

INSTALLATION AND OPERATION MANUAL

STRATOPHONIC SERIES

MODELS SR300B AND SR400B



A SUBSIDIARY OF THE JERROLD CORPORATION

SOLID-STATE STEREOPHONIC RECEIVER

YOUR NEW STRATOPHONIC RECEIVER

SPECIFICATIONS FOR SR300B AND SR400B STRATOPHONIC RECEIVERS

A. Amplifier		B. Tuner	
Music Power Output at 4 ohms	60 watts	Useable Sensitivity	2.9 μ v
Full Power Bandwidth	8-40 KC	Image Rejection better than	45 db
Harmonic Distortion 20-20KC	less than 1.0%	Spurious Response Rejection better than	60 db
Frequency Response ±1db	5-60 KC	Distortion better than	0.5%
Damping Factor	25:1	Multiplex Separation	30 db
Square Wave Rise Time	5.0 μ s	Antenna Impedance	300 ohms
Hum and Noise	90 db	C. General	
Input Sensitivity Phono	2.5 mv	Input Receptacles: Magnetic Phono	2
Auc.	200 mv	Auxiliary	2
Tone Controls	+14 db, -10 db	Output Receptacles Tape Out	2
Speaker Impedance	4-16 ohms	D. SR400 Only	
		AM sensitivity:	50 μ v per meter.
		Selectivity:	10KC bandwidth at 6 db points.
		IF rejection:	55 db.

We know how anxious you are to try your new Stratophonic Receiver. But a few extra moments of patience spent in carefully reading this instruction book will pay vast dividends in the ultimate enjoyment of your component.

It is customary, at this time, to congratulate you on the wise decision you have made in the purchase of your new Stratophonic Solid-State Receiver. This, we most certainly do.

You should also know that it is the culmination of several years of intensive research in solid-state technology. Your Stratophonic Receiver is *literally* born of space-age development.

Thus, you have invested in the finest stereophonic integrated music center available. It truly represents the state-of-the-art in its ability to reproduce life-like music. And, because of advanced solid-state reliability and construction, your new Stratophonic Receiver will continue to provide the ultimate subtleties of every musical nuance.

But, this alone is not enough. Your new Stratophonic Receiver has also been designed for maximum versatility. The simple movement of a switch or control makes you master of every program source—tape, disc and FM—mono and stereo. And, Harman-Kardon designers have endeavored to make your Stratophonic Receiver a major asset to home decor.

Now, go on to a new experience—Stratophonic Sound—*the experience of hearing music as you have never heard it before.*

KEEP THIS BOOK AVAILABLE AT ALL TIMES FOR IT CONTAINS
INDISPENSABLE TECHNICAL AND SERVICE INFORMATION.

General Information

UNPACKING

After unpacking your receiver, inspect it carefully for signs of transit damage. The receiver was subjected to numerous rigid quality control inspections and therefore should be in perfect operating condition. If damage is visible, notify your dealer at once. If the receiver was shipped to you, notify the transportation company. Harman-Kardon will cooperate with you in such instances, but please note that only you can recover from the carrier for damages incurred during shipment.

WARRANTY POLICY

We urge you to fill in your warranty card and mail it to the factory without delay to protect your rights under warranty. The Harman-Kardon warranty is not valid unless we have your card on file.

WARRANTY

We warrant each SR300 - SR400 to be free from defects in material and workmanship under normal use and service, and in accordance with the conditions herein below set forth, for a period of 2 years from date of delivery to the original purchaser, and agree to replace or repair any part or parts, returned to us within said 2 years, with transportation prepaid and which our examination shall disclose to our satisfaction to have been thus defective. This warranty does not include free labor, nor is it applicable to any instrument which shall have been repaired or altered in any way so as in our judgment to affect its stability or reliability nor which has been subject to neglect, misuse, abuse, negligence or accident nor which has had the serial number altered, effaced, or removed. Neither shall this warranty apply to any instrument which has been connected otherwise than in accordance with instructions furnished by us.

This warranty is expressly in lieu of all other warranties, express or implied, and of all other obligations or liability on our part, and we neither assume nor authorize any representative or other person to assume for us any other liability in connection with the sale of this instrument.

SERVICE POLICY

Harman-Kardon has established a special consumer division to answer all questions pertinent to the installation and operation of your unit. Please feel free to

write us at any time and we will endeavor to offer prompt and complete advice.

If your problem cannot be resolved through our combined efforts we may wish to refer you to one of our authorized warranty stations. The unit must be shipped via Railway Express, Prepaid to the station designated, accompanied by a brief note describing the exact nature of the difficulty. *Under no circumstances should the set be shipped directly to the factory without prior authorization.*

Installation Procedure

VENTILATION

Sufficient space must be allowed around the receiver to permit unrestricted air flow for maximum circulation. This will insure low operating temperatures which will result in extended component life.

The receiver chassis is constructed of aluminum together with a heavy gauge aluminum rear panel which acts as a heat sink (a device which dissipates heat) for the output transistors. This area will become hot under normal use. This is normal and should not be cause for concern. Do not place books or other objects on the cage or in the immediate vicinity of the receiver.

When mounting your receiver into an equipment cabinet the following precautions must be observed.

1. Allow at least 3 inches above the top of the unit.
2. Allow at least 1 inch on each side of the chassis.
3. Cut the mounting shelf in accordance with the instructions on the mounting template.
4. Leave the back of your equipment cabinet open to insure proper ventilation.

POWER REQUIREMENTS

Connect the AC line cord into any outlet furnishing 117 volts, 50 or 60 cycle AC current. The voltage may vary between 105 and 125 volts. An AC convenience outlet is located on the rear panel of the receiver. This outlet is "switched" and is controlled by the on/off switch on the front panel. Any auxiliary equipment may be plugged into this outlet. The rating of this equipment should not exceed 200 watts.

CONNECTING THE SPEAKERS FOR STEREO OPERATION (1 SYSTEM)

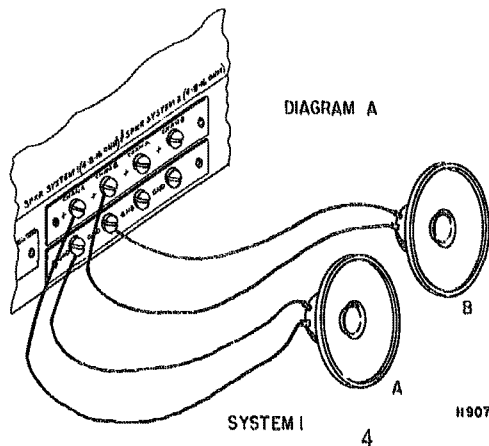
Your two speakers should be identical, if possible, to obtain optimum results. Experts agree that a perfectly matched system offers the best stereophonic reproduction. The speakers should be placed along the same wall approximately 8 to 10 feet apart depending upon room size and furniture placement. It may be necessary to experiment with speaker placement until best results are obtained.

Use any type of wire to connect your speakers to your receiver. Lamp cord "zip cord" is excellent and may be easily dressed around the molding for an inconspicuous and neat installation. Do not drive the staples or tacks through the center of the wire for this may short out the two sections and will decrease the overall volume or short out the speakers entirely. It is permissible to use approximately 50 feet of speaker connecting wire for each speaker without loss of volume. **CONNECT SPEAKERS WITH CARE. AVOID SHORTS—RECEIVER HAS BEEN DESIGNED TO PREVENT DAMAGE FROM ACCIDENTAL SHORTING; HOWEVER, REPETITIVE SHORTING CAN DAMAGE TRANSISTORS.**

1. Connect one length of lamp cord to the left speaker. (This is the speaker on your left as you face the speakers. This speaker will now be referred to as Channel A.)

2. Attach the other end of the lamp cord to the terminals marked SYSTEM 1 CHAN A located on the rear of the receiver.

3. Similarly connect another length of lamp cord to your right speaker. (This speaker will now be referred to as Channel B.)



CONNECT SPEAKERS WITH CARE—AVOID ACCIDENTAL SHORTS

4. Attach the other end of the lamp cord to the terminals marked SYSTEM 1 CHAN B.

5. Your receiver is now connected for 1 system stereo operation and is operative when the speaker selector switch on the front panel is in the System 1 or System 1 & 2 position.

SPEAKER PHASING

When more than one speaker is used in any music reproducing system the speakers must be connected in a manner to work together rather than work out of phase. If one speaker is pushing air out while the other is moving in the opposite direction this will result in diminishing bass response. Checking for proper phase and correcting if necessary is quite simple.

1. Place a stereophonic recording on your record player.

2. Place the Function switch in the Phono Mono position for monophonic playback.

3. Play the record. The sound should emerge from approximately the center area between the two speakers.

4. While the record is playing place the Function switch in the Phono Stereo position.

5. The sound should now move across the wall of the room and should appear to come from both speakers as well as the center.

6. If your speakers are out of phase, the sound source will not pinpoint itself between the two speakers when the Function switch is in the Phono Mono position. Instead it will appear to come from both sides.

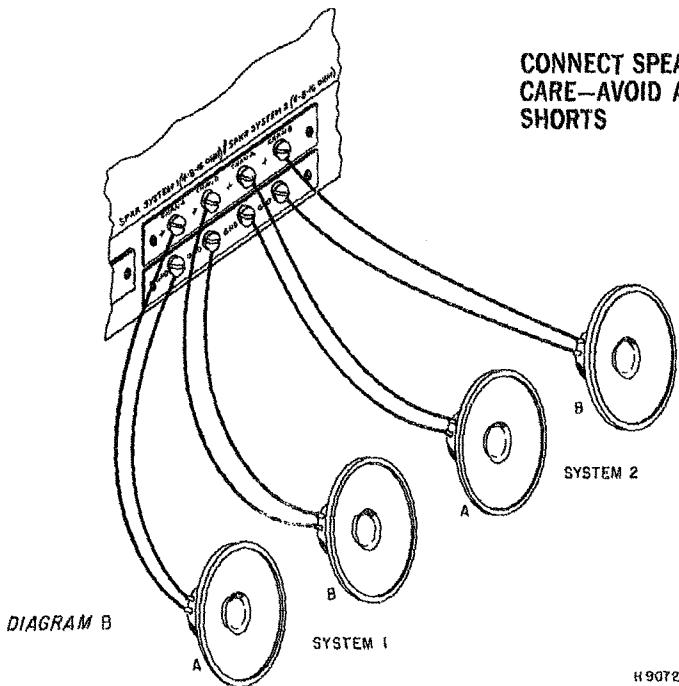
If the speakers are out of phase, turn off the receiver and disconnect both leads from either the left or right speaker and reverse them. Your system will now be in phase.

This completes your speaker connections. Your receiver is a solid state device which does not contain audio output transformers. It is therefore not necessary to match the impedance of your speakers to the receiver. Your unit will perform perfectly with any speaker which has an impedance of 4, 8 or 16 ohms.

CONNECTING THE SPEAKERS FOR STEREO OPERATION (2 SYSTEMS)

1. Connect all 4 speakers for your two system operation as shown in Diagram B.
2. You may now select either system 1, system 1 and 2 or system 2 by the use of the "Speaker Selector Switch" on the front panel.

CONNECT SPEAKERS WITH CARE—AVOID ACCIDENTAL SHORTS



NOTE: WHEN ALL THE SPEAKERS USED IN YOUR 2 SYSTEM CONNECTION ARE 4 OHMS, CONNECT A 2 OHM, 10 WATT RESISTOR IN SERIES WITH THE HOT SIDE OF EACH OF THESE SPEAKERS. (IF TWO OF THE SPEAKERS ARE 4 OHMS AND 2 OF THE SPEAKERS ARE ANY HIGHER IMPEDANCE THIS PRECAUTION IS NOT NECESSARY.)

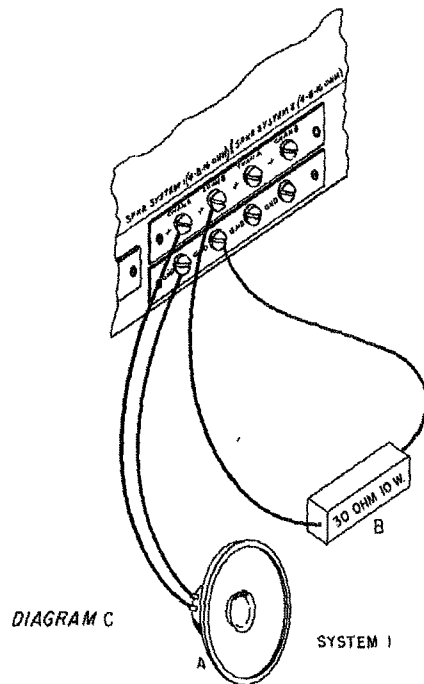
CONNECTING THE SPEAKERS FOR MONOPHONIC OPERATION (1 SYSTEM)

If your receiver is to be used monophonically and stereo is to be added at a later date, it is essential that both speaker output terminals are terminated into a proper load to prevent damage to the output stage of the receiver. Refer to Diagram C for proper installation of the loading resistor.

At no time should the output terminals be paralleled for monophonic operation!

THIS IS THE ONLY CORRECT METHOD FOR CONNECTING ONE SPEAKER TO YOUR RECEIVER

CONNECT SPEAKERS WITH CARE—AVOID ACCIDENTAL SHORTS

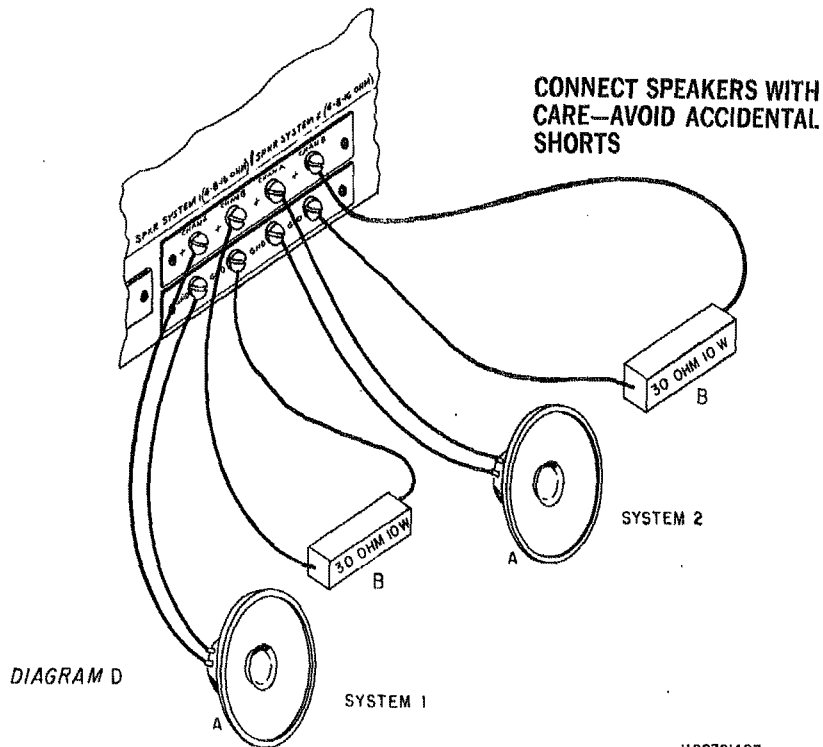


CONNECTING THE SPEAKERS FOR MONOPHONIC OPERATION (2 SYSTEMS)

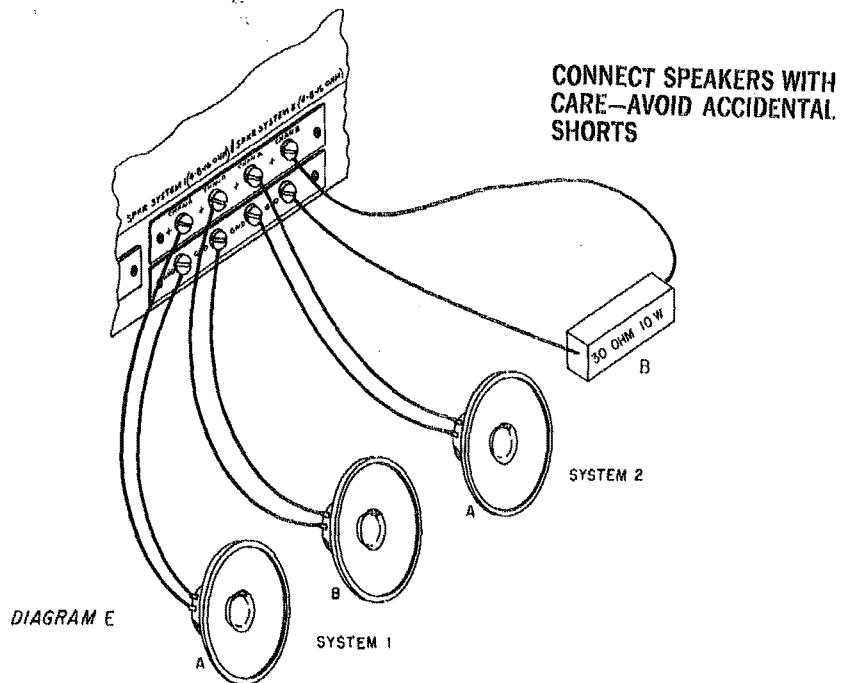
If your receiver is to be used monophonically and stereo is to be added at a later date, it is essential that both speaker output terminals are terminated into a proper load to prevent damage to the output stage of the receiver. Refer to Diagram D for proper installation of the loading resistors.

At no time should the output terminals be paralleled for monophonic operation!

THIS IS THE ONLY CORRECT METHOD FOR CONNECTING TWO SPEAKERS MONOPHONICALLY TO YOUR RECEIVER



CONNECTING THE SPEAKER FOR STEREOPHONIC OPERATION (SYSTEM 1) AND MONOPHONIC OPERATION (SYSTEM 2)



STEREO HEADPHONE RECEPTACLE

The stereo headphone receptacle located on the front panel will accept any headphone with any impedance rating. To activate the headphone receptacle, the Speaker Selector switch must be in the "Phones" position. For speaker operation, throw the Speaker Selector switch to either the system 1, 1 and 2 or 2 positions, depending on the number of speakers connected in your system.

CONNECTING THE FM ANTENNA

Due to the exceptionally high sensitivity of your receiver the 48" wire supplied is sufficient for all but the most difficult locations. The balanced antenna input is designed to accept a 300 ohm antenna, indoor or outdoor type.

When using the antenna supplied connect one end of the 48" wire to either of the FM antenna terminals. Horizontal placement of the antenna offers maximum polarization for optimum reception. The antenna may be tacked to the back of your hi-fi cabinet, to the molding behind the equipment or to the shelf you use.

In more remote locations, an outside Yagi, folded di-pole or omni-directional antenna is recommended (Jerrold/Taco FMP 8, FMP 10, FMP 16, CM677). For the greatest gain, an 8 to 14 element Yagi designed for the FM band is suggested. A Yagi, however, is very directional and it may be desirable to use an antenna rotor if a full 360° coverage is required. For reception in the suburbs, an outside folded di-pole or omni-directional di-pole is recommended.

CONNECTING THE AM ANTENNA (SR400 ONLY)

The AM loopstick fastened on the rear of the SR400 comprises all the antenna usually required for normal signal areas. In more remote locations an additional outdoor antenna may be required. This should consist of a single wire, as long as is reasonably practical. It must be kept away from large metal objects, power lines or electrical machinery to insure reception without extraneous noise. Attach this length of wire to the AM terminal on the ANTENNA TERMINAL STRIP.

CONNECTING A STEREO RECORD PLAYER — (MAGNETIC PICKUP)

Connect both leads from your record player to the CHAN A and CHAN B PHONO MAG input receptacles on the rear of the receiver chassis. If your record player has a special ground wire emerging with the two input leads, connect this ground wire to the ground terminal on the rear of the receiver.

CONNECTING A MONOPHONIC RECORD PLAYER — (MAGNETIC PICKUP)

Connect the single lead from your monophonic record player to either the A or B PHONO MAG input receptacles on the rear of the receiver chassis.

CONNECTING A STEREO TAPE RECORDER

Since most stereo tape recorders include their own record and playback pre-amplifiers, it is not desirable to connect the output of the recorder into any low level input receptacles. This will result in overloading of the low level stage and cause distortion.

Connect the two tape recorder output leads to the CHAN A and CHAN B TAPE AMP/AUX receptacles on the rear panel of the receiver. This will enable you to play back your stereo tapes.

To make a recording, connect the inputs of your recorder to the CHAN A and CHAN B TAPE OUT receptacles. This will enable you to make a stereophonic recording with the proper recording equalization as determined by your recorder, while simultaneously listening to the program material through your speaker system. The recording signals from the TAPE OUT receptacles are unaffected by the tone controls or volume setting of the receiver to insure an absolutely flat response.

CONNECTING A MONOPHONIC TAPE RECORDER

If a monophonic tape recorder is to be used with your receiver connect the recorder output to either the CHAN A or CHAN B AUX input receptacle located on the rear panel. This will enable you to play back your monophonic tapes.

If your recorder is stereo playback but records monophonically, connect the output as described in the previous section on connecting a stereo tape recorder. Connect the input for recording monophonically as described below.

Connect the input of your recorder to either the CHAN A or CHAN B TAPE OUT receptacle. This will enable you to record monophonically while simultaneously listening to the program through the receiver and speakers.

Operation Procedure

Every control on this receiver serves a specific useful function and is important for the proper operation of your stereo system. *It is important to note that under no circumstances should this receiver be operated without either a speaker or resistive load across both the output terminals.*

ON/OFF SWITCH

The power switch is located on the volume control. In the full counter-clockwise position the receiver is off. Rotate the control clockwise to turn the receiver on.

TUNING CONTROL

The TUNING CONTROL is located directly to the right of the dial glass and is used to select the desired station.

TUNING METER

Your receiver incorporates a D'Arsonval movement tuning meter for precise tuning. The TUNING METER is used to tune to the center of the station channel and proper tuning is achieved when you are on a station and the TUNING METER is at maximum.

VOLUME CONTROL

The VOLUME CONTROL on your receiver is essentially two controls in one, mechanically tied together, to be operated by one knob. The volume control varies both channels simultaneously and is used to adjust the volume level of program material fed into the stereo system. Its effect can be modified by the special Harman-Kardon CONTOUR switch.

BALANCE CONTROL

The nature of stereophonic reproduction is such that it requires two identical channels to attain the highest degree of faithfulness and spatial distribution. Any variation in the efficiency of one channel as compared to the other will disturb this relationship. As there may be slight differences between the two speakers, tape heads, cartridge coils, etc., your receiver includes a special control to balance one channel against the other. Sufficient range is covered by this control to permit rebalancing of the overall system even in extreme cases where unbalance exists.

It should be noted that the BALANCE control may be set anywhere within its range of adjustment to attain system balance.

BASS AND TREBLE TONE CONTROLS

The BASS and TREBLE tone controls on your receiver provide the full range of tonal adjustment necessary for stereo high fidelity listening. The tone control range is considerable and can adequately adjust the low and high frequencies in accordance with your listening preference, speaker characteristics and room acoustics.

FUNCTION SELECTOR SWITCH

The FUNCTION SELECTOR switch selects the desired type of program source. The switch on the SR300 has five switching positions. The switch on the SR400 has six switching positions.

1. PHONO MONO. This position selects your record player, (magnetic pickup) for monophonic playback and includes RIAA equalization.
2. PHONO STEREO. This position selects your record player, (magnetic pickup) for stereophonic playback and includes RIAA equalization.
3. TAPE AMP/AUX. This position selects any high level equipment, such as an AM tuner, the output of your television set or any other high level signal which is connected to the AUX receptacles on the rear of the receiver.
4. FM MONO. In this position you can listen to stereophonic broadcasts monophonically. Monophonic programs will appear unchanged.
5. FM STEREO. This is the normal listening position for all monophonic and stereophonic FM Broadcasts. In this position the stereo indicator light and the STEREO switching circuit built into your receiver are operative.
6. AM (Model SR400 only) this position selects the AM section of your receiver for AM reception.

CONTOUR SWITCH

One of the limitations of human hearing is its tendency to lose sensitivity to the very low pitched sounds as the program sound level is reduced. It is this characteristic (known as the Fletcher-Munson effect) which causes one to play music programs at high listening levels in order to experience the full rich tone available from fine modern recordings.

The Harman-Kardon CONTOUR switch compensates for this effect; thereby eliminating high listening levels as a requisite for full enjoyment of reproduced music. For warm, full-bodied reproduction at low listening levels, throw the CONTOUR switch "IN". At high levels, the contour switch has no effect.

TAPE MONITOR SWITCH

If your tape recorder has a special monitoring feature throwing the tape monitor switch to the "in" position will enable you to listen to your tapes a second after they are recorded. When not in use, this switch must be in the "out" position. If your tape recorder does not have any monitoring feature, throwing this switch will result in zero output from your speaker system.

SPEAKER SELECTOR SWITCH

The Speaker Selector Switch is a 4 position switch which selects between headphone or speaker operation. It permits the connection of 2 complete speaker systems (system 1, system 1 and 2, or system 2).

For additional information see the paragraphs on speaker connections.

SELECTING MONOPHONIC OR FM STEREO BROADCASTS

Under normal use the Function Selector Switch should be placed in the FM STEREO MATIC position.

If the receiver is tuned to a monophonic FM broadcast, the special STEREO MATIC circuit *automatically* defeats the multiplex circuitry and the receiver will reproduce monophonic sound through both speakers. Should this station begin to transmit stereo, the STEREO MATIC circuit will *automatically* switch in the multiplex section and you will receive the broadcast in full stereo through your speakers. Should the station conclude broadcasting in stereo, your SR300 receiver will *automatically* switch back to monophonic reception.

The exclusive Harman-Kardon STEREO MATIC circuit is always operative—even as you tune across the FM dial. As you tune to a stereophonic broadcast the STEREO MATIC circuit *automatically* switches your receiver to the stereophonic mode of operation—and back to monophonic as the stereo station is passed.

Should you receive a weak stereo signal whose quality has been degraded by noise or excessive multipath, and you wish to listen to this stereo broadcast, monophonically, place the function selector switch in the FM MONO position.

STEREO INDICATOR LIGHT

A Stereo indicator light is located directly behind the FM dial glass and operates in conjunction with the FM STEREO MATIC position of the Function switch. The light visually indicates the reproduction of stereo through your receiver.

To tune for FM stereo proceed as follows:

1. Place the function selector switch in the FM STEREO MATIC position.
2. Tune carefully to the desired station, using your tuning meter for maximum deflection. Your stereo indicator light will now glow if you are tuned to a stereo program.

Special Technical Information

DIAL SCALE

The Dial Scale on your receiver is marked with the appropriate frequency and logging scales for your particular model.

On Model SR300, an FM frequency scale (88-108 MC) and a logging scale (0-100).

On Model SR400, an FM frequency scale (88-108 MC), an AM frequency scale (55-160 KC) and a logging scale (0-100).

Since most FM stations operate on frequencies which are not whole numbers (such as 96 MC as compared to 96.3) ideally each megacycle division on the frequency scale should be divided into 10 parts to enable the user to pinpoint the location of the station. This would require a dial scale which would be longer than the front panel.

The logging scale which is divided into 100 equal parts provides a means of finding your favorite station, once you have noted its position on the logging scale. For example, in New York City, WQXR operates on 96.3MC. After locating this station through the use of the frequency scale (between 96 and 98 MC), you find that the pointer falls on 46 on the logging scale. Make a note of this setting and when you next want to tune to WQXR, all that is necessary is to set the pointer to 46 on the logging scale.

EQUALIZATION

In order to achieve good reproduction of the wide range of frequencies in music and to make necessary adjustments for the limitations of the recording technique, record manufacturers have found it necessary to modify the actual frequency response of the music while it is being recorded. Thus, to avoid over-cutting and consequent distortion, a measured and deliberate reduction is effected in low frequency response by selecting a "turnover frequency" and by recording attenuated response below that point. To assure optimum signal to noise at the

high frequency end when the record is played at home, the highs are deliberately exaggerated during the recording process. A measured and deliberate boost is effected above a certain frequency. This combination of deliberate exaggeration at the low and high ends of the frequency response can be expressed in a recording curve. When the record is played a mirror image of that curve should be available so that the ideal "flat" response may be achieved.

The PHONO positions of the Function Selector automatically select the proper equalization that is required.

HUM AND NOISE

In any high fidelity installation, hum may be caused by the interconnection of a record player, tuner and amplifier, as a result of the cables and different grounds. If hum is experienced with your receiver, disconnect everything but the speakers from the receiver. If hum persists, reverse the AC line cord. Plug in the record player and if hum appears, reverse the record player power plug and connect a single lead from the record player chassis to the ground post on the rear of the receiver chassis. Connect your other devices in this manner. CAUTION: Hum may be also induced by defective connecting cables or by running these cables too close to a strong AC field.

FUSES

Your receiver is protected by a 2½ amp-3AG fuse. In the event of fuse failure replace ONLY with the same type used. Replacing with a fuse of a higher rating will not protect the instrument and may result in severe damage.

SERVICE

If this instrument should not perform properly during the first two years after date of purchase, contact the factory for instructions. The factory has many authorized warranty service stations in the United States, and for the station nearest you, please write our Customer Service Department, Harman Kardon, Inc. Plainview, Long Island, New York. Be sure to include the model and serial number of the unit. A brief description of your other components is often of help in answering your questions. DO NOT return this instrument to Harman Kardon without first receiving authorization.