



the **hallicrafters** co.

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92X1946

Hallicrafters A-84 Super-Fidelity Amplifier

GENERAL DESCRIPTION

Your A-84 Super-Fidelity Amplifier offers the ultimate in wide range reproduction. It is designed primarily for use in custom installations with the Hallicrafters ST-83 Super-Fidelity AM-FM Tuner but will provide equally outstanding performance with any quality tuner. It delivers a power output of 10 full watts and can be used with any speaker having a voice coil impedance of either 8 or 16 ohms. The A-84 Amplifier uses Hallicrafters improved all-triode amplifier circuit with a push-pull output consisting of two KT-66's, generally recognized as outstanding for distortion-free power amplification. The amplifier response is virtually flat and distortionless, even at full output, and extends far beyond the outermost limits of audibility -- from 9 to 100,000 cycles per second.

The A-84 Amplifier is designed to operate on 105 to 125 volt, 50/60 cycle AC current and is U/L approved for your protection. It is completely enclosed and may be mounted on a table or shelf or in any hidden location since there are no operating controls to which access is required. Volume, tone, and AC are all controlled from the matching ST-83 Tuner. A convenient power socket is provided on the side of the chassis for operating the companion Hallicrafters A-85 Pre-Amplifier.

A template and instructions for mounting the chassis are provided in a separate sheet included with the amplifier. Carefully read the operating and installation instructions which follow before installing or operating the amplifier. They have been provided to insure the fine performance you have a right to expect from any Hallicrafters "Precision Built" product.

TECHNICAL SPECIFICATIONS

POWER OUTPUT: 10 watts rated; 20 watts max.

FREQUENCY RESPONSE:

± 1 db, 6 to 100,000 cps at 0.5 watt output.

± 1 db, 9 to 100,000 cps at 10 watt output.

TOTAL HARMONIC DISTORTION: Less than 0.14% at 10 watt output.

INTERMODULATION DISTORTION: Less than 0.17% at 0.5 watt output; Less than 1.8% at 10 watt output (40 and 12,000 cps; 4:1)

HUM AND NOISE LEVEL: 80 db at 10 watt output; 83 db at 20 watt output.

SENSITIVITY: 1.25 volts RMS for 10 watt output.

OUTPUT INTERNAL IMPEDANCE: 0.5 ohm on 16 ohm tap.

OUTPUT LOAD IMPEDANCE: 8 and 16 ohms

DAMPING FACTOR: 32:1

POWER CONSUMPTION: 105-125 volts, 50/60 cycles AC; 150 watts.

TUBE COMPLEMENT: 12AU7 amp. and inverter, 12AU7 push-pull driver, (2) KT-66 audio output, 5V4G rectifier.

OVERALL DIMENSIONS: 13-1/2" wide, 7-5/8" high, 8-1/2" deep

SHIPPING WEIGHT: 26 lbs.

INSTALLATION INSTRUCTIONS

UNPACKING - After unpacking the amplifier, examine it closely for damage which may have occurred during shipment. If damaged, file a claim immediately with the carrier stating the extent of damage. Carefully check all labels and tags for instructions before removing or destroying them.

LOCATION AND MOUNTING - The A-84 Amplifier is completely enclosed and may be mounted on a table or shelf or installed in a cabinet or hidden location. When locating the amplifier, consideration should be given to service accessibility and ventilation. (See instructions below). For table mounting, it will be necessary to fasten the four rubber feet to the bottom of the chassis.

For custom installation, first make the front panel cutout using the full-size template provided. Note that the template is laid out above the top surface of the mounting shelf. Next, locate and drill the four chassis mounting holes using the template. Remove the four screws and washers used in shipment to mount the amplifier to the mounting board. Locate the amplifier in position, and fasten it securely in place using the four screws and washers.

VENTILATION - This amplifier gives off the same amount of heat as a 150 watt lamp or soldering iron; therefore, it is very important that sufficient ventilation be provided to carry off the heat. When the amplifier is installed in an enclosed cabinet, at least two openings (each 3x6 inches or larger) should be provided at the rear of the enclosure -- one near the bottom and the other near the top to provide a "chimney effect". Additional ventilation may be obtained in enclosed installations by removing the amplifier top cover.

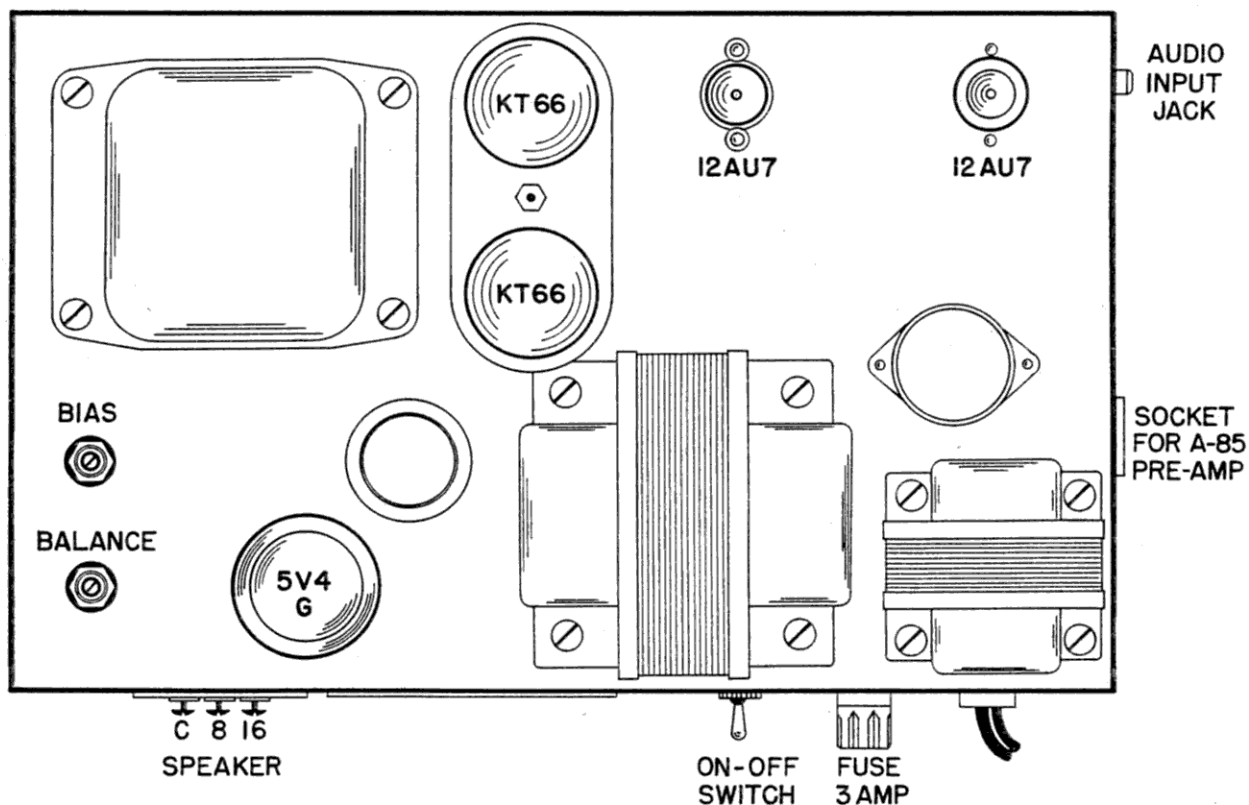


Fig. 1. Top View of Chassis

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POWER SOURCE - The A-84 Amplifier is designed to operate on 117 volt, 50/60 cycle AC current. Continuous operation at higher line voltage will shorten the life of the KT-66 audio output tubes. Therefore, in installations where the line voltage is 3 volts or more higher than 117 volts, the jumper lead to the three terminal strip located underneath the chassis should be disconnected from the terminal marked "N" and connected to the terminal marked "H". In installations where the line voltage is 105 volts or lower, connect the jumper lead to the terminal marked "L".

NOTE: To turn the amplifier on, set the power switch at the rear in the "up" position. When using the A-84 Amplifier with the ST-83 Tuner, the amplifier power cord should be plugged into the AC outlet at the rear of the tuner so that the amplifier can be turned on and off simultaneously with the tuner.

AUDIO INPUT CONNECTION - The A-84 Amplifier has no volume, tone, or switching facilities. Any volume control, frequency compensation, pre-amplification, or switching is performed in the companion ST-83 Tuner or associated equipment preceeding the input to the amplifier. The audio input connection to the amplifier is made to the jack located at the side of the chassis. When the ST-83 Tuner is used, the input connection is made through the shielded audio cable provided with the tuner. Additional low loss shielded cable, such as RG-62/U, may be added with no noticeable loss in fidelity, to approximately 50 feet.

SPEAKER - Your A-84 Amplifier is designed for use with any speaker having an 8 or 16 ohm voice coil although some slight variation from these values is also permissible. Speaker connections are made to the three terminal strip at the rear of the amplifier using 2 conductor #18 cable. Connect the leads at one end of the cable to the speaker voice coil and the leads at the other end to the terminal marked "C" and the numbered terminal which most closely corresponds to the value of the speaker voice coil. As much as 50 feet of #18 cable may be used without any noticeable loss in power.

PRE-AMPLIFIER CONNECTIONS - An accessory power socket is provided at the side of the amplifier for operating the Hallicrafters A-85 Pre-Amplifier, additional pilot lamps, etc. This socket supplies 6.3 volts AC at 1.5 amps and 420 volts DC at 25 milliamperes. For socket connections, refer to the schematic diagram.

CAUTION - Operation of the A-84 Amplifier with continuous sine-wave output of 15 watts or more will often seriously reduce the life of one or both of the KT-66 audio output tubes. Never operate the amplifier with only one output tube in place.

BALANCE AND BIAS ADJUSTMENTS - The BALANCE and BIAS adjustments have been carefully adjusted at the factory for correct operation. If either KT-66 audio output tube is replaced, it will be necessary to readjust these controls as outlined below.

- a. Disconnect the jumper on the two terminal strip located underneath the chassis. Connect a DC voltmeter between the two terminals on this strip. Adjust the BALANCE control (see Fig. 1) for a zero reading on the voltmeter using the lowest voltmeter scale.

NOTE: In some instances, slight differences in operating characteristics of the two KT-66 output tubes may make it impossible to obtain a zero reading. If a reading below 1.0 volt cannot be obtained, it will be necessary to try several tubes until a pair of tubes is found which will give a reading of 1.0 volt or less. Tube substitution is required **ONLY** if a reading of 1.0 volt or less cannot be obtained.

- b. Replace the jumper on the two terminal strip. Connect the positive lead of the DC voltmeter to the jumper and the negative lead to the chassis. Adjust the BIAS control (see Fig. 1) until the meter reads +38 volts.

SERVICE OR OPERATING QUESTIONS - For further information regarding operation or servicing of your amplifier, contact your dealer. Make no service shipments to the factory. The Hallicrafters Company maintains an extensive system of authorized factory service centers where any required service can be performed promptly and efficiently at a nominal charge. The sign shown at the right is displayed by all authorized service centers.

The Hallicrafters Co. reserves the privilege of making revisions in current production of equipment and assumes no obligation to incorporate these revisions in earlier models.



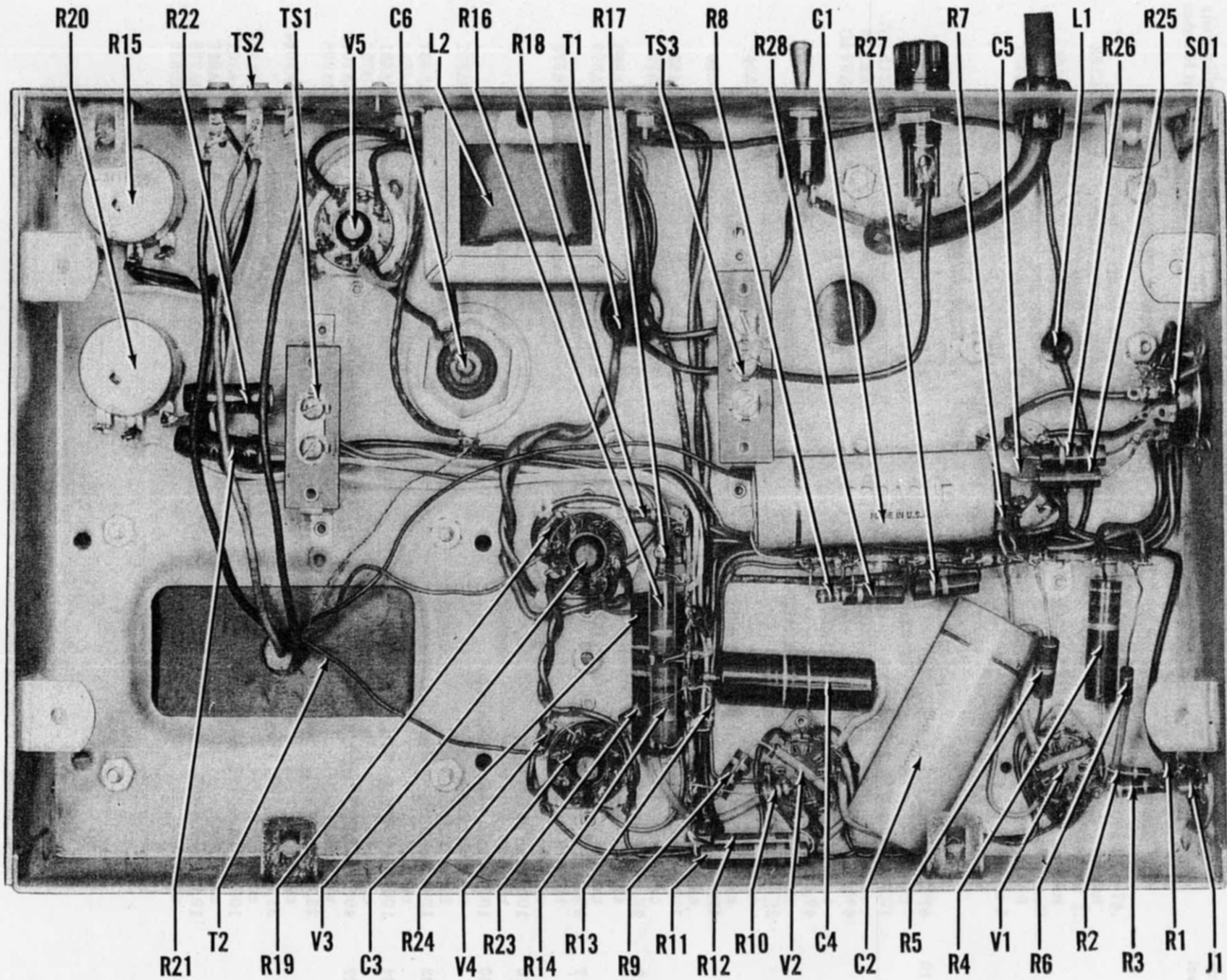
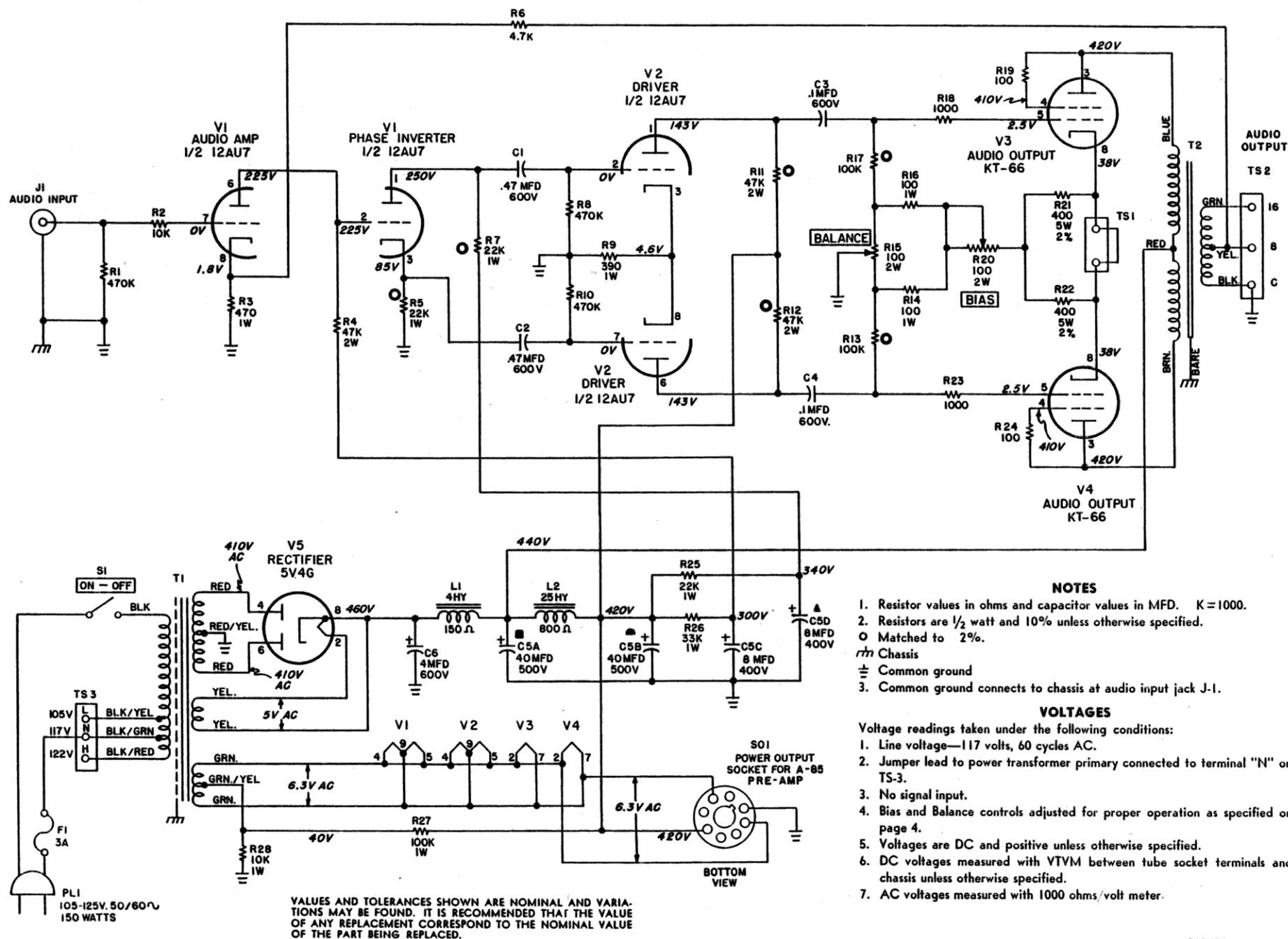


Fig. 2. Bottom View of Chassis Showing Component Location

SERVICE PARTS LIST

Schematic Symbol	Description	Hallicrafters Part Number	Schematic Symbol	Description	Hallicrafters Part Number
CAPACITORS			COILS AND TRANSFORMERS		
C-1,2	.47 mfd. 600 V., oil filled; tubular	46B203	L-1	Choke, filter; 4 henries, 170 ma, 150 ohms	56C152
C-3,4	.1 mfd. 600 V., oil filled; molded tubular paper	46C202	L-2	Choke, filter; 25 henries, 40 ma, 800 ohms	56C151
C-5	Dual 40 mfd. 500 V., dual 8 mfd. 400 V.; electrolytic	45B222	T-1	Transformer, power	52D263
C-6	4 mfd. 600 V., electrolytic	46B206	T-2	Transformer, audio output	55D203
RESISTORS			TUBE COMPLEMENT		
R-1,8,10	470,000 ohms 10%, 1/2 watt; carbon	23X20X474K	V-1,2	12AU7: audio amplifier and phase inverter, driver	90X12AU7
R-2	10,000 ohms 10%, 1/2 watt; carbon	23X20X103K	V-3,4	KT66: audio output	90XKT66
R-3	470 ohms 10%, 1 watt; carbon	23X30X471K	V-5	5V4G: rectifier	90X5V4G
R-4	47,000 ohms 10%, 2 watt; carbon	23X40X473K	CONNECTORS AND SOCKETS		
R-5,7	2% matched resistor pair; 22,000 ohms 1 watt, carbon	23B088	J-1	Jack, audio input	36A041
R-6	4700 ohms 10%, 1/2 watt; carbon	23X20X472K	SO-1	Socket, pre-amplifier power	6B296
R-9	390 ohms 10%, 1 watt, carbon	23X30X391K		Socket, tube; miniature 9 pin	6A452
R-11,12	2% matched resistor pair; 47,000 ohms 2 watt, carbon	23B087	TS-1	Socket, tube; octal	6B296
R-13,17	2% matched resistor pair; 100,000 ohms 1/2 watt, carbon	23B086	TS-2	Terminal strip, KT66 cathode	88A880
R-14,16	100 ohms 10%, 1 watt, carbon	23X30X101K	TS-3	Terminal strip, speaker	88A879
R-15,20	100 ohms 2 watt, wirewound variable; BIAS and BALANCE controls	25B1018		Terminal strip, power transformer primary	88A878
R-18,23	1000 ohms 10%, 1/2 watt; carbon	23X20X102K	MISCELLANEOUS PARTS		
R-19,24	100 ohms 10%, 1/2 watt; carbon	23X20X101K	F-1	Foot, mtg.; rubber	16A321
R-21,22	400 ohms 2%, 5 watt; wirewound	24BF401B		Fuse, 3 amp 250V.; type 3AG	39A337
R-25	22,000 ohms 10%, 1 watt; carbon	23X30X223K	PL-1	Holder, fuse	6A451
R-26	33,000 ohms 10%, 1 watt; carbon	23X30X333K		Line cord and plug	87A481
R-27	100,000 ohms 10%, 1 watt; carbon	23X30X104K		Lock, line cord	76B756
R-28	10,000 ohms 10%, 1 watt; carbon	23X30X103K	S-1	Mtg. base, tube shield	76A1018
				Mtg. plate, capacitor C-5	8A1998
				Nameplate, Hallicrafters Precision Built	13A1044
				Nameplate, tube location and power data	13C1106
				Retainer, tube; for KT-66's	76A1017
				Shield, miniature tube	69A519
				Switch, spst toggle	60A138
				Top cover	66D856



NOTES

1. Resistor values in ohms and capacitor values in MFD. K=1000.
2. Resistors are 1/2 watt and 10% unless otherwise specified.
3. Matched to 2%.
- Chassis
- Common ground
- Common ground connects to chassis at audio input jack J-1.

VOLTAGES

- Voltage readings taken under the following conditions:
1. Line voltage—117 volts, 60 cycles AC.
 2. Jumper lead to power transformer primary connected to terminal "N" on TS-3.
 3. No signal input.
 4. Bias and Balance controls adjusted for proper operation as specified on page 4.
 5. Voltages are DC and positive unless otherwise specified.
 6. DC voltages measured with VTVM between tube socket terminals and chassis unless otherwise specified.
 7. AC voltages measured with 1000 ohms/volt meter.

ERRATA SHEET FOR
MODEL A-84 (Run 1)

Several engineering improvements were made in the model A-84 after the instruction book for this model was printed. These changes, which were made prior to production, are listed below.

1. C-7, a 10 mmf. ceramic capacitor, was added from pin 6 of V-1 to the chassis terminal of J-1, the audio input jack.
2. C-8, a 10 mfd. 50 V. electrolytic capacitor, was added across R-28 (between the power transformer grn/yel lead and common ground)

SUPPLEMENTARY PARTS LIST

This parts list contains additions to the Service Parts List located on Page 6 of the instruction book.

Schematic Symbol	Description	Hallicrafters Part Number
	CAPACITORS	
C-7	10 mfd. 10%, 500 V.; ceramic	47A299
C-8	10 mfd. 50 V., electrolytic	45B211

ERRATA SHEET for
Model A-84 (Run 1)

After the instruction book for the model A-84 was printed, an engineering improvement was made adding a 10 mfd. 50V. electrolytic capacitor (Part Number 45B211) across R-28 (between the power transformer grn/yel lead and common ground). The schematic diagram and service parts list in the instruction book should be amended to conform with this change.

WARRANTY

"The Hallicrafter's Company warrants each new radio product manufactured by it to be free from defective material and workmanship and agrees to remedy any such defect or to furnish a new part in exchange for any part of any unit of its manufacture which under normal installation, use and service discloses such defect, provided the unit is delivered by the owner to our authorized radio dealer, wholesaler, from whom purchased, or, authorized service center, intact, for examination, with all transportation charges prepaid within ninety days from the date of sale to original purchaser and provided that such examination discloses in our judgment that it is thus defective.

This warranty does not extend to any of our radio products which have been subjected to misuse, neglect, accident, incorrect wiring not our own, improper installation, or to use in violation of instructions furnished by us, nor extended to units which have been repaired or altered outside of our factory or authorized service center, nor to cases where the serial number thereof has been removed, defaced or changed, nor to accessories used therewith not of our own manufacture.

Any part of a unit approved for remedy or exchange hereunder will be remedied or exchanged by the authorized radio dealer or wholesaler without charge to the owner.

This warranty is in lieu of all other warranties expressed or implied and no representative or person is authorized to assume for us any other liability in connection with the sale of our radio products."

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