HALLICRAFTERS

500 SERIES
POWER SUPPLIES

03/15/2021 *WDØGOF*

HALLICRAFTERS

500 SERIES
POWER SUPPLIES

The 500 series power supplies were designed for the SR-500 and the SR-400 series transceivers.

The first in the line was the P-500 which was the first run power supply for the SR-500. Only the first print SR-500 manuals feature the P-500 manual. It ran on 117vac input. It delivered high a voltage of 750vdc at 500ma; B+ of 280vdc at 100ma; adjustable bias (-90 to -130vdc); and 12.6vac at 5.0A. For the European market the dual primary (117/234) was available.

The second production run of the SR-500 featured the PS-500-AC. It is basically the same as the P-500.

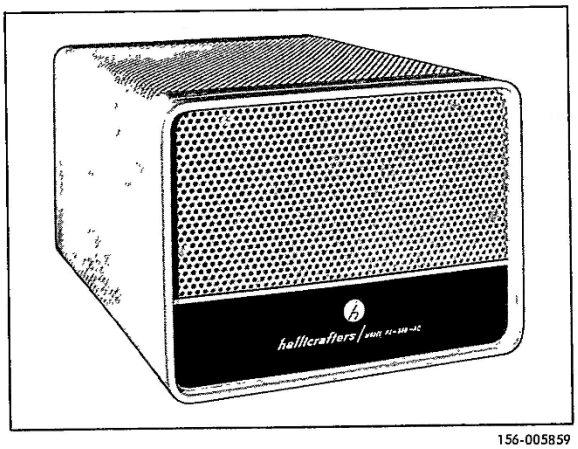
The PS-500A-AC was designed for use with the SR-400 series transceivers. The voltage out put is the same as the previous 500 supplies. It did not have the variable negative bias voltage output. The bias output voltage was fixed at -130vdc. Most documentation lists the PS-500A-AC as a dual input voltage unit, 117/234vac. However, when ordering from the factory you could get the 117vac only version. Second and third production run versions had a 117 ac output jack for driving a cooling fan.

Over the last 60 years of migrating all over the country and the world you can find any of the six basic configurations of the 500 series power supplies connected to either the SR-500 or the SR-400. I have even found some HT-44's driven by various 500 series supplies (although I don't see why, if anything, performance of the 44 is degraded when attached to the 500 supply. And, a method of adjusting the negative bias must be added.).

The PS-500-DC was designed to be used with both the 500 and 400 series transceivers. Caution is needed in the installation of the DC supply. It emits an annoying 6000 to 13000hz squeal. It was intended to be trunk mounted for separation from the noise.

When restoring these power supplies, you should seek out electrolytic capacitors with an ESR of 5 ohms or less. I personally shoot for 0.1 ohms or less. The cost runs 2 to 3 times the cost of caps with 5 ohms or more. But the results of less hum in the receiver and transmitter are well worth the investment.

AC POWER SUPPLY MODEL PS-500-AC
GUIDE TO INSTALLATION WITH THE SR-500



156-005859

Figure 14. Hallicrafters Model PS-500-AC Power Supply.

9-1. DESCRIPTION.

Hallicrafters' Model PS-500-AC Power Supply is a complete, self-contained power unit designed to permit Hallicrafters' Model SR-500 Transceiver to be operated from a nominal 117-volt AC source. This power supply, through a 12-pin power plug and cable at the rear, will furnish all the supply voltages necessary for optimum performance of the SR-500.

Hallicrafters' Model PS-500-AC operates from a 105-volt to 125-volt, 50/60 cycle, AC source. The power supply also contains a 3.2-ohm permanent-magnet type speaker which connects to the SR-500 through the 12-pin power plug and cable.

WARNING

LETHAL HIGH VOLTAGE IS PRESENT WITHIN THIS EQUIPMENT. BE CAREFUL WHEN INSTALLING THE UNIT, WHEN MAKING BIAS ADJUSTMENTS, AND WHEN PERFORMING CHECKS UNDER THE CHASSIS.

9-2. BIAS ADJUSTMENT.

When using the PS-500-AC with the SR-400 series set the bial control for the maximun negative voltage on the wiper arm of R115 in the SR-400

After connecting the power supply to the SR-500 and to the proper power source, the transmitter bias must be adjusted to achieve optimum performance of the transceiver.

1. Connect a voltmeter (2.5 or 3.0 VDC range) to the tip jacks at the top rear of the power supply chassis. (Connect the positive lead from the meter to the red jack.)
2. Turn the Model SR-500 on: OPERATION switch to SSB.
3. With no signal applied to the transmitter and the microphone button depressed, adjust the BIAS ADJ potentiometer, R206 on the rear of the power supply chassis, for 1.0 volt on the meter. (100 MA)
4. Disconnect the meter after turning the equipment off.

This adjustment is not necessary each time the SR-500 is used; however, it should be checked periodically and whenever the transmitter final amplifier tubes are replaced.

9-3. CHASSIS REMOVAL.

To remove the PS-500-AC chassis from its cabinet, remove the six hex-head screws on the bottom (four are in the feet and two are at the center front and rear) and disconnect the speaker leads on the top rear of the chassis. The chassis will slide out the rear of the cabinet.

REPAIR PARTS LIST

Schematic Symbol	Description	Hallicrafters Part Number
C201,202	Capacitor, 0.01 μF, 1400 V, Ceramic Disc	047-200752
C203	Capacitor, 0.001 μF, 3000 V, Ceramic Disc	047-100397
C204A&B	Capacitor, 2 x 30 μF, 350 V, Electrolytic	045-000902
C205	Capacitor, 90 μF, 500 V, Electrolytic	045-001337
C206	Capacitor, 90 μF, 500V, Electrolytic	045-001338
C207,208	Capacitor, 20 μF, 250 V, Electrolytic	045-000903
C209	Capacitor, 0.22 μF, 600 V, Paper	046-001434-464
CR201 thru CR208	Diode, 1N3195	019-002770
CR209	Diode, 1N3194	019-002769
F201	Fuse, 5 Amperes, 125 Volts, 3 AG, (Slow Blow)	039-000791
J201	Connector, Power (12-pin)	010-002613
L201	Choke, Filter	056-100595
L202	Choke, Filter	056-000585
R201,202	Resistor, 20K Ohms, 10%, 10 Watts Wire Wound	445-032203
R203	Resistor, 100 Ohms, 10%, 1/2 Watt, Carbon	451-252101
R204	Resistor, 4700 Ohms, 10%, 2 Watts, Carbon	451-652472
R205	Resistor, 22K Ohms, 10%, 1 Watt, Carbon	451-352223
R206	Resistor, Variable, 10K Ohms, 20%, 3/4 Watt, Bias Adj.	025-002330
R207	Resistor, 10 Ohms, 5%, 1 Watt, Carbon	451-351100
R208	Resistor 1500 Ohms, 10%, 10 Watts, Wire Wound	445-032152
T201	Transformer, Power	050-002181
TP201	Tip Jack, Red	036-060304
TP202	Tip Jack, Blue	036-000307
	Baffle Board	078-001711
	Baffle, Felt	014-000476
	Cabinet	066-003437
	Cable (9-Conductor)	087-008370
	Cable Assembly	087-008369
	Cable Clamp	076-202744
	Foot, Rubber (4)	016-201072
	Front Panel	068-001677
	Fuse Holder	006-200837
	Line Cord	087-104960
	Lock, Line Cord	076-100953
	Rear Panel	068-001678
	Speaker, 4 x 6 inch PM, 3.2 Ohms	085-000218

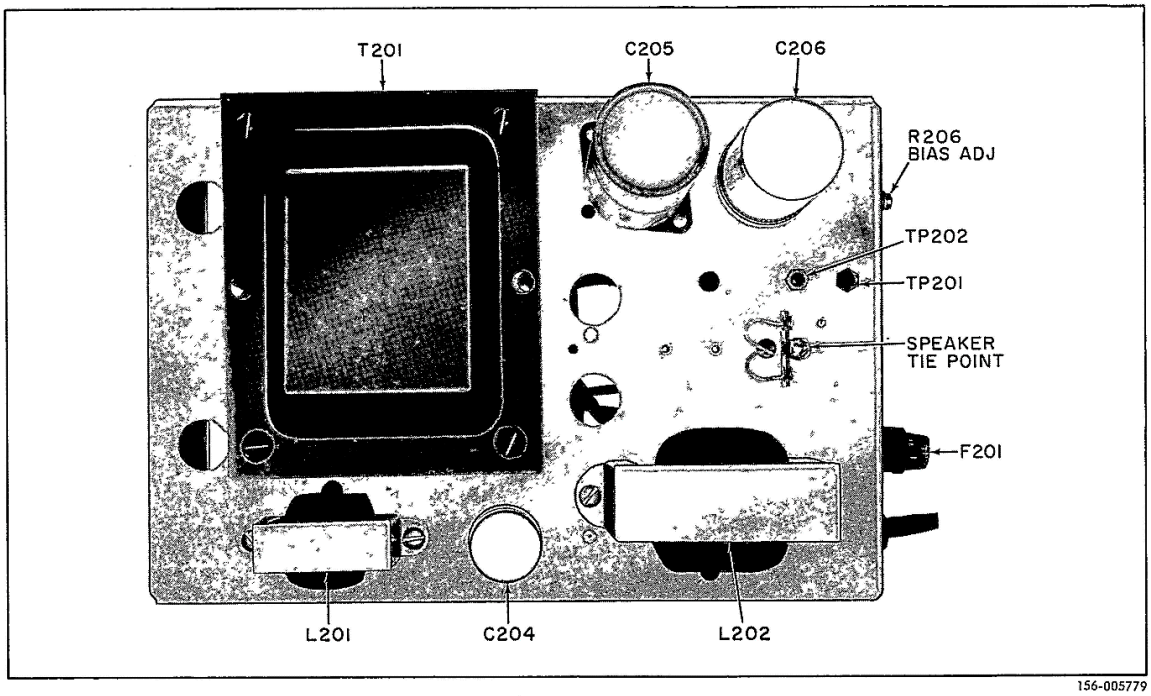


Figure 15. Top Chassis View of Model PS-500-AC Power Supply.

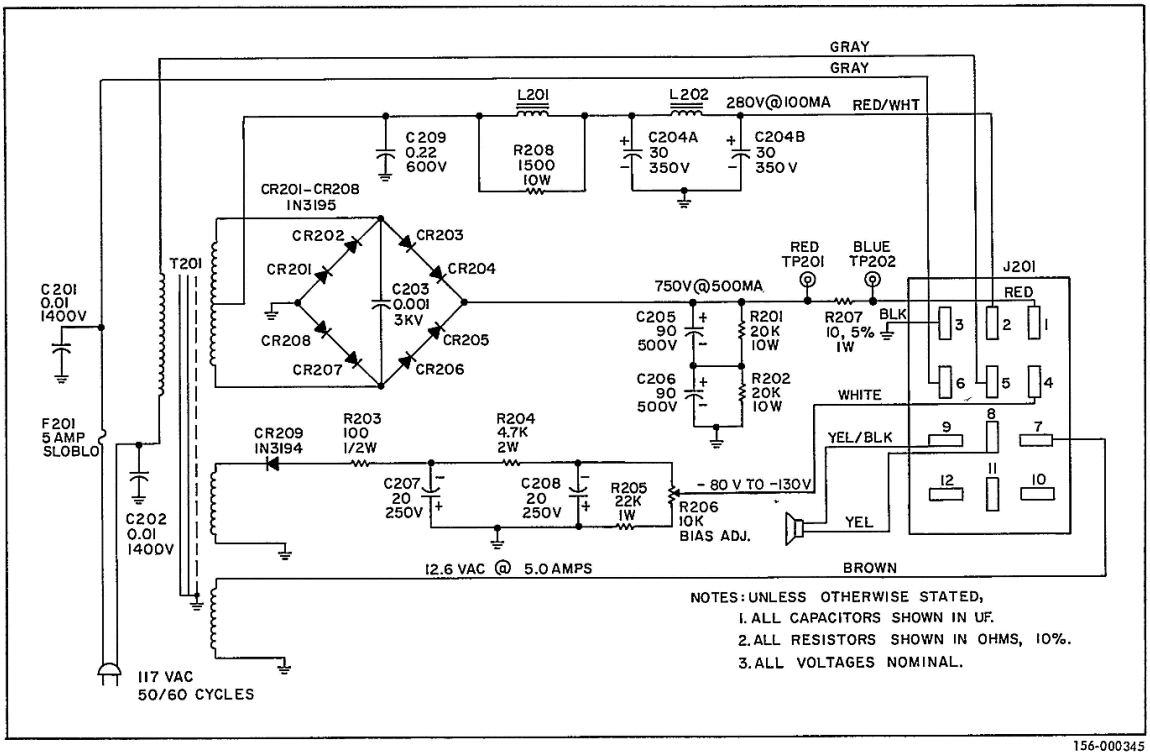


Figure 16. Schematic Diagram of Model PS-500-AC Power Supply.

AC POWER SUPPLY MODEL PS-500A-AC

Figure 18. Model PS-500A-AC Power Supply.

9-1. DESCRIPTION. Hallicrafters Model PS-500A-AC Power Supply (figure 18) is a complete, self-contained power unit designed to permit Hallicrafters Model SR-400A Transceiver to be operated from a nominal 117/234 volt AC source. This power supply, through a 12-pin power plug and cable at the rear, will furnish all the supply voltages required by the transceiver.

Power Supply PS-500A-AC operates from a 105- to 125-volt or 210- to 250-volt 50/60 Hz; AC source. The power supply also contains a 3.2-ohm permanent-magnet type speaker which connects to the SR-400A Transceiver through the 12-pin power plug and cable. Refer to figures 19 and 20.

WARNING

LETHAL HIGH VOLTAGE IS PRESENT WITHIN THIS EQUIPMENT. BE CAREFUL WHEN INSTALLING THE UNIT AND WHEN PERFORMING CHECKS.

9-2. 234-VOLT OPERATION. The PS-500A-AC Power Supply is shipped ready for 117-volt operation. If 234-volt operation is desired, remove the back cover of the power supply; remove the switch-locking plate from S201, and slide the switch to the opposite position. Turn the locking plate so that 234 VAC is visible and fasten in place over the switch. The 5-ampere, 125-V SLO-BLO fuse (F201) should be replaced with a 3-ampere, 250-V SLO-BLO fuse. Replace the back cover of the power supply. The PS-500A-AC Power Supply is now ready to operate from a 234-volt AC source.

Should 117-volt operation be desired after the PS-500A-AC has been set up for 234-volt operation, the above procedures concerning S201 and F201 should be reversed.

9-3. CHASSIS REMOVAL. To separate the PS-500A-AC chassis from the cabinet, remove the rear cover (two screws) and the six-hexagon head screws on the bottom (four are in the rubber feet and two are at the center, front and rear). Disconnect the speaker leads on the top rear of the chassis and slide the chassis out the rear of the cabinet.

REPAIR PARTS LIST

Schematic Symbol	Description	Hallicrafters Part Number
C201,202	Capacitor, 0.01μF, 1400V, Ceramic Disc	047-200752
C203	Capacitor, 0.001μF, 3000V, Ceramic Disc	047-100397
C204A & B	Capacitor, 2 x 30μF, 350V, Electrolytic	045-000902
C205	Capacitor, 90μF, 500V, Electrolytic	045-001337
C206	Capacitor, 90μF, 500V, Electrolytic	045-001338
C207,208	Capacitor, 20μF, 250V, Electrolytic	045-000903
C209	Capacitor, 0.22μF, 600V, Paper	046-001434-464
CR201 thru CR208	Diode, 1N3195	019-002770
CR209	Diode, 1N3194	019-002769
F201	Fuse, 5 Amperes, 125 Volts, 3 AG (Slow-Blow)	039-000791
J1	AC, Receptacle, Accessory Fan	010-004211
J201	Connector, Power (12-pin)	010-002613
L201	Choke, Filter	056-000595
L202	Choke, Filter	056-000585
R201,202	Resistor, 20K Ohms, 10%, 10 Watts, Wire-wound	445-032203
R203	Resistor, 100 Ohms, 10%, 1/2 Watt, Composition	451-252101
R204	Resistor, 4700 Ohms, 10%, 2 Watts, Composition	451-652472

If this power supply is used with the SR-500 a bias divider must be added to the negative voltage supply

REPAIR PARTS LIST (CONTD)

Schematic Symbol	Description	Hallicrafters Part Number	Schematic Symbol	Description	Hallicrafters Part Number
R207	Resistor, 10 Ohms, 5%, 5 Watts, Wirewound	445-011100		Baffle Board	078-001711
				Baffle, Felt	014-000476
				Cabinet	066-003437
R208	Resistor, 1500 Ohms, 10%, 10 Watts, Wirewound	445-032152		Cable (9-Conductor)	087-008370
				Cable Assembly	087-008369
				Cable Clamp	076-202744
R209	Resistor, 33K Ohms, 10%, 1 Watt, Composition	451-352333		Foot, Rubber (4)	016-201072
				Front Panel	068-002255
				Fuse Holder	006-200837
R210	Resistor, 250 Ohms, 10%, 5 Watts, Wirewound	445-012251		Line Cord	087-104690
				Lock, Line Cord	076-100953
				Rear Panel	068-002257
T201	Transformer, Power	050-003481		Speaker, 4- x 6-inch PM, 3.2 Ohms	085-000218
TP201	Tip Jack, Red	036-060304			
TP202	Tip Jack, Blue	036-000307	S201	Switch, Slide (DPDT)	060-003457

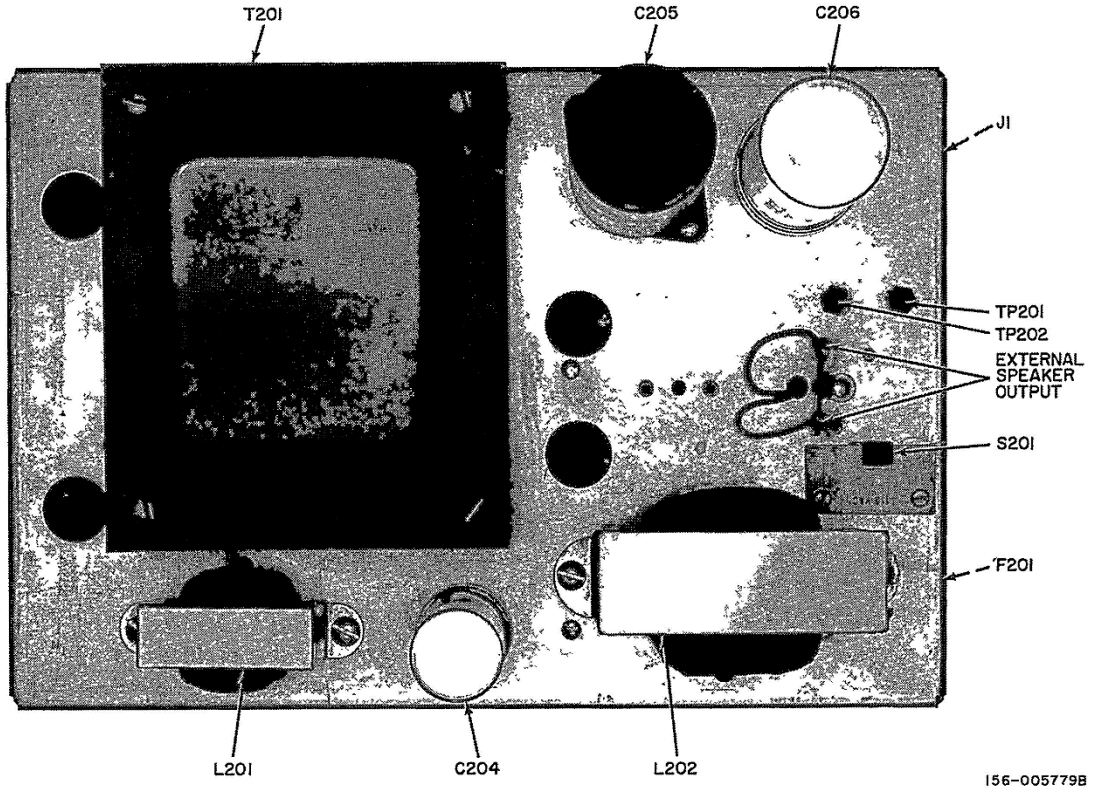


Figure 19. Component Locations on PS-500A-AC (Top Inside View).

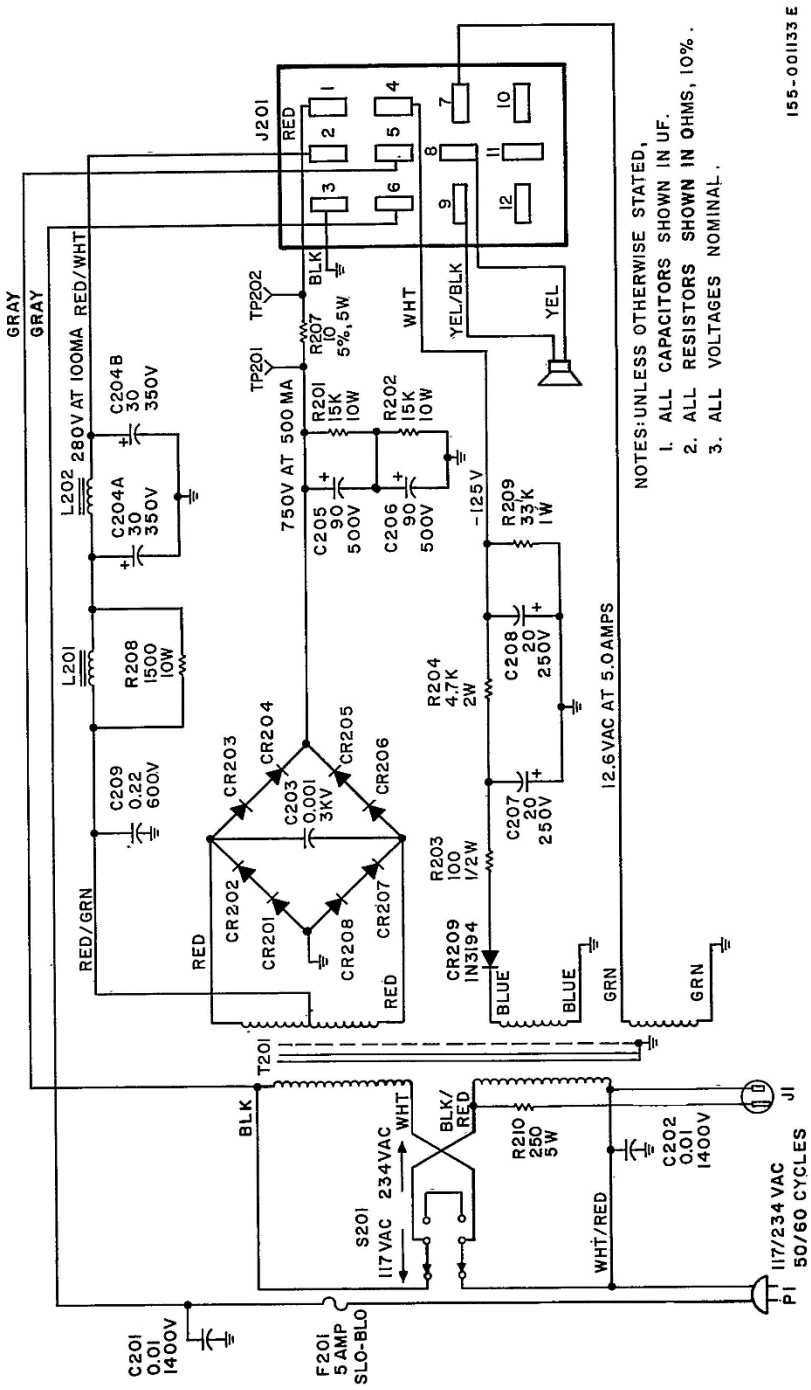


Figure 20. Schematic Diagram of PS-500A-AC.

INSTRUCTIONS FOR USE WITH THE SR-400 SERIES
DC POWER SUPPLY MODEL PS-500-DC

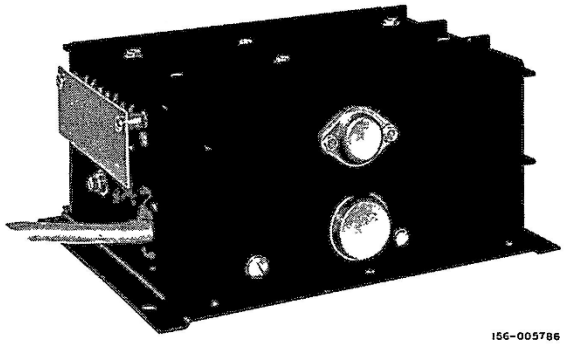


Figure 21. Model PS-500-DC Power Supply.

10-1. DESCRIPTION. Hallicrafters Model PS-500-DC Power Supply (figure 21) is a complete, compact, self-contained power unit designed to permit Hallicrafters Model SR-400A Transceiver to be operated from a 12-volt DC source. This power supply is designed for operation in conjunction with a negative-grounded power source.

The PS-500-DC Power Supply is designed to operate from an 11.6- to 15.6-volt DC source with 13.6 volts as nominal voltage.

All connections are made to the power supply through a two-conductor cable and terminal strip on one side of the unit (see figures 8 and 22). The two-conductor cable is used for connection to the 12-volt source through the wires supplied. The seven-connector strip (TS301) is used to supply the operating voltages to the transceiver and connects to the transceiver through the cable supplied with the Model MR-400A Mobile Mounting Rack, available as an accessory. Refer to figure 23 for schematic diagram.

WARNING

LETHAL HIGH VOLTAGE IS PRESENT WITHIN THIS EQUIPMENT. BE CAREFUL WHEN INSTALLING THE UNIT AND WHEN PERFORMING CHECKS.

10-2. BIAS ADJUSTMENT. After interconnecting the power supply to the proper power source and to the transceiver, the transmitter bias must be adjusted to achieve optimum transceiver performance. Before setting the BIAS ADJ control on the panel of the transceiver (see paragraph 5-4 or 8-3), set the bias adjustment control (R309) on the power supply for maximum bias voltage (turn the control fully clockwise).

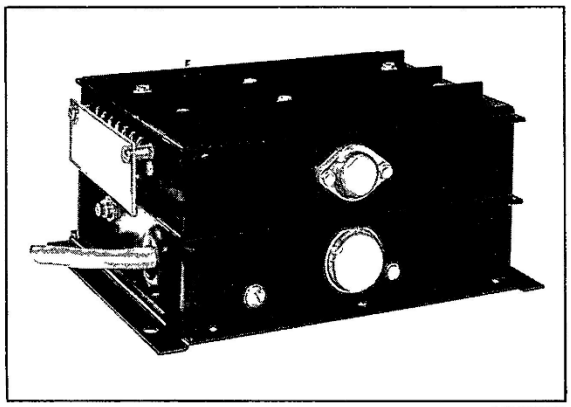
10-3. COVER REMOVAL. Remove the ten screws holding the base plate of the unit and lift the plate. This procedure will provide visual inspection for all the components in the power supply. The end extrusions and component board may be further exposed by removing the mounting screws as required.

REPAIR PARTS LIST

Schematic Symbol	Description	Hallicrafters Part Number
C301	Capacitor, 2000μF, 15V, Electrolytic	120-002142
C302	Capacitor, 50μF, 150V, Electrolytic	120-002143
C303,304	Capacitor, 40μF, 450V, Electrolytic	120-002144
C305	Capacitor, 20μF, 450V, Electrolytic	120-002145
CB301	Circuit Breaker	120-002146
CR301	Diode (200V @1A)	120-002147
CR302	Diode (600V @1A)	120-002428
CR303	Bridge, Rectifier Assembly (600V @1A)	120-002148
CR304	Bridge, Rectifier Assembly (1200V @1A)	120-002149
R301,303	Resistor, 1500 Ohms, 10%, 1/2 Watt, Composition	451-252152
R302,304	Resistor, 150 Ohms, 10%, 1/2 Watt, Composition	451-252151
R305,306, 314,315	Resistor, 0.47 Ohm, 10%, 2 Watts, Wirewound	453-032000-47
R307	Resistor, 5.6 Ohms, 10%, 2 Watts, Wirewound	453-032056
R308	Resistor, 0.5 Ohms, 10%, 5 Watts, Wirewound	120-002158
R309	Resistor, Variable, 10K Ohms, Bias Adj	120-002150
R310	Resistor, 22K Ohms, 10%, 1/2 Watt, Composition	451-252223
R311,312, 313	Resistor, 100K Ohms, 10%, 2 Watts, Composition	451-652104

INSTRUCTIONS FOR USE WITH THE SR-500

DC POWER SUPPLY MODEL PS-500-DC



156-005786

Figure 17. Hallicrafters Model PS-500-DC Power Supply.

10-1. DESCRIPTION.

Hallicrafters' Model PS-500-DC Power Supply is a complete, compact, self-contained power unit designed to permit Hallicrafters' Model SR-500 Transceiver to be operated from a 12-volt DC source. This power supply is shipped for operation in conjunction with a negative-grounded power source.

The Model PS-500-DC Power Supply, is designed to operate from an 11.6 volt to 15.6 volt DC source with 13.6 volts as nominal voltage.

All connections are made to the power supply through a two wire cable and terminal strip on one side of the unit (see figures 6 and 18). The two-conductor cable is used for connection to the 12-volt source through the wires supplied. The seven-connector strip (TS301) is used to supply the operating voltages to the transceiver and connects to the transceiver through the cable supplied with the Mobile Installation Kit Model MR-160 available as an accessory.

WARNING

LETHAL HIGH VOLTAGE IS PRESENT WITHIN THIS EQUIPMENT. BE CAREFUL WHEN INSTALLING THE UNIT, WHEN MAKING BIAS ADJUSTMENTS, AND WHEN PERFORMING CHECKS UNDER THE CHASSIS.

10-2. BIAS ADJUSTMENT.

After interconnecting the power supply to its proper power source and to the transceiver, the transmitter bias must be adjusted to achieve optimum performance of the transceiver.

1. Disconnect the high voltage (red/white) lead from terminal 1 of TS301.
2. Connect an ammeter, with a full-scale deflection of 0-500 MA, between the high voltage lead and terminal 1 of TS301.
3. Turn the transceiver on: OPERATION switch to SSB.
4. With no signal applied to the transceiver and the microphone button depressed, adjust the BIAS ADJ potentiometer, R309 on the side of the power supply chassis, for a reading of 100 MA on the meter.
5. Disconnect the meter and reconnect lead to terminal 1 of TS301.

This adjustment is not necessary each time the SR-500 is used; however, it should be checked periodically and whenever the transmitter final amplifier tubes are replaced.

10-3. COVER REMOVAL.

Remove the ten screws holding the base plate of the unit and lift the plate. This will provide visual inspection for all the components in the power supply. The end extrusions and component board may be further exposed by removing their mounting screws as required.

REPAIR PARTS LIST

Schematic Symbol	Description	Hallicrafters Part Number
C301	Capacitor, 2000 UF, 15V, Electrolytic	120-002142
C302	Capacitor, 50 UF, 150V, Electrolytic	120-002143
C303,304	Capacitor, 40 UF, 450V, Electrolytic	120-002144
C305	Capacitor, 20 UF, 450V, Electrolytic	120-002145
CB301	Circuit Breaker	120-002146
CR301,302	Diode (600V @ 0.5A)	120-002147
CR303	Bridge, Rectifier Assembly (600V @ 1A.)	120-002148
CR304	Bridge, Rectifier Assembly (1200V @ 1A.)	120-002149
R301,303	Resistor, 1500 Ohms, 10%, 1/2 Watt, Carbon	451-252152
R302,304	Resistor, 150 Ohms, 10%, 1/2 Watt, Carbon	451-252151
R305,306, 314,315	Resistor, 0.47 Ohm, 10%, 2 Watts, Wire Wound	453-032000-47
R307	Resistor, 5.6 Ohms, 10%, 2 Watts, Wire Wound	453-032056
R308	Resistor, 0.5 Ohms, 10%, 5 Watts, Wire Wound	120-002158
R309	Resistor, Variable, 10K Ohms, Bias Adj.	120-002150
R310	Resistor, 22K Ohms, 10%, 1/2 Watt, Carbon	451-252223
R311,312, 313	Resistor, 100K Ohms, 10%, 2 Watts, Carbon	451-652104
K301	Relay, Primary Switch	120-002151
K302	Relay, Starting	120-002152
T301	Transformer, Exciter	120-002153
T302	Transformer, Power	120-002154
Q301,302	Transistor, Type 2N555	120-002155
Q303,304	Transistor, Type MHT 1810	120-002156
TS301	Terminal Strip	120-002157

REPAIR PARTS LIST (CONTD)

Schematic Symbol	Description	Hallicrafters Part Number	Schematic Symbol	Description	Hallicrafters Part Number
K301	Relay, Primary Switch	120-002151	Q303,304	Transistor, Type MHT 1810	120-002156
K302	Relay, Starting	120-002152			
T301	Transformer, Exciter	120-002153	TS301	Terminal Strip	120-002157
T302	Transformer, Power	120-002154		Cable (2-Conductor)	120-002429
Q301,302	Transistor, Type 2N555	120-002155			

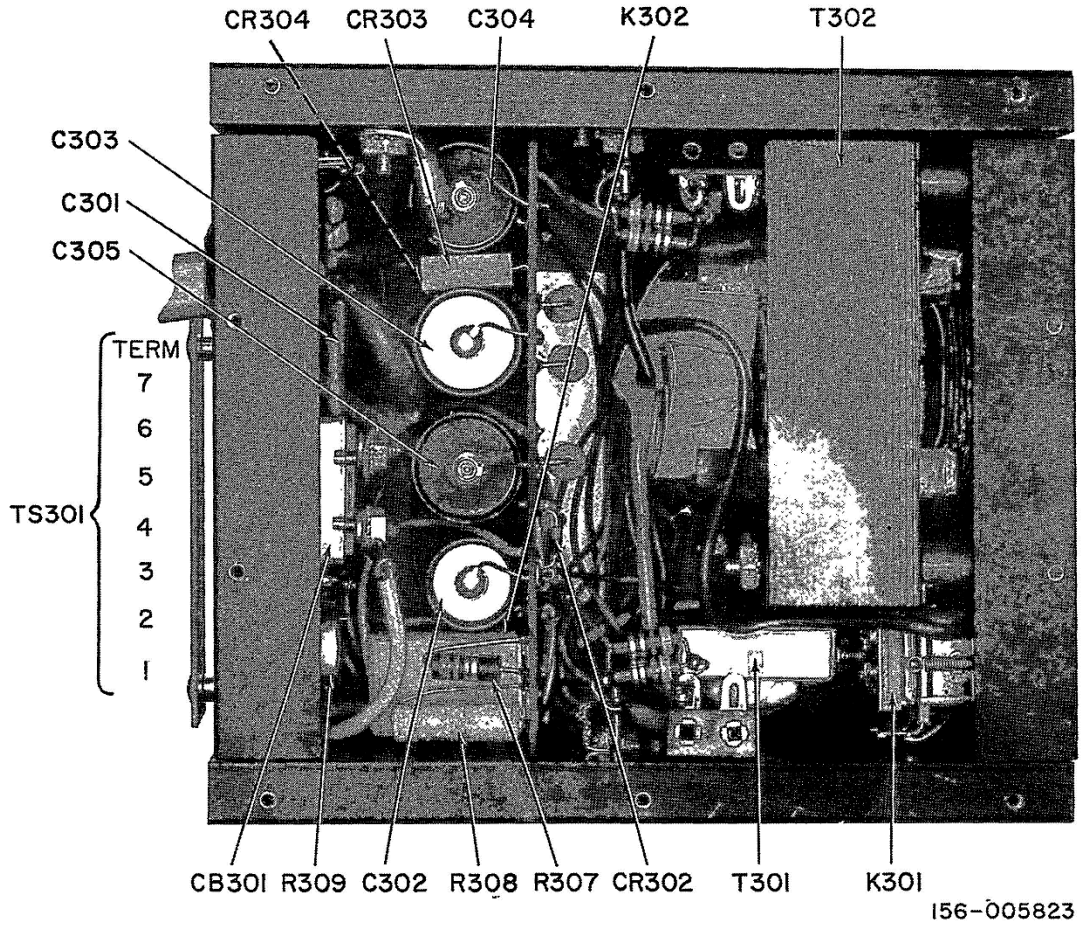


Figure 22. Component Locations on PS-500-DC (Bottom Inside View).

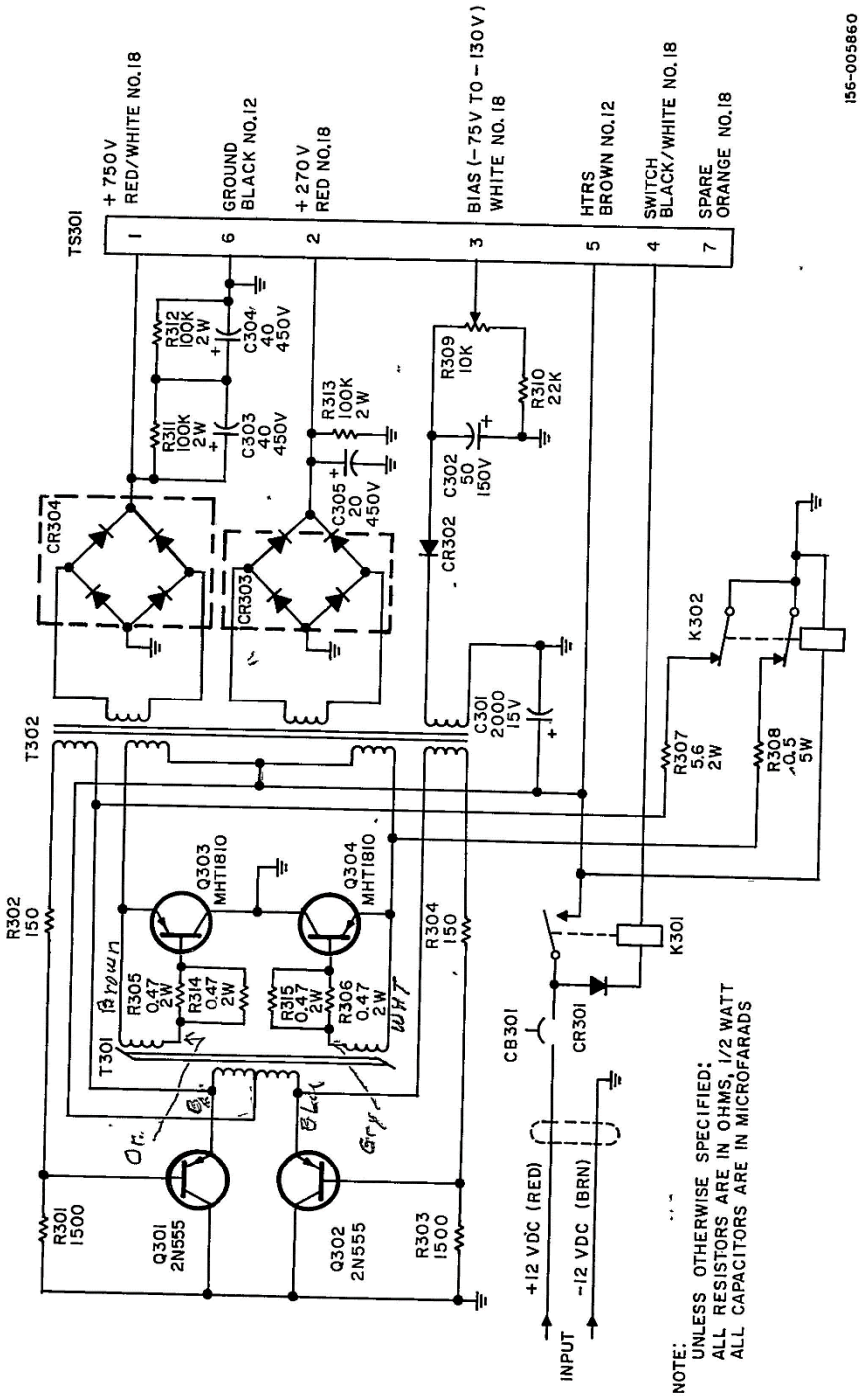


Figure 23. Schematic Diagram of PS-500-DC.