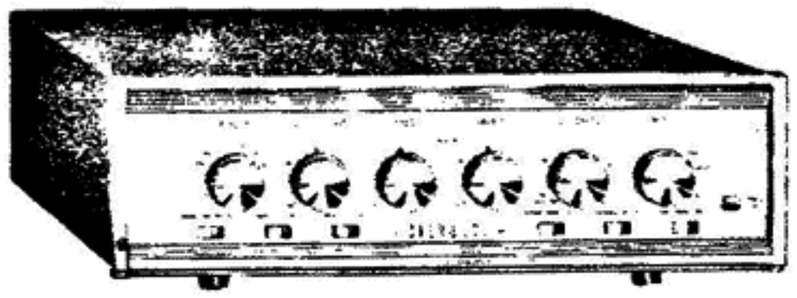
SHERWOOD

MODEL S-5500II - 64 WATT

STEREO DUAL AMPLIFIER-PREAMPLIFIER

OPERATION, INSTALLATION, and SERVICE MANUAL

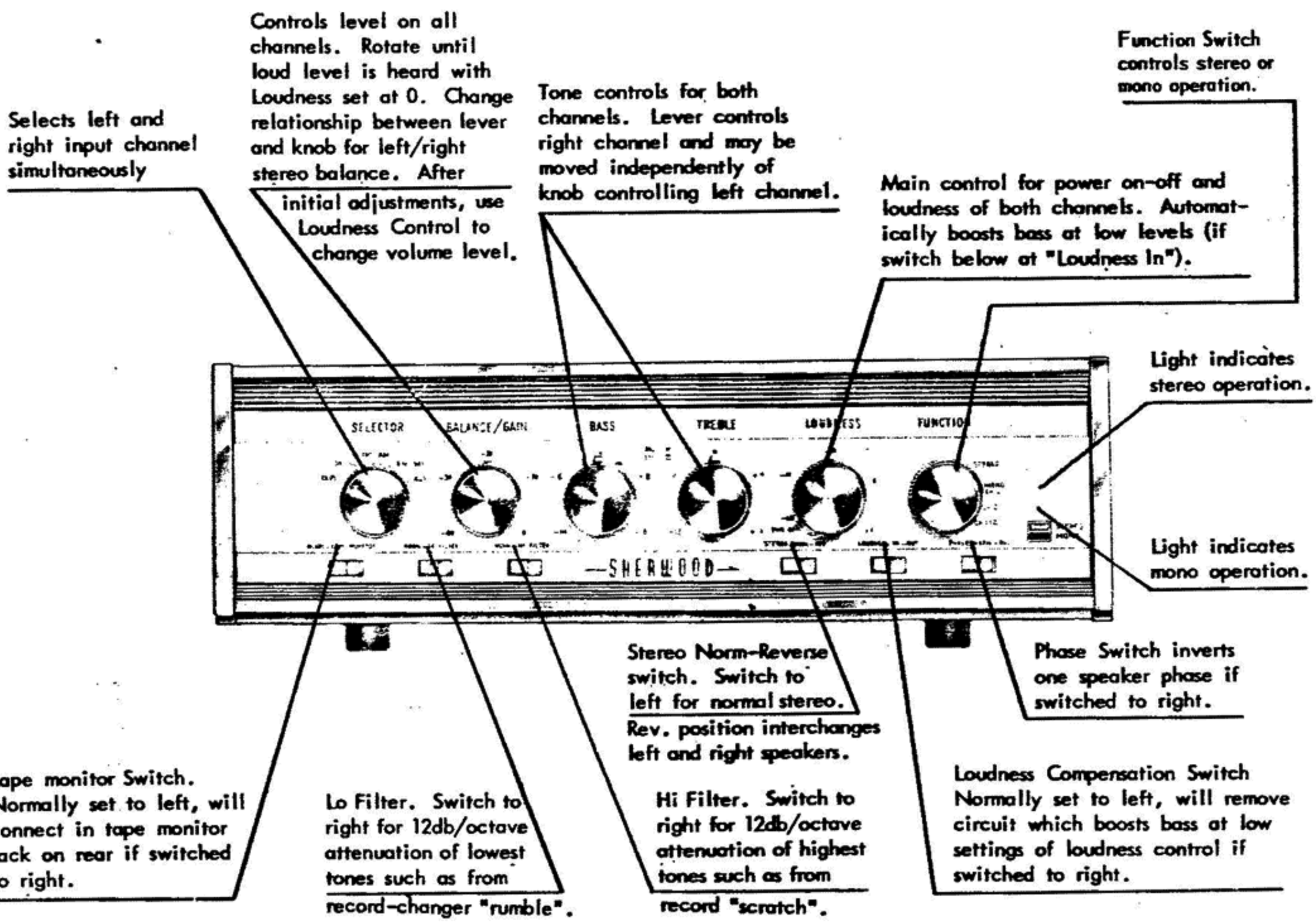


SHERWOOD MODEL S-5500 II
64 WATT STEREO AMPLIFIER

With your purchase of Sherwood High Fidelity equipment, you join an ever-increasing group of proud Sherwood owners. To increase your appreciation of the many operating and performance features designed into every Sherwood product, this operating manual has been prepared. We urge you to read the entire manual carefully in order that you may benefit from these features.

Although many operating refinements have been included which initially may not seem essential to the operation of your equipment, further experience in good listening invariably results in your appreciation of these refinements provided by Sherwood. Consequently, we suggest you save this manual for reference to the valuable information contained herein.

SEE PAGE 5 FOR SIMPLIFIED HOOKUP & OPERATING PROCEDURE!



MODEL S-550[illegible] STEREO AMPLIFIER SPECIFICATIONS

INPUTS:
6 high level, 2 (RIAA) Phono-preamp, 2 (NAB) tapehead preamp.

POWER OUTPUT:
Stereo: each channel 32 watts music power (24 watts continuous, 48 watts peak) or Mono: 64 watts music power (48 watts continuous, 96 watts peak) @ 1½% IM distortion (60c:7kc/4:1).

OUTPUTS:
16, 8, and 4-ohm left and right speaker; 2 recording.

INVERSE FEEDBACK:
14 db.

DAMPING FACTOR:
5:1

FREQUENCY RESPONSE:
(24 w) 20 cps to 20 kc ±1 db.

TONE CONTROL RESPONSE:
Flat setting, 20 cps to 20 kc ±1 db.

TONE CONTROL RANGE:
15 kc, 17 db. boost or cut.
40 cps. 16 db. boost or cut.

LOW FILTER:
20 cps, 20 db. rejection; 60 cps less than 1 db. down.

PREAMP. EQUALIZER CURVES:
AES/RIAA phono and NAB tape.

SENSITIVITY:
Radio 0.3v.
Phono 1.2mv. Tape head: 1.6mv.
(all inputs adjustable with gain control).

MAX. INPUT CAPABILITY:
Phono: 200 mv. for less than 1% dist.
Radio: Adjustable with gain control.

MAX. HUM & NOISE:
Vol. control min., 90 db. (weighted) below rated output.
Radio input (controls max.), 85 db. (weighted) below rated output.
Phono input (controls flat), 60 db. below rated output, 72 db. below 10 mv (equivalent to ½ μv referred to input grid).

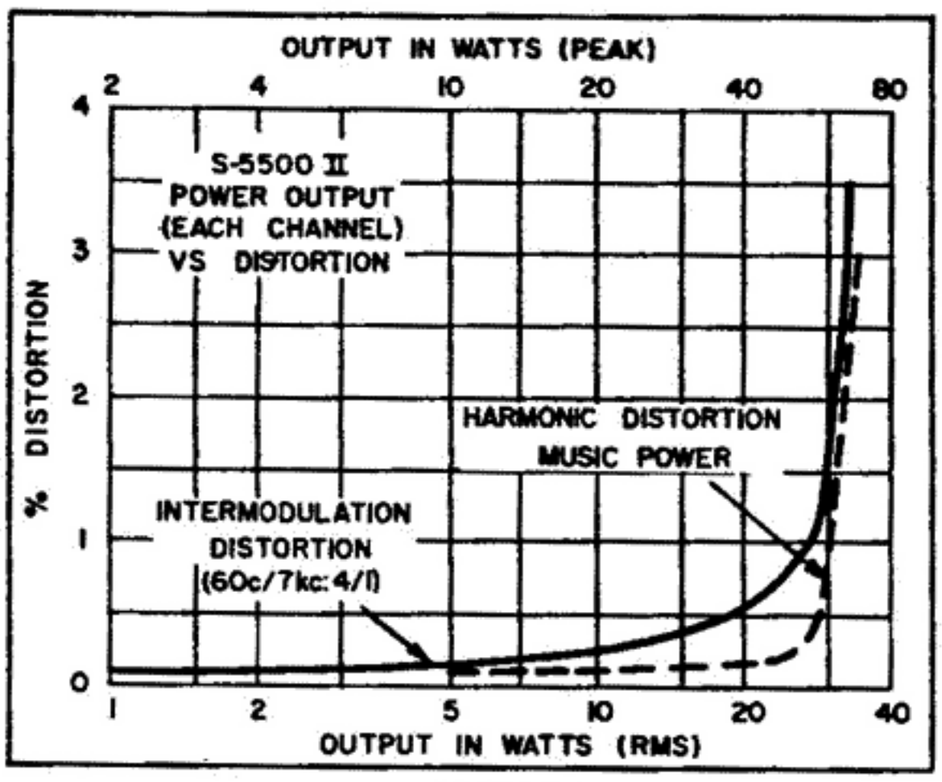
INTERCHANNEL CROSSTALK:
Less than –50 db. @ 1 kc.

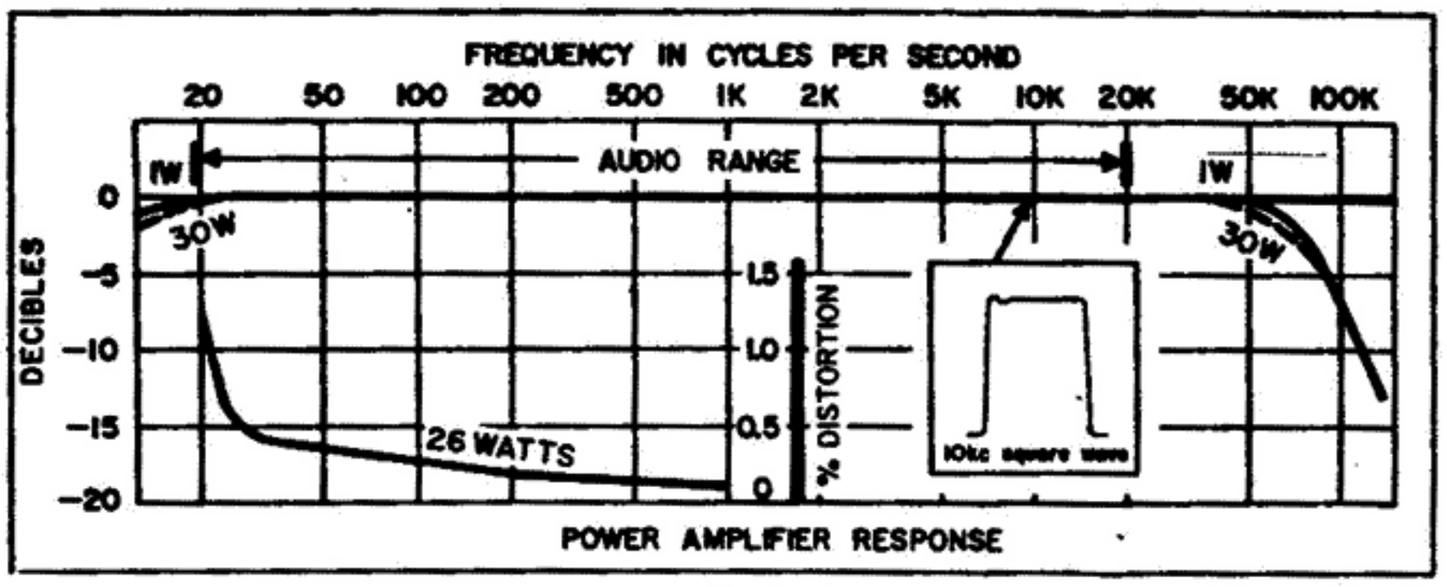
POWER CONSUMPTION:
110-120v, 60 cps, 140 watts fused.

TUBE COMPLEMENT:
(4) 7868, (5) 12AX7/ECC83, 4 silicon rectifiers

SIZE:
14x13½x4 in. high

SHIPPING WEIGHT:
25 lbs.





GENERAL INFORMATION

Your new Sherwood amplifier affords you with the fullest enjoyment possible in the field of true high fidelity. Though simple to operate, it has many operating features permitting the utmost in listening pleasure in any situation. It is to your advantage to read through the entire instruction manual carefully in order that you may best benefit from these features.

UNPACKING: After unpacking your amplifier, examine it carefully for indications of damage caused by shipping. If, for example, the cabinet has been dented or tubes broken, file a claim immediately with your carrier or dealer.

Enclosed with these instructions are two "J" bolts, washers, wing nuts, and your warranty card. The warranty card explains Sherwood's one-year warranty against defects. It should be mailed immediately to fulfill warranty requirements.

INSTALLATION

The amplifier usually is placed so as to provide the greatest operating convenience—on a chairside table, desk, bookshelf, or in a conventional radio cabinet. We recommend that your record changer or turntable be located within ten feet of your amplifier's input panel. However, do not locate a magnetic phono cartridge less than 8 inches away from the power transformer on your amplifier or tuner. The speaker may be placed as far as 50 feet from your Sherwood amplifier. Locate the amplifier above a tuner so its greater heat dissipation will not affect the tuner.

IMPORTANT: *Allow at least 4 inches behind the rear of your amplifier for adequate ventilation* and cabling convenience. Never place the unit near radiators or in front of heating vents. Excessive heat tends to shorten the life of the parts. (This is an important fact to remember in caring for *all* the elements of your high-fidelity system including records and tape.)

PANEL MOUNTING: The amplifier is a self-contained, self-cabineted unit which is easily adapted for panel mounting in custom cabinetry. The enclosed full-size mounting template should be used for custom installation.

To mount the Sherwood amplifier behind a panel, first remove the metal case by unscrewing the 4 sheet metal screws securing it to the bottom of the chassis. Slide case back, away from panel.

Cut panel cutout 3-7/8 x 13-15/16 as shown on template. Slide amplifier through cutout from the front. The chassis should be provided with either a shelf or

rails to support its weight. Two 3/8 in. dia. holes (or four 1/4 in. dia. holes) may be drilled, as shown, in the supporting members to fasten chassis securely with the "J-bolts" that are supplied. Provide adequate ventilation cutout beneath the chassis. Allow a minimum of 2 inches at rear of chassis for ventilation.

VERTICAL MOUNTING: Although your Sherwood amplifier has been designed to be mounted in a horizontal plane, it can be operated vertically (with the face plate up). In this vertical type installation, do not use the Sherwood metal enclosure. The amplifier may be supported completely by its escutcheon in a custom installation; however, this type support is not adequate to withstand shipping in this position. In addition, special precautions must be taken in mounting your amplifier in a vertical position to allow adequate ventilation around the output tubes. Air vents should also be provided in the cabinet above the front panel to allow an escape for the air heated by the tubes.

STEREO SPEAKER LOCATION: Locate speakers at end of room opposite from your favorite listening chair. They should be located between 6 to 20 feet apart so that there is a 40° to 70° angle between them when viewed from listening position. However, in any case, their axes should be parallel to each other and at 90° to the wall behind them. (See Fig. 2).

PHONO SYSTEM LOCATION: The phono turntable or record changer should be mounted in a cabinet separate from the speakers so that acoustic feedback (howling or squealing) does not result. Sometimes this condition will result if the phono system is insufficiently shock-mounted. Use rubber sponges or soft, hollow rubber balls to support the turntable or changer base. Stereo pickups are subject to feedback more than mono pickups because of their greater vertical compliance and lower audio output; consequently, feedback might arise in the conversion of a "feedback-free" mono phono system to stereo.

ELECTRICAL CONNECTIONS

SPEAKER OUTPUTS: Examine your speaker system's nameplate to determine its rated impedance. Each speaker system will have two leads which are to be connected to your Sherwood amplifier. Connect one of the leads from one speaker to the screw marked "G" on CH-1 terminal strip. Connect the second speaker lead to the screw corresponding to the impedance of your speaker.

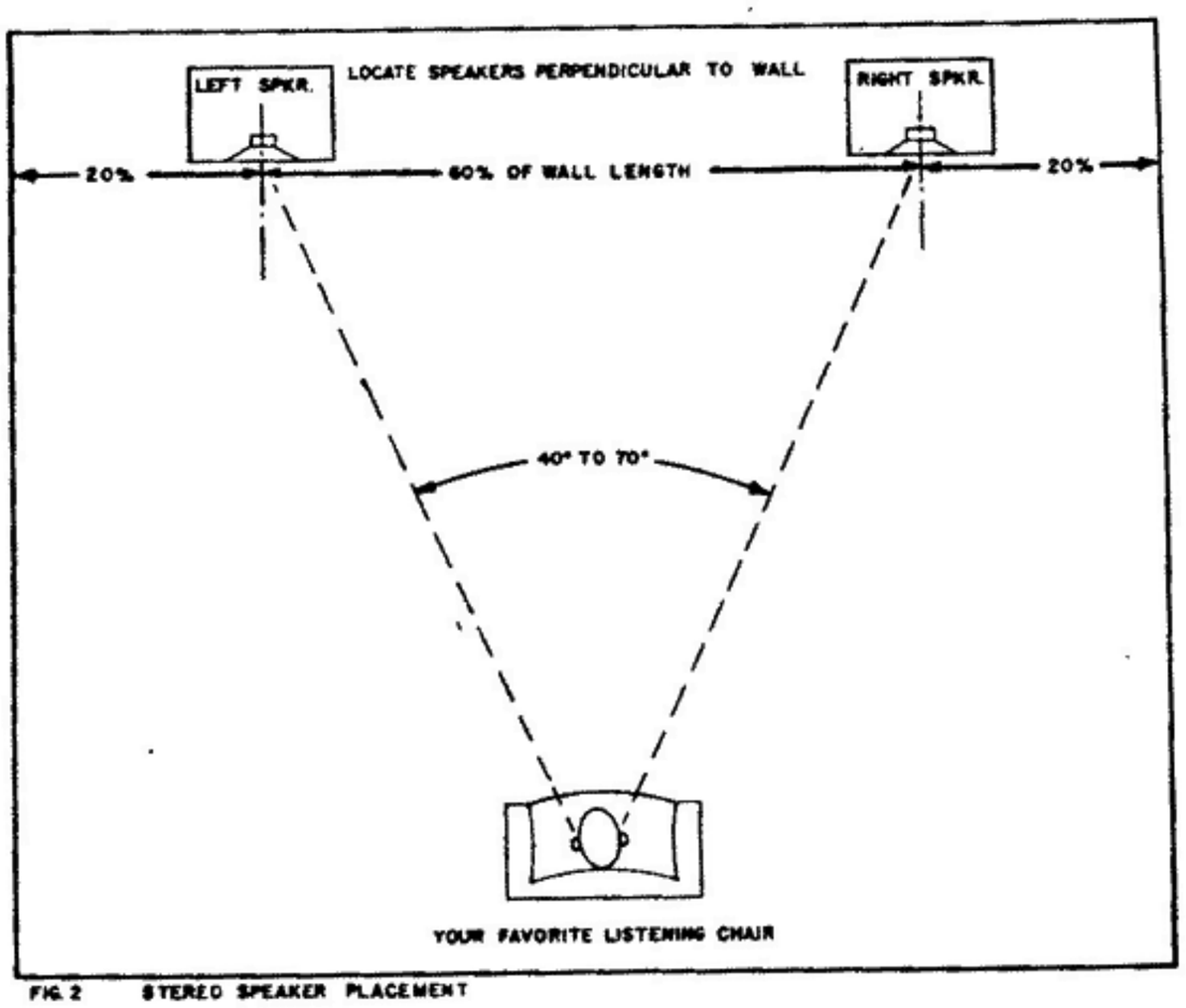


FIG. 2 STEREO SPEAKER PLACEMENT

The leads from the second speaker system are connected to the two screws marked "SPKR" on terminal strip CH-2. Attach the red wire to the terminal corresponding to the impedance of the speaker.

Plastic-covered lamp cord serves as excellent speaker connecting leads and may be extended as far as 50 feet with little power loss. For shorter distances, TV antenna lead can be used and is especially convenient for installations where it is necessary to run speaker leads under a rug.

THIRD "HOLE-IN-MIDDLE" SPEAKER CONNECTION: Even more effective than 2-speaker stereo, is 3-speaker stereo. The third speaker serves not only to fill the "hole-in-the-middle" and add a third phantom-channel but enables a marked spreading out of the stereo effect while widening the area of best listening. Connect one lead from the third speaker to the 4-ohm tap on one chan-

SIMPLIFIED HOOKUP & OPERATING PROCEDURES

Interconnections:

1. Connect a plastic-insulated lamp cord to each of your 2 speakers and to terminals on the rear of Sherwood amplifier marked "G" and "8" (Channel 1) and "SPKR" (Channel 2). Attach red wire to "8" (for 8 ohm rated speaker).
2. Plug 2 shielded cables from your phono turntable or changer into 2 jacks marked "PH" on rear of Sherwood amplifier.
3. Plug 2 shielded cables from your tuners (or stereo tuner) into 2 jacks marked "TNR" on rear of Sherwood amplifier.
4. Plug power line cord from your tuner into rear-panel receptacle marked "SW-117V-300W."
5. Plug Sherwood amplifier line cord and line cord from your phono turntable or changer into wall outlet supplying 117V, 60-cycle current.

Operation:

1. Set all slide switches to their normal positions which is to the left.
2. Adjust Bass, and Treble controls for mid-position (indicators point upward).
3. For Stereo Phono listening; turn selector to "Phono," Function to "Stereo", Loudness knob to "O," adjust level knob and bar for a relatively loud listening level. Balance relationship between level knob and outer control bar until equal sound is heard from left and right speakers. (Further adjustments of sound volume should be made with the Loudness control without disturbing the Level control position.)
4. For Mono Phono listening: same as 3, except Function to "Mono CH 1 & 2."
5. For listening to Stereo FM-MX tuner; Selector to "TUNER," Function to "Stereo," adjust loudness for desired volume.
6. For listening to FM tuner; Selector to "TUNER," Function to "Mono CH 1," adjust Loudness for desired volume.

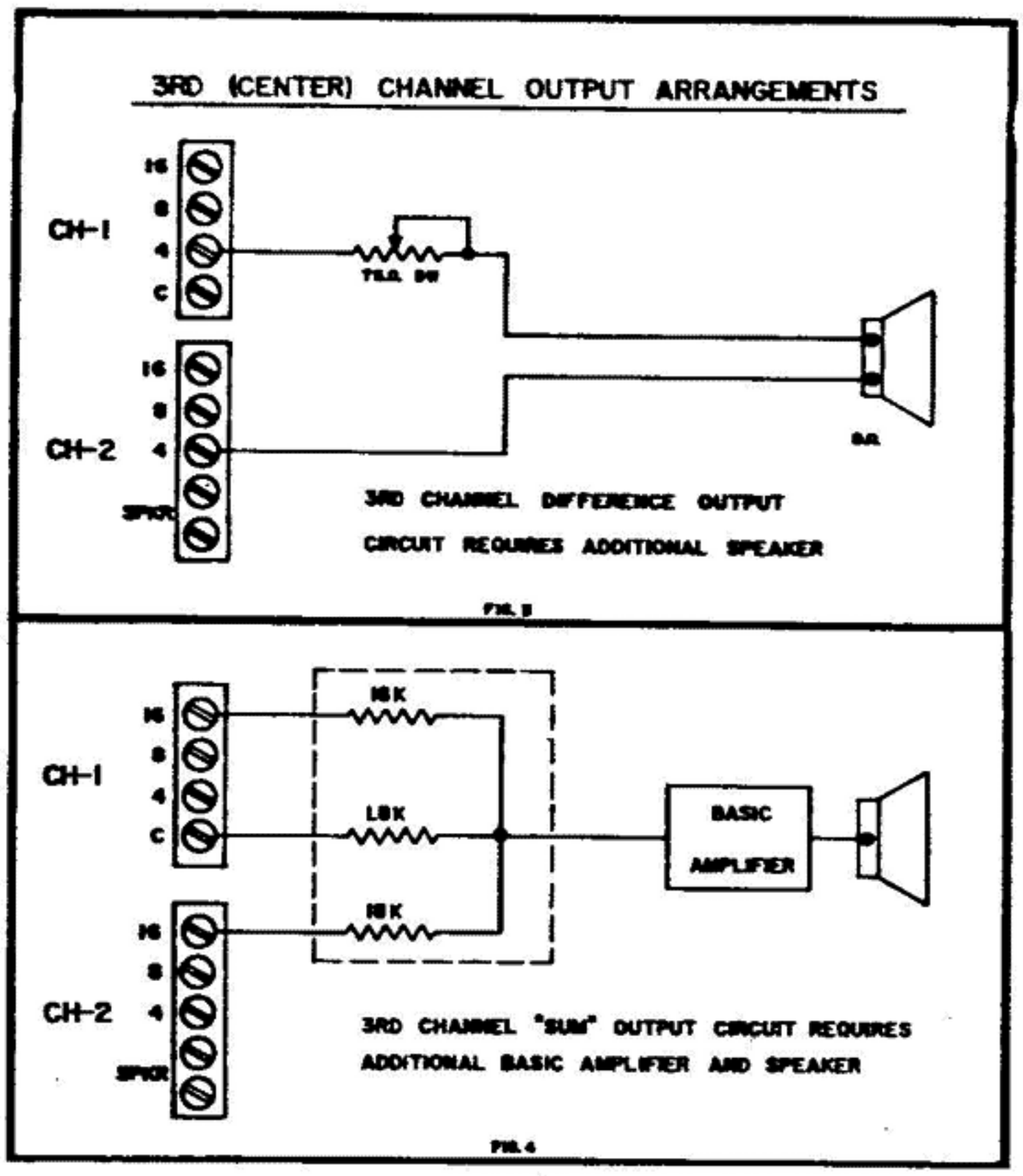
(For further information, including proper speaker phasing, see detailed instructions.)

nel's output. Connect the other speaker lead to a 75-ohm wire-wound level control which, in turn, should be connected to the 4-ohm tap on the other channel's output. Move left and right speakers further apart. Adjust control for balanced sound level. See Figure 3 for proper connection.

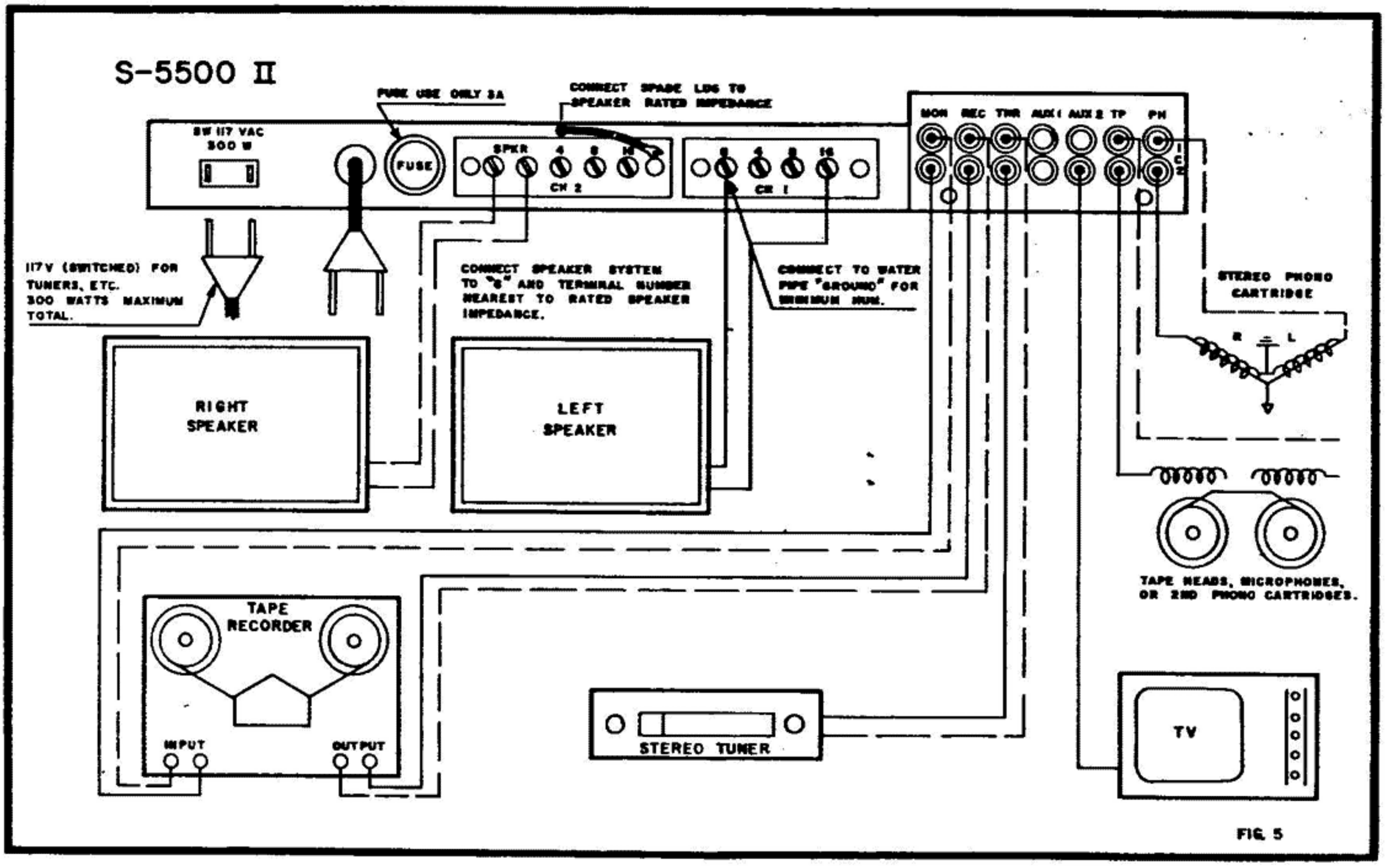
The above type of 3rd speaker installation supplies "left/right difference" or "stereo" signal to the 3rd speaker. Although this connection gives effective results, some listeners prefer that the 3rd speaker be supplied with the "left/right sum" or "monophonic" signal. The sum signal can be had by adding the circuit shown in Fig. 4. The signal from this circuit is used to drive a third-channel amplifier and center speaker.

PHONO INPUTS: The shielded leads from your phono arm should be provided with shielded "phono-type" plugs which can be plugged into the CH 1 and CH 2 input jacks labelled "Phono." To avoid loss in high-frequency response, it is recommended that these leads not exceed 10 ft. in length. Either a 3-wire or 4-wire cartridge will operate correctly, but must be provided with 2 phono plugs. Keep phono leads as far away from speaker leads as is feasible.

The phono input connection feeds the phono pre-amplifier and has been designed primarily for use with a magnetic or variable-reluctance (constant-velocity type) cartridge. The cartridge load is located directly across the phono input jack and is 47,000 ohms. This value correctly loads most pickups (such as the Shure, Pickering, Miratwin, or GE) for flat high-frequency response.



Should a pickup be used where the manufacturer recommends a lower-valued load for flat response, install a resistor across the pickup terminals which, in parallel



with 47,000 ohms, will result in the recommended load impedance.

Constant-amplitude type pickups (including crystal, ceramic, capacity, Weathers frequency-modulation) can be operated into the same phono input jack; however, a Switchcraft adapter No. 328 must be used in series with each phono pickup lead (except for the Weathers ceramic cartridge No. C501D, and Electro-Voice cartridge No. 31MX-7). This adapter may be purchased at your local hi-fi shop.

TUNER INPUTS: Three paired high-level input jacks labelled "TNR," "AUX 1," and "AUX 2" are for use radio tuners, FM multiplex adapters, TV receivers, and other equipment with at least 0.5v output. A shielded cable complete with a shielded "phono-type" plug should be used to connect each of these sources to your amplifier. Unless the source has a low-impedance output such as a Cathode follower (with which up to 50 ft. of cable can be used), the shortest possible connection should be made to prevent loss of high-frequency response. All Tuners should have volume controls to adjust their output voltage levels for correct operation of the loudness control in the S-5500II. (See "Listening to Tuners" in Operation Section for further details.)

MONOPHONIC OPERATION: The S-5500II may be connected for use with a single speaker system or group of speakers in parallel to provide outstanding monophonic sound. The procedure is as follows:

1. Determine your speaker impedance, then connect a jumper between the two screws on the terminal boards which are marked with double your speaker's impedance. For example, with an 8-ohm speaker, you connect the jumper between the two screws marked "16"; for a 4-ohm speaker, you connect the jumper to the two screws marked "8".
2. Next, connect the red wire which comes from inside the amplifier to either screw which retains the jumper wire.
3. Next, connect one of your speaker leads to one of the screws which retains the jumper wire, and then connect the other lead to terminal marked "G".
4. For proper monophonic operation, the phase switch must be in "NORMAL" position and the balance/gain control markings should be aligned with each other.

TAPE-RECORDER CONNECTIONS: To playback directly from the *playback head* of a tape player, connect the leads from the head through a shielded cable and shielded "phono-type" plug into the input jack marked "TAPE." This input has a 47,000-ohm resistor load connected at the jack; it may be modified in accordance with the tape-head manufacturer's instructions for best response. Where insufficient output is available from a low-impedance tape head, additional voltage can be obtained by inserting a well-shielded, input-type step-up transformer between the tape head and the TAPE input.

To playback from a tape recorder containing its own preamplifiers, connect the outputs from the tape unit to the tape MONITOR input jacks on the rear panel of the Sherwood amplifier. These jacks should be used if the tape unit has separate tape playback monitor heads or combination playback-record heads. (Tape monitor switch in tape monitor position.)

If it is not desirable to use the monitor input and your tape recorder has its own playback preamplifier you can use the S-5500II Aux. inputs, providing that monitoring is not attempted.

Recording connections are made with shielded cable (up to 50 ft. may be used) with a "phono-type" plug from the output jack marked "REC" to the recorder's input. The RECORD-output signal is not varied by any of the controls except the Selector switch.

POWER CONNECTIONS: Plug the S-5500II Line Cord into a wall outlet supplying 110-125v., 60 cycle AC only. Your tuner, or other equipment (consuming not more than 250 watts combined power) may be plugged into the switched outlet on the rear of this amplifier. The power to this equipment will then be controlled by the amplifier's "on-off" switch.

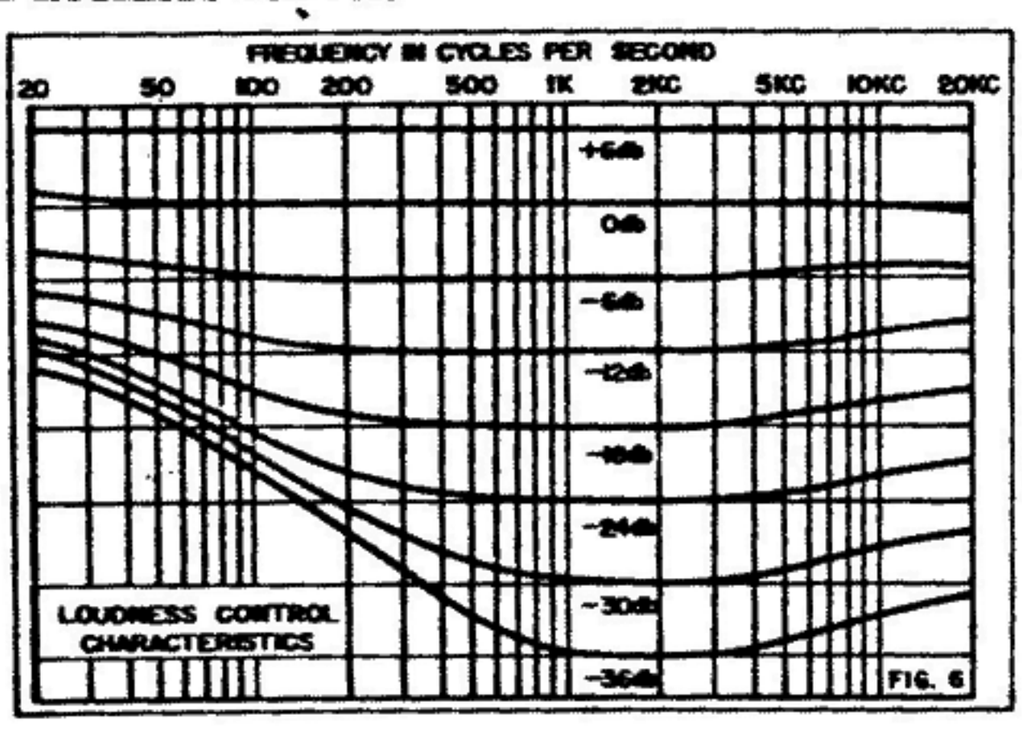
EXPORT MODELS are available with special power transformers for 50-60 cycle power at 110-120V or 50-60 cycle power at 220-240V and are marked thus on the rear of the chassis (specify voltage desired). These special models have also been treated with fungicide and anti-corona materials for added protection in humid climates.

OPERATION (See Fig. 1, Pg. 1)

Turn Loudness and Power "Off-On" switch clockwise to first click. The function lights should now glow. With Function switch in the "Stereo" position, advance the Loudness control to "O," align both Bass and Treble knobs to "O," move all slide switches to their normal (left-hand) position. For a flat frequency response and best overall performance the Loudness control should always be set on or near zero. Turn the Selector switch to "Phono" which automatically provides the RIAA Stereo record equalization. Increase the Level control while playing a stereo phono record, until the sound output is at a relatively loud level. Adjust the relationship between Level knob and outer control bar until the sound from each speaker is of equal magnitude. It will be noted when playing subsequent phono records or tape recordings that a slightly different level knob and bar relationship might be required for various recordings due to manufacturing variables. This is known as channel "balance." The level controls of your other components should be adjusted without changing the amplifier or Loudness controls.

LOUDNESS CONTOUR SWITCH: Demonstrations of the Loudness controls effectiveness may be accomplished by switching the Loudness In-Out switch to "Loudness Out" where the loudness compensation is removed on both channels and the control acts as a conventional volume control. No change in volume level occurs when this switch is used. Greatest effect will be heard at low volume as indicated on the chart below.

Further increase of the loudness compensation (automatic insertion of bass and treble at low sound levels) may be accomplished by *increasing* slightly the setting of the Level control while simultaneously *reducing* the dual Loudness control.



SHERWOOD MODEL S-5500 II
64 WATT STEREO AMPLIFIER

Serial No. K26520 and up

*Match within 3%. All resistors are 1/2 watt, ±10% tolerance unless otherwise specified. All fractional-valued capacitors are in μf and are 400v. molded paper; other capacitors, except electrolytics, are in μμf and are mica or ceramic.

Notation	Multiplier
K	1000
M	1,000,000
μ	1/1,000,000

DC voltages are measured with VTVM and are with 117v. power source. Voltages shown in parenthesis are rms. mid-frequency sensitivities for 20 watts output with tone controls at flat and loudness and level controls at maximum. Selector and Function switches are shown in their most counter-clockwise (tape and STEREO Positions.

FUNCTION SELECTOR: Switching the function selector from Stereo to Mono CH-1 allows that program being fed into input source CH-1 to be heard on both speakers. Mono CH-2 is for use with the CH-2 input sources. Mono CH 1 & 2 permits use of the stereo phono pickup with monophonic recordings. This position automatically balances out the vertical component (containing the greater rumble and scratch contributions).

PHASE SWITCH: To ascertain the best position for the Phase switch, play a passage containing heavy bass tones on Mono 1 or Mono 2. Now switch from Phase "Normal" to "Rev" (by moving the Switch to the right) to determine which position offers the greatest reinforcement of bass response. Since this position is usually considered "Normal", interchange the 2 leads of one (only) speaker if the reinforcement occurred while the switch was in the "reverse" position. Thereafter, this switch should be left in the "Normal" position, unless it is discovered that the phase on one of your stereo program sources has been reversed.

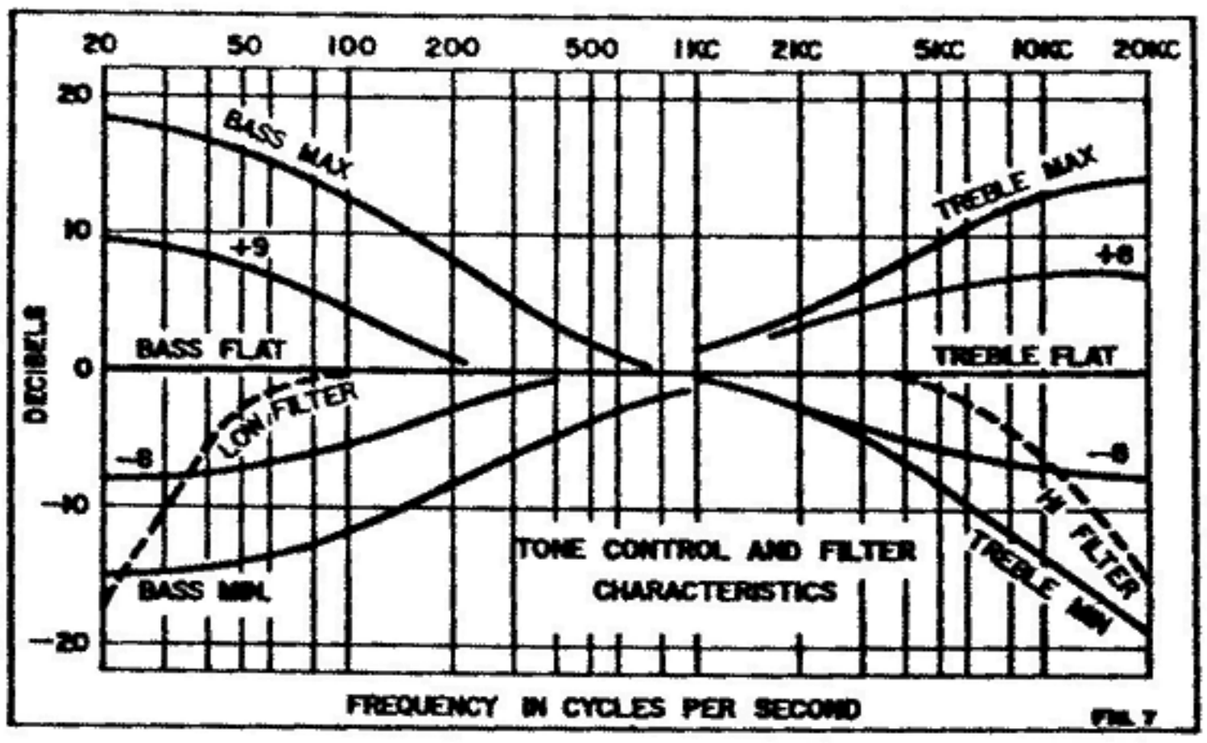
BASS AND TREBLE CONTROLS: Independent increase or decrease of bass or treble response is accomplished with the tone controls The calibrations are accurate references to the decibel boost or attenuation at 30 and 15,000 cycles per second with intermediate responses as shown on the accompanying graph. These controls have unusually smooth action because of their freedom from "shelving" in their intermediate positions. This results in a less obvious, yet more pleasing, change in tone. (See Figure 7.)

The bass or treble response may be increased or decreased for one channel only by holding the outer control bar (controls left hand speaker) and simultaneously rotating the inner control knob (controls right hand speaker), or vice versa. Such realignment of these controls might be required to correct for a deficiency in one of the speakers' acoustic response. The bass and treble controls can then be used for other tone compensation purposes without upsetting this interchannel alignment by grasping only the inner, round control knob.

MONOPHONIC PHONO RECORDS: To play monophonic phono records, use either a stereo cartridge (for LP records) with the Function Selector in MONO 1 & 2 position or a monophonic cartridge connected through channel 1 (or channel 2) with the Function Selector in MONO 1 (or MONO 2).

Although almost all stereo recordings (and monophonic recordings since Spring 1954) use the standard RIAA recording equalization curve, older monophonic recordings are better equalized with slight variations from this RIAA curve. These curve variations have been identified as per the chart below and can be achieved by advancing or retarding the bass and treble control as shown on the chart. (This is possible because of the pivoting type tone control actions provided in the Model S-5500.) CCW indicates that the control should be turned counter clockwise the specified amount of db; CW indicates clockwise.

	Base	Treble
LP Columbia	CCW 5db	CCW 2db
London	CCW 5db	no change
AES	CW 1-1/2 db	no change
European, early American	no change	CW 8db



HI (SCRATCH) FILTER: Worn, frequently-used records have a high hissing or scratching sound which consists, primarily, of very high frequencies. Moving the "Hi filter" switch to the right switches in a 12db/octave, 5kc filter. This filter eliminates most of these undesirable high frequencies without the disturbance to the entire treble response, that would be incurred by turning down the treble control. The "hi filter" operates in all positions, and is completely independent of the phono equalizer and tone controls, modifying both channels' response simultaneously. (See Figure 7.)

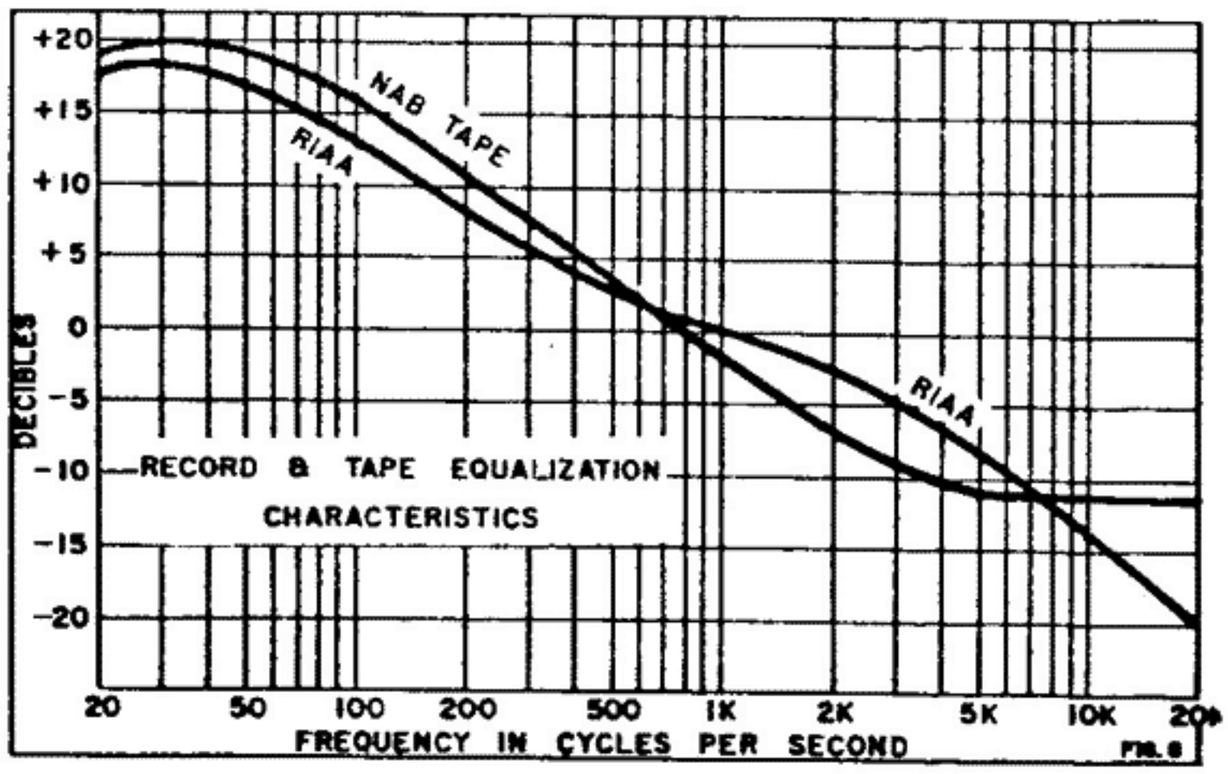
LO (RUMBLE) FILTER: A similar action, but inverted with frequency (see frequency-response graph Figure 7), is performed by the Lo (Rumble) Filter Switch. In this case, the 12db./octave filter gives little attenuation to most important bass frequencies, but does attenuate by 18 db. the very low 27-cps. note that is generated by phono equipment with motor "rumble." Although some less effective speaker systems may not fully reproduce this note, its troublesome effect may still be heard as added inter-modulation distortion because of inadequate speaker capabilities. Consequently improved listening results with the lo filter switched to the right.

This filter can be operated in combination with the bass control to give varying degrees of attenuation.

Lo (Rumble) filter operation is effective in all positions and effects both channels simultaneously.

LISTENING TO TUNERS: With the Selector switch in positions "TUNER," "AUX 1," or "AUX 2" the corresponding high-level input from a radio tuner, TV, FM multiplex, etc. will feed through the amplifier. Proper adjustment of the gain control on each tuner or TV source unit is made with the Loudness control turned to "O" and with one of the higher-volume orchestral programs serving as source material. Now adjust the gain control *on the tuner* for a relatively loud listening level. Thereafter, use only the Loudness control to vary the sound level, the tuner gain control should remain at its preset position. Note: the Level control on the S-5500II should be set first when used with phono and should not be readjusted when listening to tuner. This permits switching from the high-level (tuner, etc.) inputs to phono without a change in loudness.

TAPE PLAYBACK (directly from tape head): A tape head may be played directly through the Sherwood preamplifier by turning the Selector switch to TAPE. Standard NAB bass emphasis (see Figure 8) is thereby selected, which in conjunction with the treble pre-emphasis used in recording the tape should result in a flat overall playback characteristic.



TAPE PLAYBACK OR MONITORING: To playback or monitor from the tape output of a tape unit containing a separate compensated preamplifier and separate playback and record heads, switch the Tape Monitor switch to MONitor. Since the tape RECORDING output is not disconnected in this position, a program may be recorded and instantaneously compared to the recorder's monitor output for a check on the quality of the recording in process.

MAKING RECORDINGS: Tape, wire, or disc recordings may be made through the Sherwood amplifier from any of its several sources such as phono, tuner, etc. by incorporating the connections recommended under "Tape Recorder Connections". Since S-5500II tone and presence controls are not effective during recording, all recording levels or tone adjustments must be made with the recording equipment. Monitoring of the recording operation is possible without disturbing the recording in any manner by using the S-5500II front panel controls.

INTER-CHANNEL MIXING: Mixing of 2 sources (such as a microphone and tuner) can be accomplished by plugging the 2 desired programs into No. 1 and No. 2 sides of the same input (for example; input "TV-AUX".) Turn Selector to designated input and Function to MONO 1+2. Both sources will automatically be mixed together in varying degrees by adjusting the relationship between the Level control knob and bar.

DESCRIPTION	PART NO.	PRICE
CAPACITORS, ELECTROLYTIC		
250-150-50 µf @ Neg. 50 wv (C60)	120AB6-12	$3.33
30-30-25 µf @ 400-350-250 wv (C63)	A120K6-1	1.89
40-30-120 µf @ 475-450-225 wv (C62)	A120K4-4	2.18
120 µf @ 225 wv (C61)	A120K5-3	1.38
50 µf @ 3V, miniature (C1)	CE8503-50P	.63
CONTROLS		
Loudness (R23, 123)	A671K1-6	2.18
Treble (R14, 114)	A670K2-2	1.63
Bass (R16, 116)	A670K1-2	1.63
Level (R12, 112)	A670J15-2	1.63
Selector switch (S3)	B860J5-8	3.30
Function switch (S2)	A860K2-3	1.12
Slide switch (S1, 4, 5, 6, 7)	A864T4-5	.30
TRANSFORMERS		
Audio output	B920L5-3	10.16
Audio output	B920L6-3	10.16
Power transformer	B920K4-1	10.72
MISCELLANEOUS		
Fuse, 3.A. 3AG, slo-blo	313030-0	.15
Fuse holder	A796X1-0	.72
A. C. receptacle	794A01-0	.18
Rectifier, silicon B+	B692X7B, C-3	2.65
Rectifier, silicon bias	A692X4-0	2.16
Knob, gold plate, die cast	A460J1-5	.36
Knob, white, marked, .250 d. shaft	A460L4-2	.45
Knob, white, marked, .187 d. shaft	A460L5-2	.32
Escutcheon	C250X9-8	5.40
Escutcheon side bracket (left or right)	A250B3-4	.98
Printed circuit	A680K3-0	.63
Printed circuit	A680J2-1	2.25
Printed circuit, tubular RC	A122X6-2	.45
Printed circuit, tubular RC	A122X2-2	.36
Printed circuit, tubular RC	A122X3-2	.36

Sherwood's dramatic Correlaire Furniture Modules are the perfect setting for your Sherwood hi fi components. Choose from sixteen interchangeable modules, styled with a contemporary flair in hand-rubbed Walnut and Pecan woods. For complete data, see your local Sherwood dealer.

Notice to owners of Sherwood equipment manufactured prior to 1958. Front panels, matching your S-5500II, are available as replacements for the leatherette type panels supplied on older Sherwood tuners. See your local Sherwood dealer for further information and prices.

SERVICING

The amplifier circuitry is exceptionally stable, using parts noted for longest life wherever possible. Your amplifier should need little service except for normal tube replacement.

To facilitate your own servicing when necessary, try to isolate the inoperative stage, aided by the block diagram below.

For example, should the tuner input operate, but not the phono; then the 12AX7 preamp. tube may be suspected, etc.

For more elusive troubles, check the DC voltages shown on the schematic diagram with a high-impedance voltmeter. To check the operation still more carefully, AC mid-frequency voltage sensitivities are shown in parenthesis at most of the grids for full 30-watt power output.

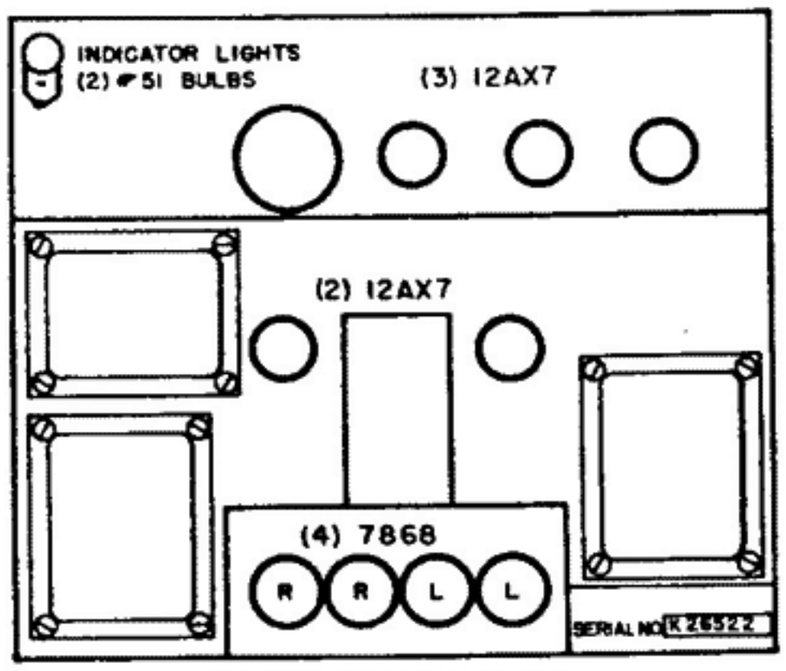
TUBE SUBSTITUTION: A 12AX7, 12AD7, or 7025 tube may be used instead of the European 12AX7/ECC83 which is supplied with your amplifier. However, the 12AX7/ECC83 has a construction less subject to microphonics and hum.

MATCHED OUTPUT TUBES: When replacing tubes, it is desirable to use matched pairs of tubes to facilitate minimum hum, low distortion, and optimum bass response. Matched tubes, such as those originally supplied in the Sherwood Amplifier, are available either from your High Fidelity Supplier or the Sherwood authorized service station.

The matched pair of 7868 tubes supplying the right-channel output are the 2 left-hand tubes as viewed from the *rear* of the amplifier. The right-hand pair of matched tubes supplies the left-channel output.

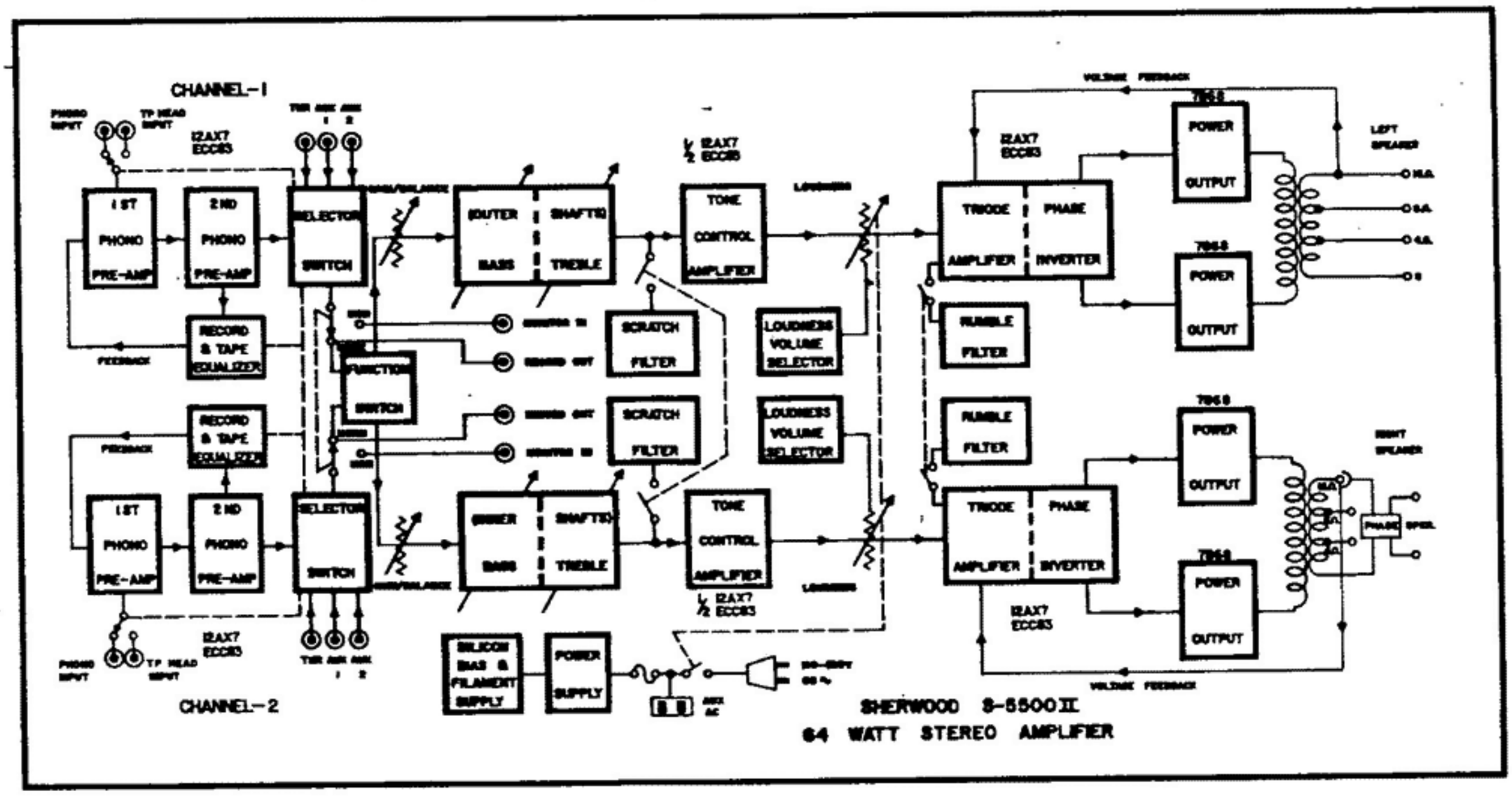
HUM - Hum or buzz might result from several causes in the amplifier. To isolate the probable source, proceed as follows:

1. Turn loudness control to minimum and disconnect speaker. If hum or buzz persists, then vibrating power transformer laminations might be suspected. To cure, allow amplifier to operate 3 hours to obtain full warmth, then remove case from chassis and tighten power transformer assembly bolts.
2. If hum disappears with speaker disconnected, but is present with speaker connected and loudness control at minimum, suspect output tube balance. Check output tubes and substitute with matched pair. If hum still persists, replace 12AX7 nearest output tubes.
3. If hum is satisfactorily low with loudness control at minimum, turn loudness to maximum, bass and treble to O, Selector to TUNER. If hum now exists, replace 12AX7/ECC83 tubes. Finally, select tubes generating the least hum.
4. If hum is satisfactorily low with selector in FM/MX, turn Selector to Phono, and Level to maximum. If hum now exists, remove phono cartridge connecting lead from input. Some hiss and a slight amount of hum is normal with this situation. A more careful check can be made by inserting a short-circuited phono plug into the phono input jack. If hum is excessive, reverse the polarity of the line cord. If still excessive, replace the first 12AX7/ECC83.
5. If hum is satisfactorily low except when the phono cartridge is connected, try the following. Increase the shielding around the cartridge and its lead if hum increases when the hand is placed near the cartridge. (Ground the shell of a GE cartridge to the shielded side of the cable.) Hum which is present only when the phono motor is operating and which varies as the phono arm is moved across the phono table is magnetic in type caused by the magnetic fields around the phono motor. Try inserting one of the 2 phono plugs such that only its [illegible] tral prong makes contact. Be certain the power transfo[illegible] in another piece of equipment such as a tuner is not causing difficulty.

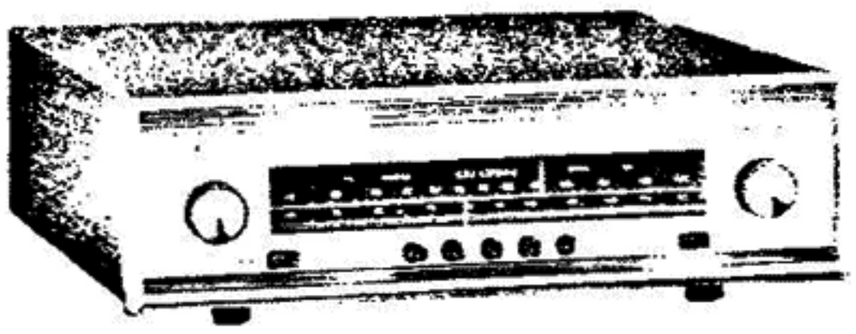


R,L = MATCHED TUBE PAIRS

CLEANING ESCUTCHEON FACE PLATE: The white face plate on your Sherwood equipment has been finished with a durable baked enamel. To clean, wipe with a chamois or rag dampened with a water solution of liquid detergent. Wipe with dry cloth. Do *not* use an abrasive scouring powder.

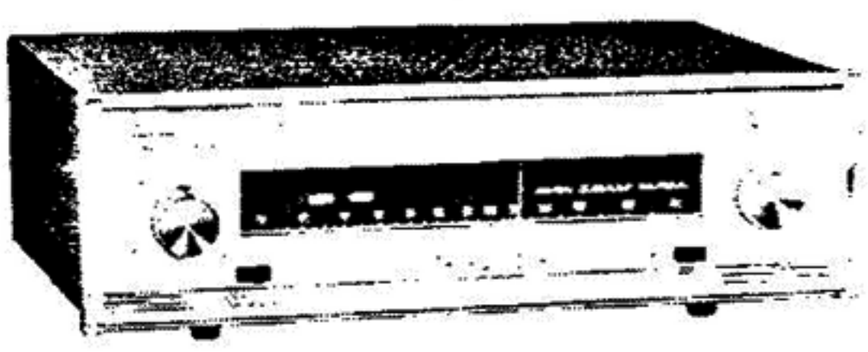


FAMOUS SHERWOOD TUNERS

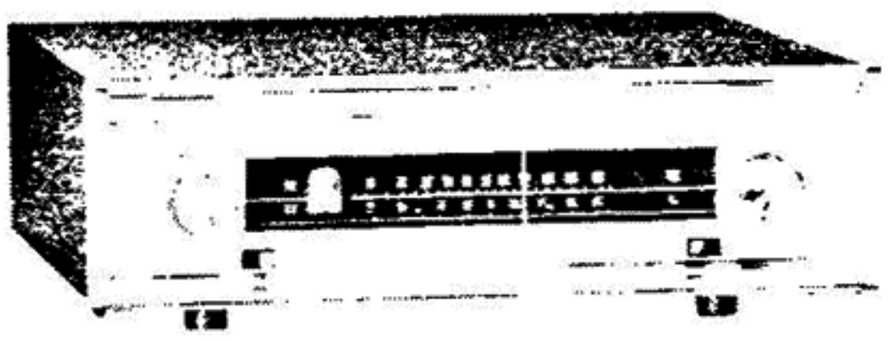


S-2200

The Model **S-2200**, FM-AM tuner, fulfills today's need for simultaneous FM-AM Stereo broadcast reception, yet is ready, too, for tomorrow's FM multiplexing...and it's the same "top-rated" circuitry found in Sherwood's well-known S-3000 IV and S-2000 II, including FM Interchannel Hush, and FM AFC (automatic frequency control). **FM Specifications**—Low noise balanced antenna input transformer feeding cascode RF amplifier. Triode mixer, IF amplifier, 3 cascaded limiters, and Foster-Seeley balanced discriminator. Delayed AGC applied to RF stage. AFC on oscillator. FM tuning eye. Interchannel noise muting with front-panel level control. **AM Specifications**—Superheterodyne with two tuned RF circuits, pentagrid mixer, double-tuned IF stage with switched coupling, and low-distortion diode detector. Separate diode for delayed AVC which is applied to RF, mixer, and IF stages. Directable ferrite-rod antenna. AM tuning eye.



S-3000 IV



S-2000 II

General Specifications—Typical Sensitivity: FM: 0.95 μv for 20 db quieting; 1.8 μv for 30 db quieting; 3.6 μv for 50 db S/N; IHFM Sensitivity: 1.8 μv for −30 db noise & distortion below 100% FM; AM—2 μv @ 60% mod. for 0.5v output, 6 db S/N; Typical Selectivity: FM — 200 kc @ — 3 db; AM—(wide) 15 kc @ — 6 db, (narrow) 5 kc @ — 6 db; FM Discriminator: 850 kc peak-to-peak; Tuning Range: FM—87.5-108.5 mc, AM — 530-1650 kc; Frequency Response: FM — 20-20,000 cps ± ½ db, AM — (wide) 20-7,500 cps @ — 6 db; Distortion: FM — less than ⅓% IM @ 100% mod. (60 c/7 kc; 4/1w/std. preemphasis) Less than ¼% harmonic @ 100% mod., 400 cps; Hum and Noise Level: FM—60 db below 100% mod., AM—55 db below 100% mod.; FM Drift: ± 2 kc w/AFC; ± 15 kc w/o AFC; Automatic Freq. Control Correction: 20 db; Muting Control Range: 0 db to —40 db audio reduction; Oscillator Radiation: 6 db below FCC requirements; Antenna: FM — 300-ohm balanced, AM — directable ferrite rod, w/external ant. post; Outputs: Cathode-follower audio (10 kc "bridged-T" filter on AM only), FM multiplex; Audio Output: 2.0 volts output @ 100% FM; Tuning Indicator: 2 EM84 light-bar tuning eyes; Tube Complement: 14 plus rectifier; Power Consumption: 65 watts, 110-120v, 50-60 cps; Dimensions: 14 x 12½ x 4 in. high. Shipping Weight 20 lbs.

S-3000 IV—Sherwood "Top-Rated" tuners, the first ever to achieve under 0.95 μv reception, are universally known for the many honors bestowed unsolicited by most recognized testing organizations. Specifications same as S-2200 FM specs. Size: 14"w x 10½"d x 4"h. Shipping weight: 17 lbs. (complete with self-contained stereo MX adapter.)

S-2000 II—Specifications same as S-2200 without simulcast FM-AM Stereo reception feature.

Model	S-3000 IV	S-2000 II	S-2200
"S"—Chassis less case (with white panel)	Fair Trade $160.00	$145.50	$179.50
"A"—Brown Flextone or "B"—Black Flextone case	165.00	150.50	184.50

West of the Rockies ..... add $3.00 to above prices.

NEW SHERWOOD "RAVINIA" MEDIUM-PRICED "BOOKSHELF" HIGH FIDELITY LOUDSPEAKER SYSTEM

A new medium priced 3-speaker, 3-way "bookshelf" high fidelity loudspeaker system is now available from Sherwood. The Sherwood "Ravinia" system features unusually smooth response +2db from 45 cps to 17,500 cps with low IM distortion and smooth peak-free transient response for wide-dynamic range and absence of coloration. The system consists of one 12" high-compliance woofer, one 8" cone midrange speaker with sealed fibreglass fill backplate and one 3½" specially-designed ring-radiator supertweeter, also with sealed fibreglass fill backplate. Cross-over points are 600 cps and 3,500 cps with 12 db/octave attenuation. Level controls are provided for optimum midrange and tweeter balance under all room conditions. Dimensions: 26¼ x 15H x 13¼D.

SR3-W walnut $139.50
SR3-B unfin. birch $129.50
SR3-U unfin. fir $119.50

SHERWOOD AUTHORIZED SERVICE STATION LOCATIONS:

ARIZONA, Phoenix
Emmett Research Laboratories
1309 E. McDowell Road

CALIFORNIA, Los Angeles 7
Bill's House of Natural Sound
3303 So. Hoover Blvd.

CALIFORNIA, San Francisco
L & M TV & Hi-Fi Co.
4731 Mission St.

CANADA, Don Mills (Toronto)
Frank Cox
36 Ashgrove Pl.

COLORADO, Denver 23
Electronix
890 S. Lipman St.

COLORADO, Denver 10
Nolan's Mile High Telectronics
610 Louisiana Ave.

DISTRICT OF COLUMBIA, Washington
Atlantic Radio & TV Serv., Inc.
5413 Georgia Ave., N.W.

FLORIDA, Miami
Southern Authorized Factory Service
62 N.W. 27th Avenue

FLORIDA, Tampa 6
Southern Authorized Factory Service
1506 Grand Central Ave.

GEORGIA, Atlanta 6
Powell Electronic Service Co.
1250 Virginia Ave., N.E.

ILLINOIS, Chicago 18
Sherwood Electronic Labs.
4300 N. California Ave.

LOUISIANA, Baton Rouge
Ogden Park Record Shop
618 N. Third Street

MASSACHUSETTS, Allston
Hi Fi Service Center
129 Brighton Ave.

MICHIGAN, Detroit 27
Reid Television Service
13342 Fenkell Avenue

MICHIGAN, Detroit 35
The Audio Clinic
17125 W. McNichols

MINNESOTA, Minneapolis
Andersen Audio Labs.
4145 Minnehaha Ave.

MISSOURI, St. Louis
Scherrer Instrument Co.
5449 Delmar Avenue

NEW JERSEY, Irvington
Audio Service Labs., Inc.
1422 Springfield Ave.

NEW JERSEY, Union City
Service Center of New Jersey
4008 Bergenline Ave.

NEW MEXICO, Albuquerque
Audio Center
2119 San Mateo Blvd.

NEW YORK, Baldwin, L.I.
Accredited Audio Service Lab.
1870 Grand Avenue

NEW YORK, Brooklyn
Hi Phonics Co.
1955 Coney Island Ave.

NEW YORK, Huntington Station
Suffolk Sound Repair, Inc.
1845 New York Ave.

NEW YORK, New York 19
Components Service, Inc.
250 W. 49th Street

NEW YORK, New York
Sigma Electric
11 East 16th St.

NEW YORK, Schenectady 8
Wide Enterprises, Inc.
612 Union St.

NEW YORK, West Hempstead
Audiotronics
96 Hempstead Tpke.

NEW YORK, White Plaine
Country Universal
Sound & Phono Inc.
55 Central Avenue

NORTH CAROLINA, Charlotte 4
Bernhardt Radio & TV Service
1603 Chatham Ave.

OHIO, Cleveland
Associated Radio Corp.
2912 Euclid

OHIO, Dayton
Thomas Audio Service
4849 Kemp Road

OHIO, Toledo
John Mallory, Audio Service
3158 Algonquin Pkwy.

OHIO, Wooster
Musair, Inc.
350 E. Liberty St.

PENNSYLVANIA, Allentown
A.A. Peters, Inc.
214 North Church Street

PENNSYLVANIA, Erie
House of Records
362 W. 8th Street

PENNSYLVANIA, Philadelphia
Audio Service Co.
131 N. 10th St.

PENNSYLVANIA, Philadelphia
Electronic Servicenter
5354 Germantown Ave.

PENNSYLVANIA, Pittsburgh
Laurence TV Co.
1513 Forbes Ave.

TENNESSEE, Knoxville
Campus Electronics
602 Lookout Ct.

TEXAS, Dallas 5
Calanco Electronics
3025 Monticello Ave.

TEXAS, Houston
B & M Electronics
3717 S. Shepherd Drive

TEXAS, San Antonio 12
Dwyer's TV & Radio Service
820 San Pedro Ave.

WASHINGTON, Seattle 9
Photo-Tronics
223 Westlake Avenue, N.

WASHINGTON, Seattle 9
RMC Service
1320 Prospect Street

WARRANTY

Your Sherwood equipment is covered by a full one-year warranty against defective material or workmanship (except tubes which carry the standard E.I.A 90-day warranty). This warranty is effective from the date of sale to the original purchaser and is void if the equipment has been altered in any manner, or if the enclosed warranty card has not been returned to S.E.L., within ten days from date of purchase. If your Sherwood unit is not operating satisfactorily immediately after purchase, contact your Sherwood dealer, who will either repair it or refer you to the most conveniently located service station (see list above).

S.E.L. maintains a complete factory service laboratory as well as Authorized Service Stations in larger cities where equipment of its manufacture will be repaired at nominal rates if older than 1 year or at no cost (except delivery charges) if within warranty provisions.

Before returning any equipment to S.E.L. for repair, please write to Service Department, Sherwood Electronic Laboratories, 4300 N. California Avenue, Chicago 18, Illinois, giving full details of any operating difficulties encountered. When writing S.E.L. about any maintenance problem, always specify the model and serial numbers of the units in question so that we can provide prompt, accurate service. For best handling, High-Fidelity equipment should *always* be shipped in its original carton by express (prepaid) rather than parcel post.

Sherwood reserves the right to change, improve, or modify its products without obligation to install same on those previously manufactured.

SHERWOOD

ELECTRONIC LABORATORIES, INC.
4300 NORTH CALIFORNIA AVENUE,
CHICAGO 18, ILLINOIS.

Export Dept. – 400 W. Madison St., Chicago 6, Ill.

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