system is to adjust the Equalizer controls. The first Equalizer control is labeled BELOW 40. This control causes a uniform reduction in bass response of approximately 8 dB below 40 Hz. If distortion occurs when you are playing loud musical material with a great deal of deep bass content, move this switch from the dotted position to the CONTOUR position. This will allow you to play the system louder, especially with low-powered amplifiers or receivers. This control is effective also in reducing "rumble" from older turntables or recordings.

The effect of the various control settings upon the frequency response (taking the normal or "dotted" position as "flat") is illustrated in Figures 9 and 10.

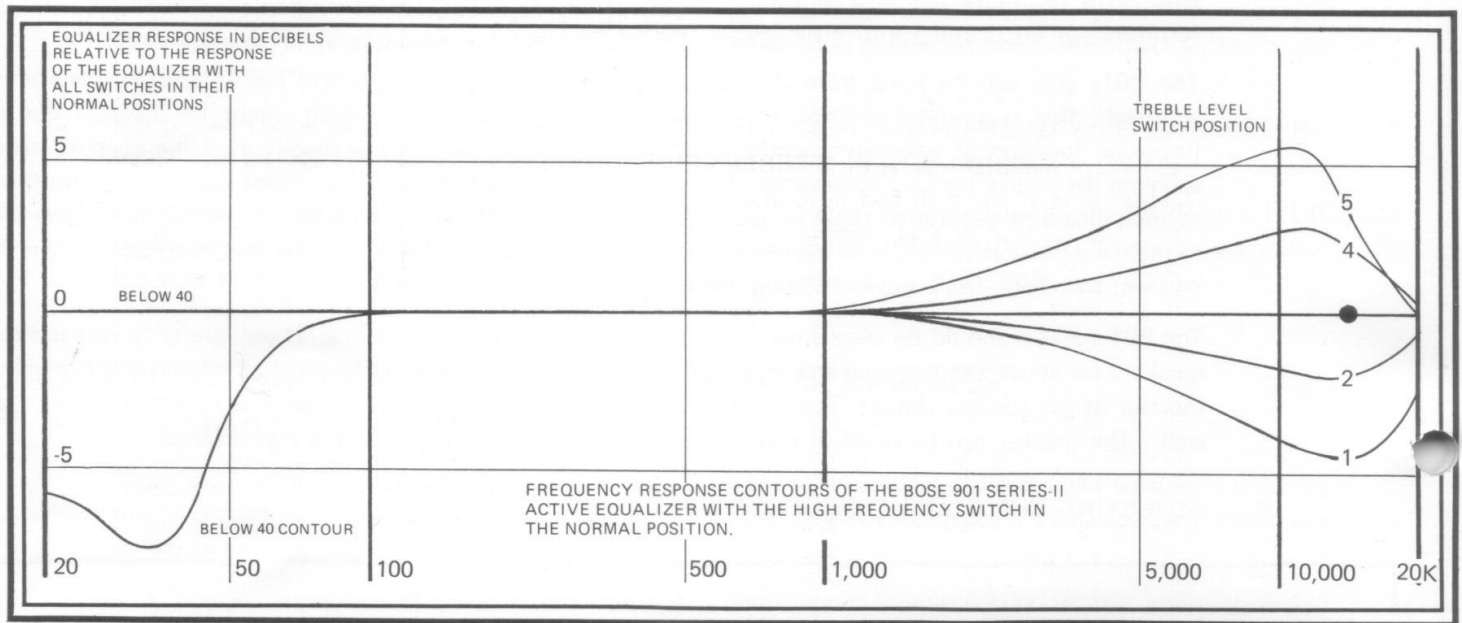


FIG. 9

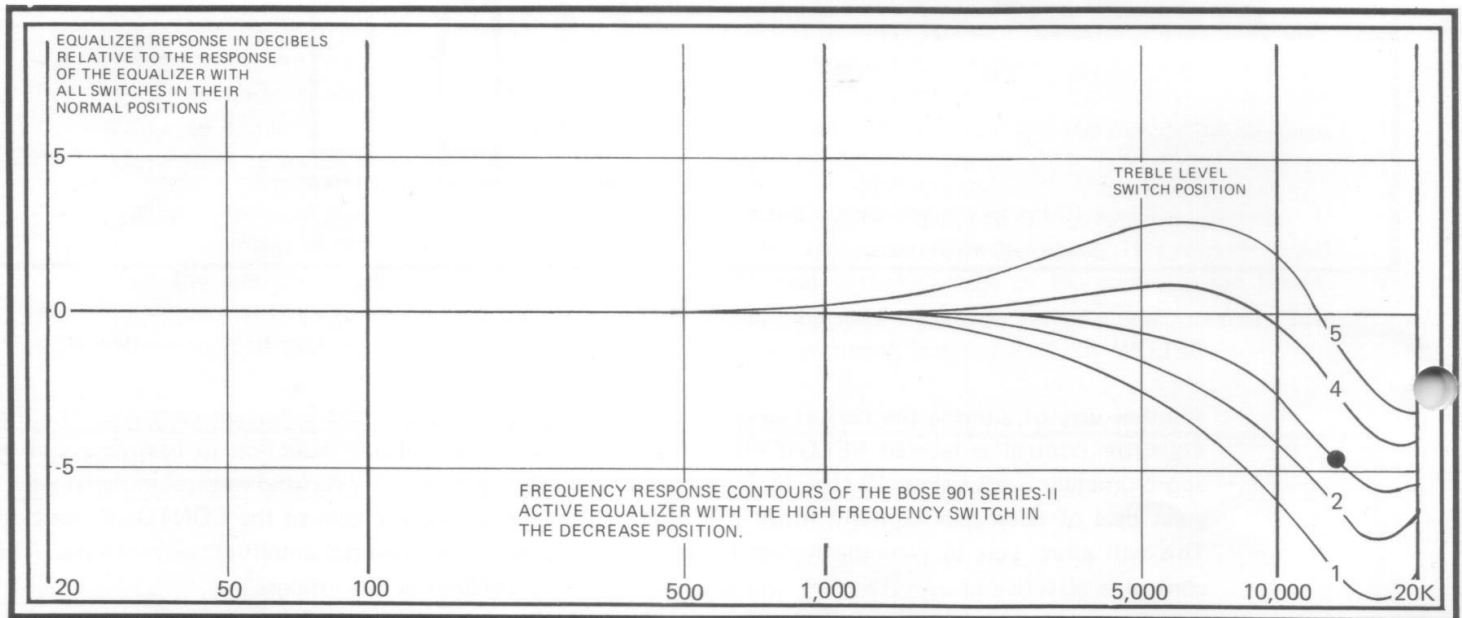


FIG. 10

HIGH FREQUENCY

The next frequency control of the 901 Equalizer is labeled HIGH FREQ. If the control is moved to the DECREASE position, the frequency response of the system is decreased in the high treble range above 10 kHz. This control may be used as a scratch filter, or to modify the response of some recordings which are excessively bright in the high treble range.

TREBLE LEVEL

The next frequency control is a rotary switch labeled TREBLE LEVEL. This control has 5 positions. The third position is the normal, or "dotted" position. The "dotted" position is the preferred position for use in rooms of average acoustical properties.

In a room that is extremely "bright" due either to room conditions or to the recording you are playing, you

may wish to move this control to Position 2 or Position 1. These positions successively decrease the frequency response over the entire treble range (above 2000 Hz).

In a room which is extremely "dull," you may wish to move the TREBLE LEVEL control to Position 4 or Position 5. This increases the frequency response throughout the entire treble range.

Another benefit of this TREBLE LEVEL control is that it allows the use of the 901 system in front of reflecting walls which are covered with curtains or drapes. If your reflecting wall is covered with a sound absorbent material setting the TREBLE LEVEL control to Position 4 or 5 will result in the same frequency response as if the wall had no draperies covering it. In the final analysis, you should set the TREBLE LEVEL control to that position which best fits your listening taste, rather than following any rigid guidelines.

C. IMPROVING ROOM ACOUSTICS

The acoustical properties of a listening room have a very large effect on the quality of sound produced in that room by a sound system. An overly "live" room has hard walls and little in the way of soft sound absorbing material like rugs, sofas, and drapes. Not only is music listening likely to be unpleasant in such a room, but it may even be uncomfortable to carry on a normal conversation. The properties of such a room can be greatly improved by adding some sound absorbing material. This can be done by adding a rug, cushioned furniture, curtains or drapes, or wall hangings.

Rooms which have too much absorbing material tend to be acoustically "dead." In such rooms, music will seem lifeless, and conversation may sound as if you were outdoors. A "dead" room can be improved by removing some sound absorbing material such as curtains, drapes, or cushioned furniture.

D. SELECTING THE RIGHT AMPLIFIER

Most modern amplifiers or receivers will provide satisfactory performance for most owners of the BOSE 901 system. We recommend that you select an amplifier or receiver which is capable of delivering 25 watts rms per channel or more into 8 ohms. If your listening room is rather large or "dead" or if your listening tastes call for fairly high volume levels, you may want to consider purchasing an amplifier or receiver which can deliver 50-70 watts rms per channel into 8 ohms. An amplifier of this size is sufficient to satisfy the vast majority of listeners.

Some listeners prefer very high volume levels. If such levels are to your liking, you will be most pleased with the 901 system. The BOSE 901 can handle much more power than conventional loudspeaker systems.

Listeners who demand extremely high volume levels should consider amplifiers in the power range of 100 to 270 watts rms per channel into 8 ohms. To reproduce the highest sound levels in the home, you may select an amplifier capable of delivering up to 270 watts rms per channel into 8 ohms without exceeding the safe operating limits of the 901.

E. THE ONLY SYSTEM BETTER THAN A PAIR OF 901s

The 901 was designed to outperform all other high fidelity speakers, regardless of their size or price. If we were to make a speaker twice as big or twice as expensive as the 901, we could not significantly improve its performance. However, using two pairs of 901s substantially adds to the quality of the performance. The advantages of a second pair include: expanding the spatial properties of the performance; increasing the efficiency of bass reproduction; and increasing the power available from most amplifiers.

The ideal placement is "around the corners" from the first pair (See Fig. 11). The same distances apply, from the reflecting wall, floor, ceiling, and side wall, as for the first pair of speakers. The effect of this arrangement is to bring the "stage" out around the listener in an acoustic panorama.

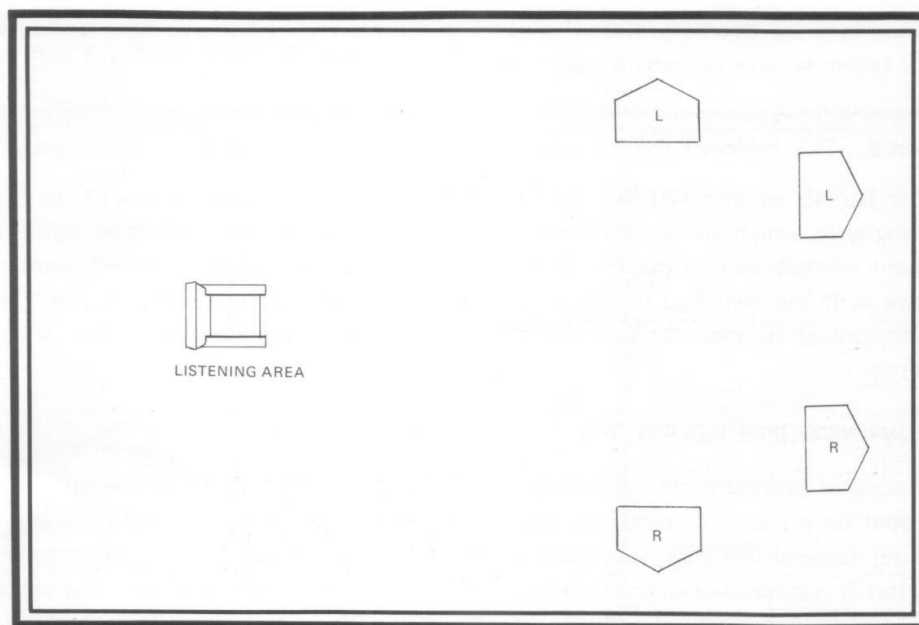


FIG. 11

Since the second pair of speakers is connected in parallel with the first pair, a second Equalizer is not required. For this reason, the BOSE 901 is available at lower cost as an "Add-On Pair," without the Equalizer. To connect the second pair of speakers, simply connect the 8 OHMS terminal of the second left speaker to the 8 OHMS terminal of the first left speaker. Connect the COM terminal of the second left speaker to the COM terminal of the first left speaker. Follow a similar procedure for the right speaker. Note: If your amplifier has separate output connections for different speaker impedances, you should connect each pair of speakers to the 4 OHM terminals of your power amplifier.

V. IN CASE OF DIFFICULTY

If you suspect that there is a problem with your 901 system, it is worth a few minutes of your time to determine whether your 901s are defective; and if so, that you return only that part of the system which is defective.

If one speaker sounds defective, switch the left and right channel speaker cables at the point where they are connected to the amplifier or receiver. If the trouble moves to the other speaker, it is not in the speakers or in the speaker wiring.

As noted earlier in this manual, if you hear distortion with both speakers at high sound levels which disappears when you turn the volume down or switch the BELOW 40 switch to CONTOUR, you are probably overloading the amplifier. If this is the case, leave the BELOW 40 switch in the CONTOUR position for the recording you are playing. (See Section IV, D.)

If the trouble seems to be in the Equalizer, be sure that the system operates properly with the Equalizer out of the circuit. Check this by switching the preamplifier or receiver TAPE MONITOR switch to the OUT or NORMAL position. Be certain that all cables are connected properly and that the cables are not defective.

If the trouble persists, contact your dealer. He will arrange for service either by having the unit serviced at a Factory-Authorized Service Agency or at the BOSE Factory. If it becomes necessary to return your unit to the Factory, he can obtain a Return Authorization Number which must appear on the outside of the carton when the unit is returned to the Factory. Shipments arriving at the BOSE Factory without a RETURN AUTHORIZATION NUMBER on the outside of the carton are not accepted, but are returned freight collect to the sender. Units must be returned prepaid. DO NOT SHIP VIA PARCEL POST.

VI. TECHNICAL INFORMATION

A. The System is packed in Two Cartons Marked "Part 1" and "Part 2"

Weight: Part 1 — 44 pounds
 Part 2 — 42 pounds

Carton Dimensions: 22-3/4" W x 15" H x 16-1/2" D

B. The Speaker

Dimensions: 20-9/16" W x 12-3/4" H x 12-7/8" D
Weight: 33 pounds
Nominal Impedance: 8 ohms

C. Percentages of Direct and Reflected Sound Radiation

Power radiated by reflection: 89%
Power radiated directly: 11%

(Design percentages based on concert hall acoustics)

D. Power Handling

Continuous sine wave power at any frequency: 50 watts
Minimum recommended amplifier power: 25 watts rms per channel into 8 ohms
Peak power handling ability (less than five seconds): 400 watts
Maximum recommended amplifier power for speech and music: 270 watts rms into 8 ohms

E. Damping Factor

Any amplifier with a damping factor of 40 or higher meets the requirements of the 901. (The wire size recommendations of Table 1 on Page 4 must be followed.)

F. Driver Complement

Each unit contains 9 high-compliance full-range drivers with high energy magnets to allow large excursions without audible distortion on any program material. The drivers are acoustically coupled to eliminate audible resonances.

Nominal driver diameter: 4-1/2"

Maximum driver excursion: $\pm 1/4$ "

Nominal driver impedance: 8 ohms

Weight of each ceramic magnet: 9.6 ounces

G. The Active Equalizer

Dimensions: 2-13/16" H x 9-1/4" W x 6-3/4" D

Input Impedance: 150k ohms

Output Impedance: less than 100 ohms

Minimum Load Impedance: 5k ohms

Maximum Output Voltage: 4.0 volts

Maximum Gain: 18 dB at 35 Hz.

VII. ACCESSORIES AND OPTIONS

WALNUT FACINGS

The BOSE 901 is available with walnut facings, to provide the rich look of walnut grain around the entire cabinet. The small grille panel on each speaker front allows a choice of fabrics. Walnut facings are available as a separate add-on kit.

PEDESTALS.

Specially designed pedestals are available for the 901. They are 18 inches high, and available in either white or black.

EQUALIZER CUSTOM MOUNTING KIT

A special Equalizer Custom Mounting Kit is available for custom installation of the Equalizer in a cabinet or wall. (Order Part Number 103491 for your 901 Series II Equalizer.)

For additional information on these accessories, contact your authorized BOSE dealer.

VIII. FIVE YEAR WARRANTY

We warrant the BOSE 901 speaker system to be free from defects in material and workmanship. BOSE will replace any defective part and correct any defect in workmanship or performance, without charge for either parts or labor. The obligation of BOSE under the terms of this warranty is effective only if the defect develops in a normal installation, under normal use and service, within a period of FIVE years from the date of purchase, subject to the following terms and conditions:

1. You purchased your BOSE system new from an authorized BOSE dealer. Proof of purchase by original sales slip or otherwise is required to expedite repairs under warranty.
2. The speaker is used in accordance with instructions in Owner's Manual.
3. Such defect was not caused by abuse, neglect or accident, and no unauthorized repairs have been made.
4. Our responsibility is limited to the repair and replacement of units properly packed and returned PREPAID to the BOSE Factory or BOSE Factory-Authorized Service Agencies. Return freight charges will be paid by BOSE.

Shipping cartons can be obtained from BOSE Dealers or the BOSE Factory. ANY DAMAGE IN TRANSIT due to improper packing is not covered by the warranty and will not be recognized as an insurance claim by our transportation companies. DO NOT SHIP BOSE SPEAKERS PARCEL POST.
5. We assume no liability for installation labor or consequential damages.
6. All service must be provided by BOSE Factory or Factory-Authorized Service Agency. Failure to comply invalidates your warranty.
7. The serial number must not be defaced, removed, or otherwise obliterated, and must correspond to the number on the completed Warranty Card on file with BOSE.

There are no warranties, expressed or implied, other than as stated above.

SHOULD YOUR UNIT APPEAR TO BE DEFECTIVE, DO NOT RETURN THE UNIT TO THE FACTORY. TAKE THE UNIT TO YOUR DEALER. HE WILL ARRANGE FOR REPAIRS.

IF IT BECOMES NECESSARY TO RETURN YOUR UNIT TO THE FACTORY, DO NOT RETURN YOUR SPEAKERS WITHOUT FIRST RECEIVING A RETURN AUTHORIZATION NUMBER.

BOSE

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