

INSTALLATION AND OPERATION MANUAL

# STRATOPHONIC SERIES

MODEL SR900B

**harman kardon**

**harman kardon**

A SUBSIDIARY OF THE JERROLD CORPORATION

**SOLID-STATE STEREOPHONIC RECEIVER**

## SPECIFICATIONS FOR SR900B STRATOPHONIC RECEIVER

<b>A. Amplifier</b>		<b>B. Tuner</b>	
Music Power Output at 4 ohms	100 watts	Useable Sensitivity	1.85 uv
Full Power Bandwidth	5-60 KC	Image Rejection better than	70 db
Harmonic Distortion 20-20KC	less than 0.2%	Spurious Response Rejection better than	85 db
Frequency Response ±1db	2-100 KC	Frequency Response	±0.5 db
Damping Factor	40:1	Distortion better than	0.3%
Square Wave Rise Time	2.5 us	Multiplex Separation	40 db
Hum and Noise	95 db	Antenna Impedance	300 ohms
Input Sensitivity		<b>C. General</b>	
Phono	2.5 mv	Input Receptacles:	
Tape Head	2.9 mv	Magnetic Phono	2
Aux.	200 mv	Tape Head	2
Tone Controls	+14 db, ---10 db	Ceramic Phono	2
Speaker Impedance	4-16 ohms	Auxiliary	2
High Cut Filter	---6 db at 10 KC	Tape Monitor	2
Low Cut Filter	---10 db at 50 cps	Output Receptacles	
		Tape Out	2

## YOUR NEW STRATOPHONIC RECEIVER

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 the SR900, 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 Haman-Kardon warranty is not valid unless we have your card on file.

### WARRANTY

We warrant each SR900 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 SR900 to permit unrestricted air flow for maximum circulation. This will insure low operating temperatures which will result in extended component life.

The SR900 chassis is constructed of steel 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 SR900 into an equipment cabinet the following precautions must be observed.

1. Allow at least 3 inches above the top cover 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

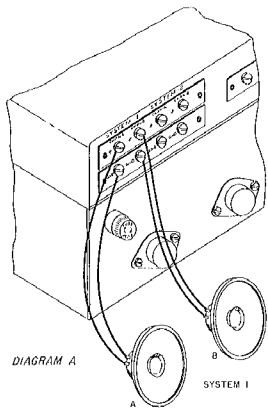
Connect the AC line cord into any outlet furnishing 117 volts, 50 or 60 cycle AC current. The voltage may vary between 105 and 125 volts. An AC convenience outlet is located on the rear panel of the receiver. This outlet is "switched" and is controlled by the on/off switch on the front panel. Any auxiliary 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 the SR900. 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 SR900.
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.

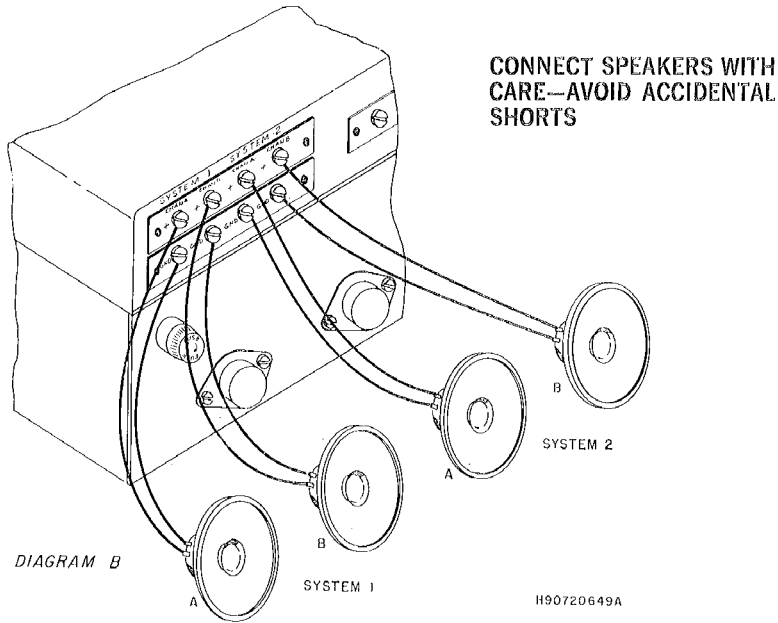
1. Place a stereophonic recording on your record player.
2. Pull the "Stereo-Mono" switch on the BALANCE control to its "Out" position for monophonic playback.
3. Play the record. The sound should emerge from approximately the center area between the two speakers.
4. While the record is playing push the "Stereo-Mono" switch "In" to the stereophonic 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 Stereo-Mono switch is in the monophonic 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. The SR900 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. The SR900 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.



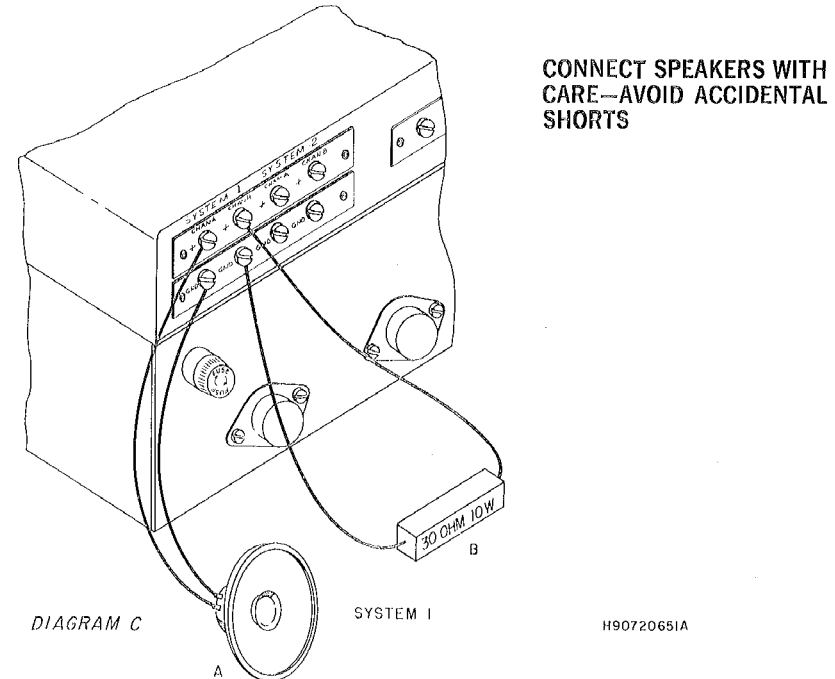
NOTE: WHEN ALL THE SPEAKERS USED IN YOUR 2 SYSTEM CONNECTION ARE 4 OHMS, CONNECT A 2 OHM, 10 WATT RESISTOR IN SERIES WITH THE HOT SIDE OF EACH OF THESE SPEAKERS. (IF TWO OF THE SPEAKERS ARE 4 OHMS AND 2 OF THE SPEAKERS ARE ANY HIGHER IMPEDANCE THIS PRECAUTION IS NOT NECESSARY.)

## CONNECTING THE SPEAKERS FOR MONOPHONIC OPERATION (1 SYSTEM)

If the SR900 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 THE SR900

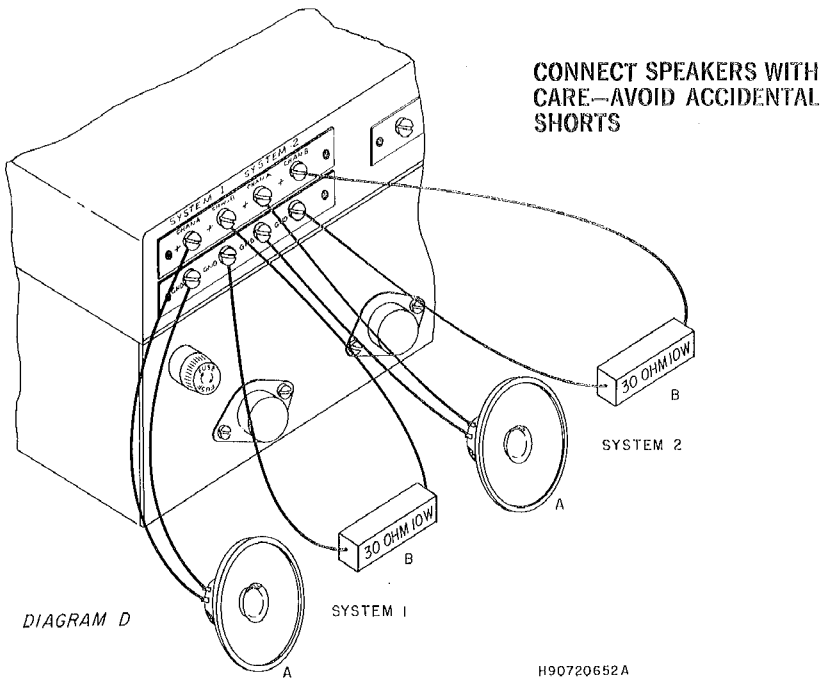


**CONNECTING THE SPEAKERS FOR MONOPHONIC OPERATION (2 SYSTEMS)**

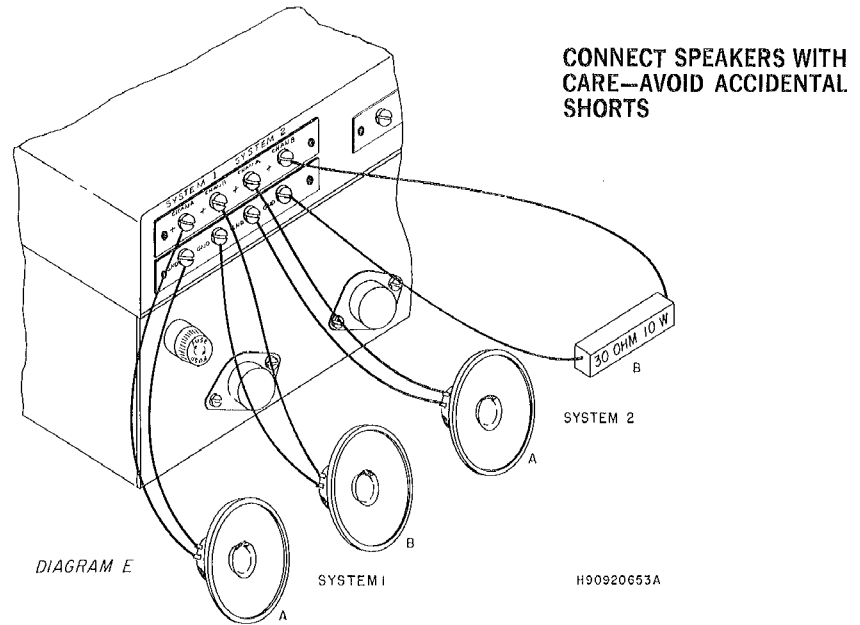
If the SR900 is to be used monophonically and stereo is to be added at a later date, it is essential that both speaker output terminals are terminated into a proper load to prevent damage to the output stage of the receiver. Refer to Diagram D for proper installation of the loading resistors.

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

**THIS IS THE ONLY CORRECT METHOD FOR CONNECTING TWO SPEAKERS MONOPHONICALLY TO THE SR900**



**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 the SR900 the folded dipole supplied with the receiver 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, spread the dipole so that it forms a "T" shape. The stem of the "T" ends in two screw terminal connections, and these should be connected to the 300 ohm and GND terminals on the Antenna Terminal Strip. 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. Use ordinary tacks through the center portion of the antenna leads to avoid shorting out the antenna.

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 A STEREO RECORD PLAYER — (MAGNETIC PICKUP)

Connect both leads from your record player to the CHAN A and CHAN B PHONO LO input receptacles on the rear of the SR900 chassis. If your record player has a special ground wire emerging with the two input leads, connect this ground wire to the special GND terminal on the rear panel.

## CONNECTING A STEREO RECORD PLAYER — (CRYSTAL OR CERAMIC PICKUP)

Connect both leads from your record player to the CHAN A and CHAN B PHONO HI input receptacles. There is usually no ground lead emerging from the record player when a ceramic or crystal cartridge is used. However, if your record player does use a ground lead, connect it to the special GND terminal located on the rear panel.

## CONNECTING A MONOPHONIC RECORD PLAYER

Connect the single lead from your monophonic record player to either the A or B PHONO LO input if your player uses a magnetic pickup, or to the A or B PHONO HI input if it uses a ceramic or crystal pickup.

## CONNECTING A STEREO TAPE DECK

A stereophonic tape deck has two output leads. Connect these leads to the CHAN A and CHAN B TAPE HEAD input receptacles on the rear of the receiver. Should you desire to play back a monophonic tape on your stereophonic tape deck, throw the FUNCTION SWITCH to the TAPE HEAD MONO position.

## CONNECTING A MONOPHONIC TAPE DECK

Connect the shielded lead from your tape deck to the CHAN A TAPE HEAD input receptacle on the rear of the receiver and throw the FUNCTION switch to the TAPE HEAD MONO position.

## 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 the TAPE HEAD or any of the other 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 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 SR900 to insure an absolutely flat response.

## CONNECTING A MONOPHONIC TAPE RECORDER

If a monophonic tape recorder is to be used with the SR900, 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.

## TO MONITOR YOUR TAPES WHILE RECORDING

Connect the monitoring head of your tape recorder to the TAPE MON receptacles on the rear of the receiver chassis. Connect in accordance with the instructions supplied by the recorder manufacturer.

## 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 illuminated push-button power switch is located in the lower left hand corner of the receiver. Depress the amber button to turn the receiver on. Depress again to turn the receiver off. When the receiver is on, the push-button will glow softly.

### TUNING CONTROL

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

### TUNING METER

The SR900 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 the SR900 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., the SR900 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 the SR900 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 SR900 has six switching positions.

1. TAPE HD MONO. This position selects your tape deck for monophonic playback, and includes NARTB equalization.
2. TAPE HD STEREO. This position selects your tape deck for stereophonic playback and also includes NARTB equalization.
3. PHONO. This position selects your record player (magnetic, crystal or ceramic pickup) for playback and includes RIAA equalization.
4. FM MONO/STEREOLOGIC. This is the normal listening position for all monophonic and stereophonic FM broadcasts. In this position the Stereo Indicator Light and the automatic switching circuit built into your receiver are operative.
5. FM STEREO. This position selects FM stereo without the automatic switching circuit.
6. 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.



## 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.

## 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 head, throwing this 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.

## LOW CUT SWITCH

At times, record changers, turntables and even some FM stations produce an objectionable low frequency signal that is strong enough to be introduced into the playback system. This is known as rumble and can be cancelled out by the special low frequency cut off filter network included in this receiver. Whenever rumble is present throw the LOW CUT switch "IN".

## HIGH CUT SWITCH

In the event of objectionable high frequency scratch, throw the HIGH CUT switch located on the front panel "IN." This will roll off the higher frequencies and will clear up the program material considerably.

This switch may also be used when listening to FM reception. It may be useful when listening to a stereophonic FM broadcast which is slightly noisy. Throwing the HIGH CUT switch "IN" will eliminate the noise.

## STONE CONTROL SWITCH

This switch, when in the "OUT" position completely defeats the tone control circuit to provide absolutely flat response. When activated the tone controls are "IN" the circuit and can be adjusted to your own listening preference.

## MUTING SWITCH

The purpose of the muting circuit is to reduce audible noise when tuning from station to station. Since very weak signals may be muted at the same time, the front panel MUTING switch may be used to defeat the muting circuit on weak signals.

To reduce interstation noise, throw the MUTING switch "ON". To defeat the circuit, throw the switch "OFF".

## STEREO-MONO SWITCH

The STEREO-MONO switch is physically located as a "PUSH-PULL" function on the "BALANCE" control.

When the switch is in the "IN" position the receiver is operating stereophonically. When the switch is pulled to the "OUT" position the receiver is operating monophonically. This position may be used when listening to monophonic records, or when it is desired to reproduce a stereo program, such as an FM stereo broadcast, monophonically.

## SELECTING MONOPHONIC OR FM STEREO BROADCASTS

Under normal use, the FUNCTION selector switch should be placed in the FM MONO/STEREOLOGIC position.

If the receiver is tuned to a monophonic FM broadcast, the special STEREO LOGIC circuit will *automatically* defeat the multiplex circuitry and the tuner will reproduce monophonic sound through both channels. Should this station begin to transmit stereo, the logic circuit will *automatically* switch in the multiplex section and you will receive the broadcast in full stereophonic sound. Should the station conclude broadcasting in stereo, your SR900 receiver will *automatically* switch back to monophonic reception.

The exclusive Harman-Kardon logic circuit is always operative — even as you tune across the FM dial. As you tune to a stereophonic broadcast, the logic 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, the special STEREO LOGIC circuit will *automatically* change the mode of operation of the receiver to monophonic enabling it to reproduce an undistorted signal. Should you desire to listen to this stereo broadcast in spite of noise and degraded tone quality, place the function selector switch in the FM STEREO position. This defeats the STEREOLOGIC circuit.

### STEREO INDICATOR LIGHT

A stereo indicator light is located directly behind the FM dial glass and operates in conjunction with the STEREOLOGIC circuit. The light visually indicates the reproduction of stereo through your receiver.

### AUTOMATIC STEREO ADJUST CONTROL

This control, located on the rear panel, has been factory adjusted and should not require further readjustment. It adjusts the level at which the automatic logic circuit will switch your receiver from stereophonic to monophonic operation.

If it is necessary to re-adjust this control the following procedure should be followed. Tune to the weakest stereo station which you desire to hear stereophonically. Slowly rotate the automatic stereo adjust control counter-clockwise to the point at which the stereo indicator light on the front panel goes out. Then, slowly rotate the control clockwise to the point at which the light goes on. This is the point at which the control should be set.

### INTERCHANNEL MUTING THRESHOLD ADJUSTMENT

This control is located on the rear of the chassis and should be adjusted as follows: Tune in the weakest station in your area with the front panel FM Muting switch in the "OFF" position. Tune off the station and throw the FM Muting Switch "ON". Rotate the "Muting Adjustment" clockwise. Then rotate counter-clockwise until only a faint hiss is heard. Tune in again to the weak signal. If it still can be heard, and noise present off station is negligible, the adjustment can be considered satisfactory. NOTE: Maximum sensitivity is obtained with the FM Muting Switch in the "OFF" position.

### DIAL SCALE

The SR900 Dial Scale is marked with two scales, a frequency scale (88-108 MC), 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 TAPE HD and 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 the SR900, 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

The SR900 uses three fuses to protect its circuits. The main fuse labeled LINE is used to protect the entire receiver while the other two fuses labeled SPEAKER FUSE CHAN A and SPEAKER FUSE CHAN B are used to protect the output power transistors. 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.

*Line Fuse*—3 Amp—3AG

*Chan A Fuse*—2½ Amp—3AG

*Chan B Fuse*—2½ Amp—3AG

## 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.

## REPLACEMENT PARTS LIST — SR900B

PART NUMBER	DESCRIPTION	LIST PRICE
H65420404	Phono Jack	.15
H66016206	Transistor Socket	.15
H65410901	Fuse Holder	.85
H53012756	Line Cord	.60
C65416751	AC Convenience Outlet	.35
H61220382	Pilot Light Socket	.55
H46512117	Pilot Light #1847	.20
H65420331	Headset Jack	.80
H61021529	Dial Glass	1.95
H60720392	Pointer	.35
H28020512	Terminal Board (No Components)	.30
H60120365	Bottom Plate	5.30
H63420092	Jewel	.20
H60120364	Top Cover	4.30
H63020300	Escutcheon	15.75
H63220287	Knob, Small	.65
H63220286	Knob, Medium	.70
H63220285	Knob, Large	.75
H25520184	Rocker Switch	1.30
H24020203	Speaker Selector Switch	1.95
H21520316	Bass Control	.95
H21520316	Treble Control	.95
H22020375	Balance Control	2.35
H24020314	Function Switch (No Components)	7.60
H22020317	Volume Control	3.45
H23520388	Stereo Threshold Control	.70
H23520388	Muting Adjust Control	.70
H25017216	Power Switch	.60
H10121377	Power Transformer	16.75
H10520420	Driver Transformer	5.20
H31120396	Electrolytic 3000 MFD. 30V.	3.50
H31320395	Electrolytic 3000/30V, 200/30V, 200/15V	4.00
H31321376	Electrolytic 400/60V, 1000/50V, 200/45V	3.45
H31519981	Electrolytic 25 MFD/30V Non-Polarized	.95
H31520461	Electrolytic 2 MFD/25V Non-Polarized	.75
H30821497	Condenser, Variable	3.50

PART NUMBER	DESCRIPTION	LIST PRICE
H00321498	Pre-Selector	7.05
H41020413	Diode 10 Amp --- 100V	2.10
H41013566	Diode .75 Amp --- 100 V	1.75
H42020414	Diode Zener	1.65
H41520419	Diode	1.50
H41514016	Diode (Matched Pair)	(pr) 1.70
H42018109	Diode, Zener	1.25
H43021579	Transistor	6.50
H43021083	Transistor	1.50
H43021017	Transistor	1.40
H43020504	Transistor	4.40
H43020435	Transistor	2.25
H43020735	Transistor	2.10
H43020731	Transistor	2.60
H11016947	FM IF Transformer	1.65
H11016946	FM IF Transformer	1.65
H11020465	FM Ratio Detector	2.70
H12020421	19KC Transformer	2.35
H12020422	38KC Transformer	3.85
H12020423	SCA Filter	3.35
H30910688	Trimmer 1-10 MMF	.40
H23520507	Control, 2500 Ohm Trim	1.10
H36520516	0.27 Ohm 2 Watt 10% Resistor	.20
H45013291	Fuse 3 Amp	.15
H45013895	Fuse 2½ Amp	.15
H12520334	Meter	7.50
H90721328	Instruction Book	2.50
H43022134	Transistor	8.75
H11022133	Transformer (Balun)	.80

NOTE: To speed handling of your order be sure to include both the model and serial numbers which appear at the back of the chassis, in addition to the quantity, part number and part description of the items ordered. Orders from independent dealers, independent servicemen, and retail customers will be shipped on a C.O.D. basis except for orders \$1.00 or less, for which remittance should be enclosed. Prices subject to change without notice. Harman-Kardon reserves the right to substitute equivalent parts for those originally installed in this chassis.

## Primi ampli e sinto-ampli stereo “Solid State”.

Vediamo una prima carrellata dei “pionieri” dell’Hi-Fi “Solid State”. Parliamo di apparecchi con stadi finali al germanio, o anche tutti al germanio, dell’inizio/metà degli anni sessanta, modelli che dovevano faticosamente competere con l’ultima perfezionata generazione a valvole. Non è chiaro quale sia il vero “numero uno” (la Regency TR-1 degli amplificatori a transistor) con caratteristiche ben evidenti. Il volume “Alta fedeltà” di Nicolao e Nicolich riporta, a pag. 396, uno schema della General Electric con trasformatori di uscita e pilotaggio, ma non si capisce se sia un apparecchio commercializzato o solo una proposta collaudata e se sia stereo o mono. E’ un tentativo di catalogazione simile a quanto si può trovare ad esempio sul forum di DIYAudio, magari con l’aggiunta di apparecchi italiani e soprattutto con l’aiuto degli altri appassionati come me.

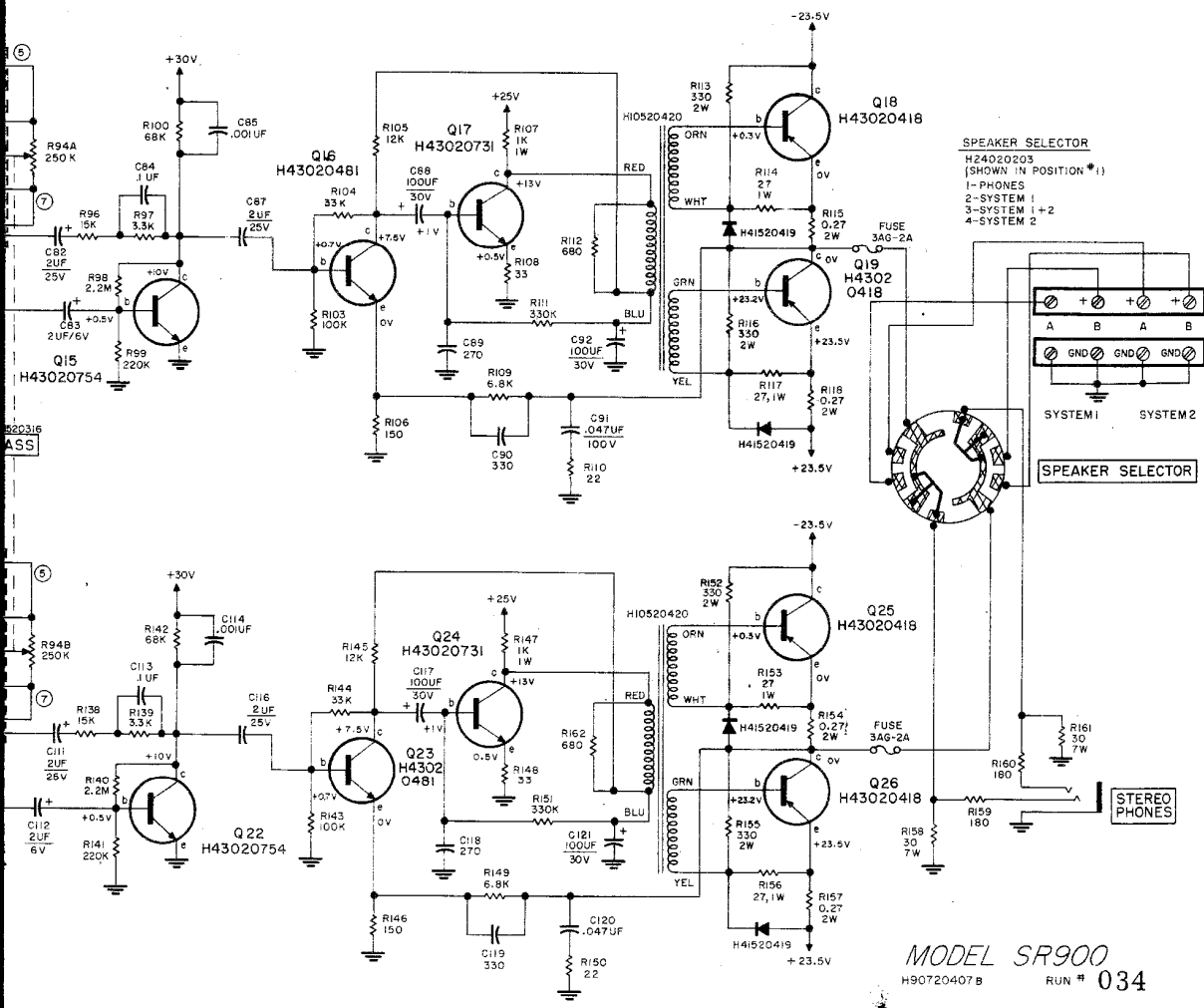
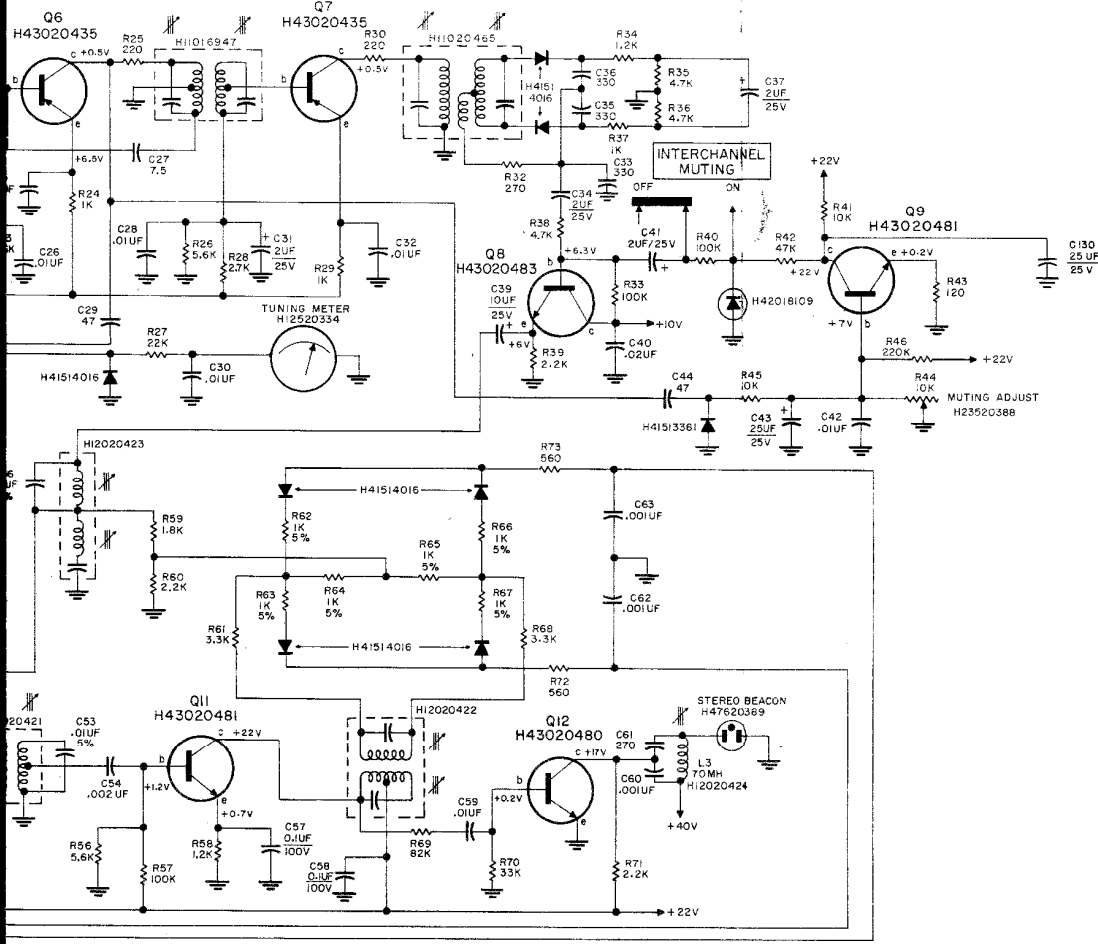
## Harman Kardon SR 900.

Il primo **sinto-ampli** della rassegna è questo splendido **Harman Kardon** del **1964**. Ha tutti i comandi degli apparecchi recenti, compreso quello per escludere i controlli di tono, separati per i due canali, ma è vicino a compiere i 50 anni ! E’ il modello “top” della serie “Stratophonic”, termine che assieme alla “Fender Stratocaster” ci fa immaginare quanto fosse già diventato un mito l’aero-razzo X-15, il primo a volare, appunto, nella stratosfera. Marketing a parte, l’SR 900 è uno dei primissimi sinto-ampli completamente a transistor dove, la bassa frequenza adotta lo schema con i trasformatori per l’inversione di fase, mentre l’accoppiamento finali/altoparlanti è diretto, grazie all’alimentazione simmetrica. I trasformatori (visibili nello schema) sono particolarmente dimensionati e ... smorzati da resistenze di soli 680 Ohm sul primario. La potenza dichiarata è di 25 Watt per canale, e la risposta in frequenza è al limite del credibile (da 5 a 100.000 Hz a 1 Watt). Ma, sembra che a tutti gli esemplari sopravvissuti siano stati sostituiti i finali (evidentemente avevano difetti di origine) e se, come nel mio caso, sono stati montati a suo tempo degli AD149 (sostituzione sbagliata anche per la tensione di lavoro), sarà stata veramente dura arrivare a 100.000 Hz!

Nel 72, il signore dell’Harman Cardon, faceva il piccolo inventore di cose per computer ed era specializzato in organizzazione nel campo della ricerca e dello sviluppo (Management of R&D). Un finlandese con un cervello in fiamme, invece che il solito pilota di Formula 1 o Rally (che bello Montecarlo!).



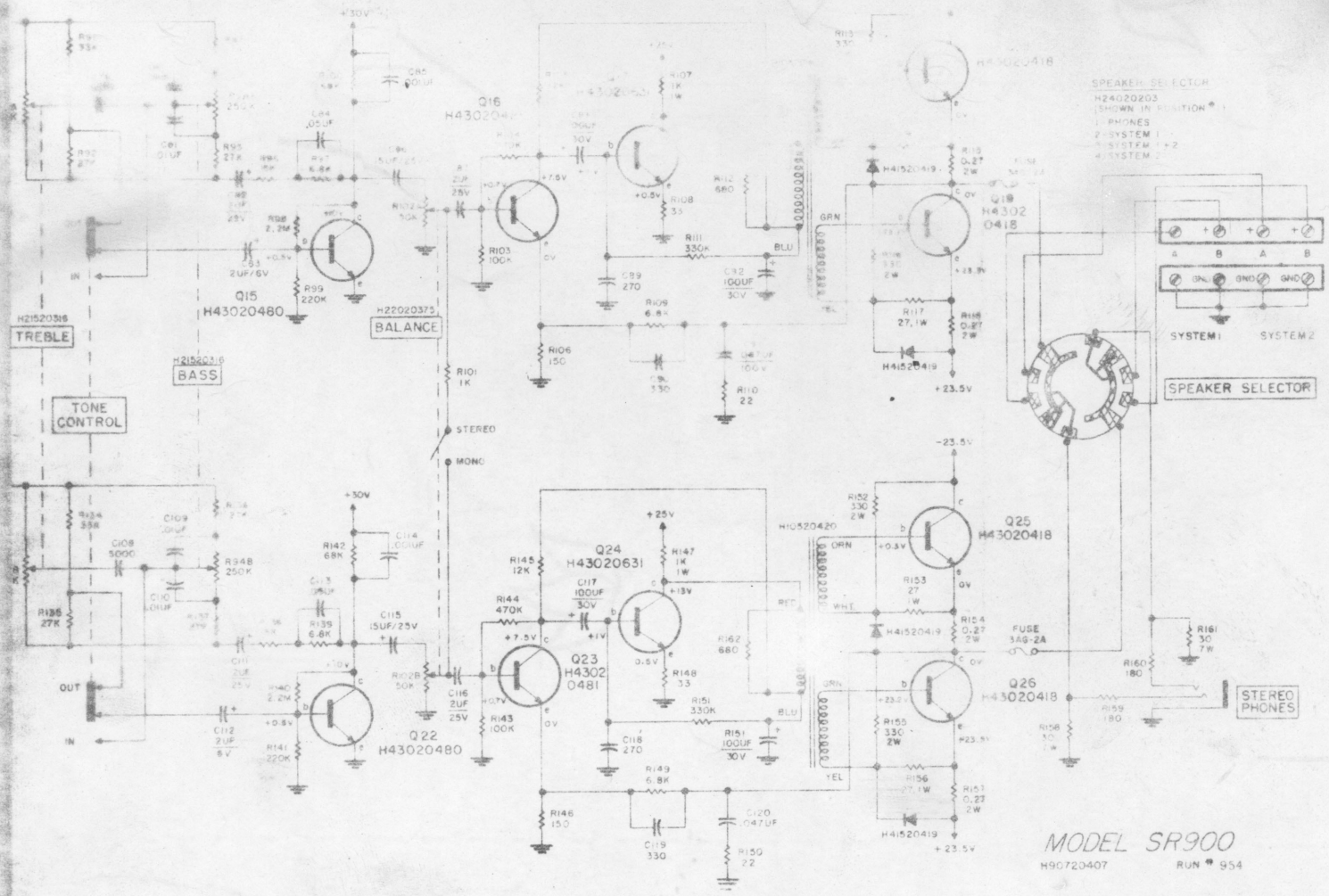
(Segue lo schema della sezione di potenza)



MODEL SR90  
H90720407B RUN # 034



# OUTPUT SECTION FOR HARMON KARDON SR900



SPEAKER SELECTOR  
 H24020203  
 1-SHOW IN POSITION \*  
 2-SYSTEM 1  
 3-SYSTEM 2

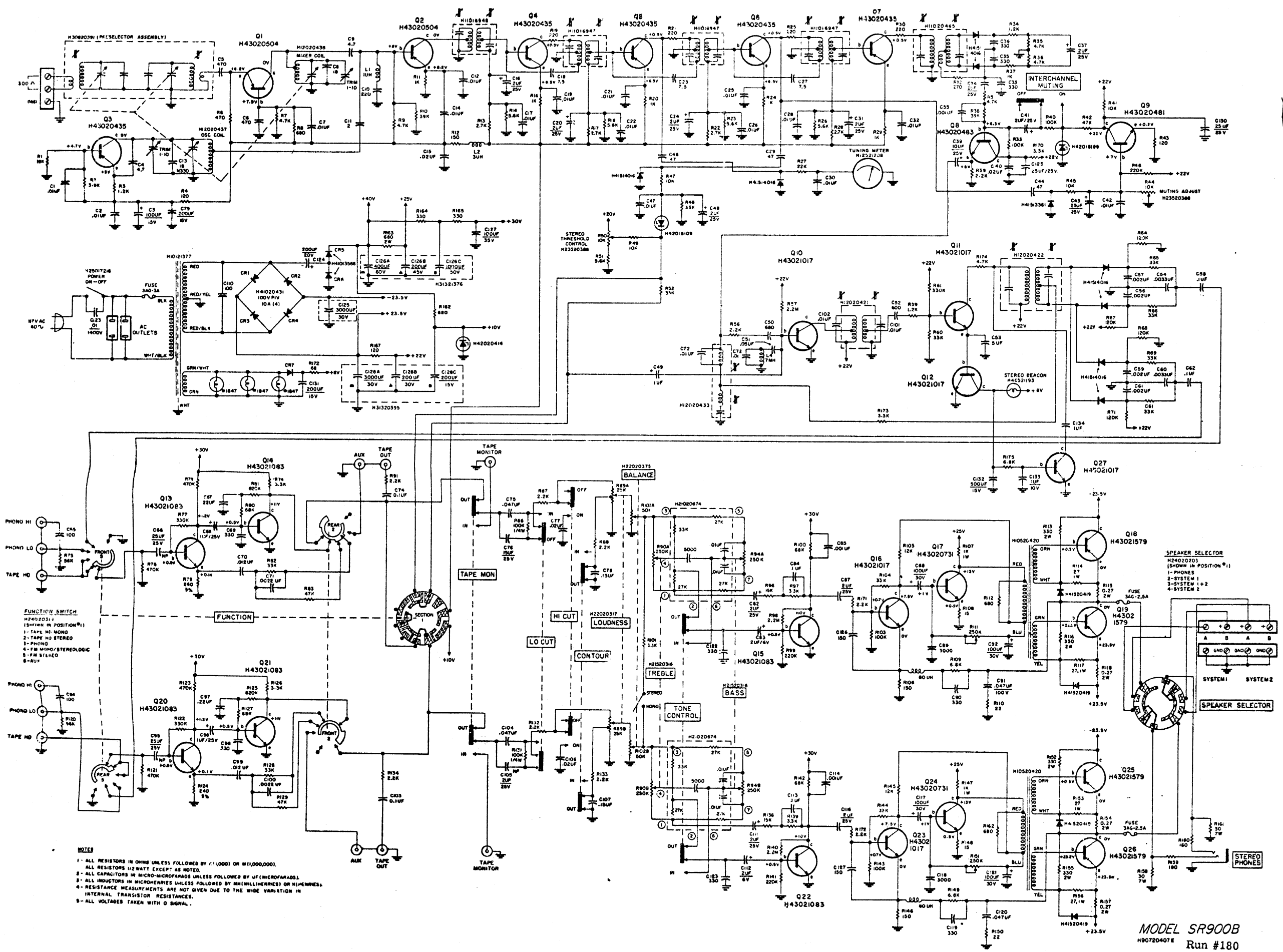
STEREO PHONES

SYSTEM 1 SYSTEM 2

SPEAKER SELECTOR

MODEL SR900  
 H90720407 RUN # 954

Harmon  
Kardon  
SR900B



FUNCTION SWITCH  
H2402031  
(SHOW IN POSITION)  
1-TAPE HI MONO  
2-TAPE HI STEREO  
3-PHONO  
4-FM MONO/STEREOLOGIC  
5-FM STEREO  
6-AUX

SPEAKER SELECTOR  
H2402073  
(SHOW IN POSITION)  
1-PHONES  
2-SYSTEM 1  
3-SYSTEM 1 + 2  
4-SYSTEM 2

- NOTES
- 1- ALL RESISTORS IN OHMS UNLESS FOLLOWED BY C (1,000) OR M (1,000,000).
  - 2- ALL RESISTORS 1/2 WATT EXCEPT AS NOTED.
  - 3- ALL CAPACITORS IN MICRO-MICROFARADS UNLESS FOLLOWED BY UF (MICROFARADS).
  - 4- ALL INDUCTORS IN MICROHENRIES UNLESS FOLLOWED BY MH (MICROHENRIES).
  - 5- RESISTANCE MEASUREMENTS ARE NOT GIVEN DUE TO THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCES.
  - 6- ALL VOLTAGES TAKEN WITH 0 SIGNAL.

MODEL SR900B  
H90720407E  
Run #180