Make no service shipments to the factory unless instructed to do so by letter, as The Hallicrafters Company will not accept responsibility for unauthorized shipments.

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

SECTION VIII

ALIGNMENT PROCEDURE

WARNING

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

8-1. GENERAL.

The Model SR-160 Transceiver has been accurately aligned and calibrated at the factory and, with normal usage, will not require realignment for extended periods of time. Service or replacement of a major component or circuit may require subsequent realignment, but under no circumstances should realignment be attempted unless the malfunction has been analyzed and definitely traced to mis-alignment. Alignment should only be performed by persons experienced in this work, using the proper test equipment.

NOTE

Do not make any adjustments unless the operation of this transceiver is fully understood and adequate test equipment is available. Refer to figures 12 and 13, the top and bottom views of the transceiver, for the locations of all adjustments.

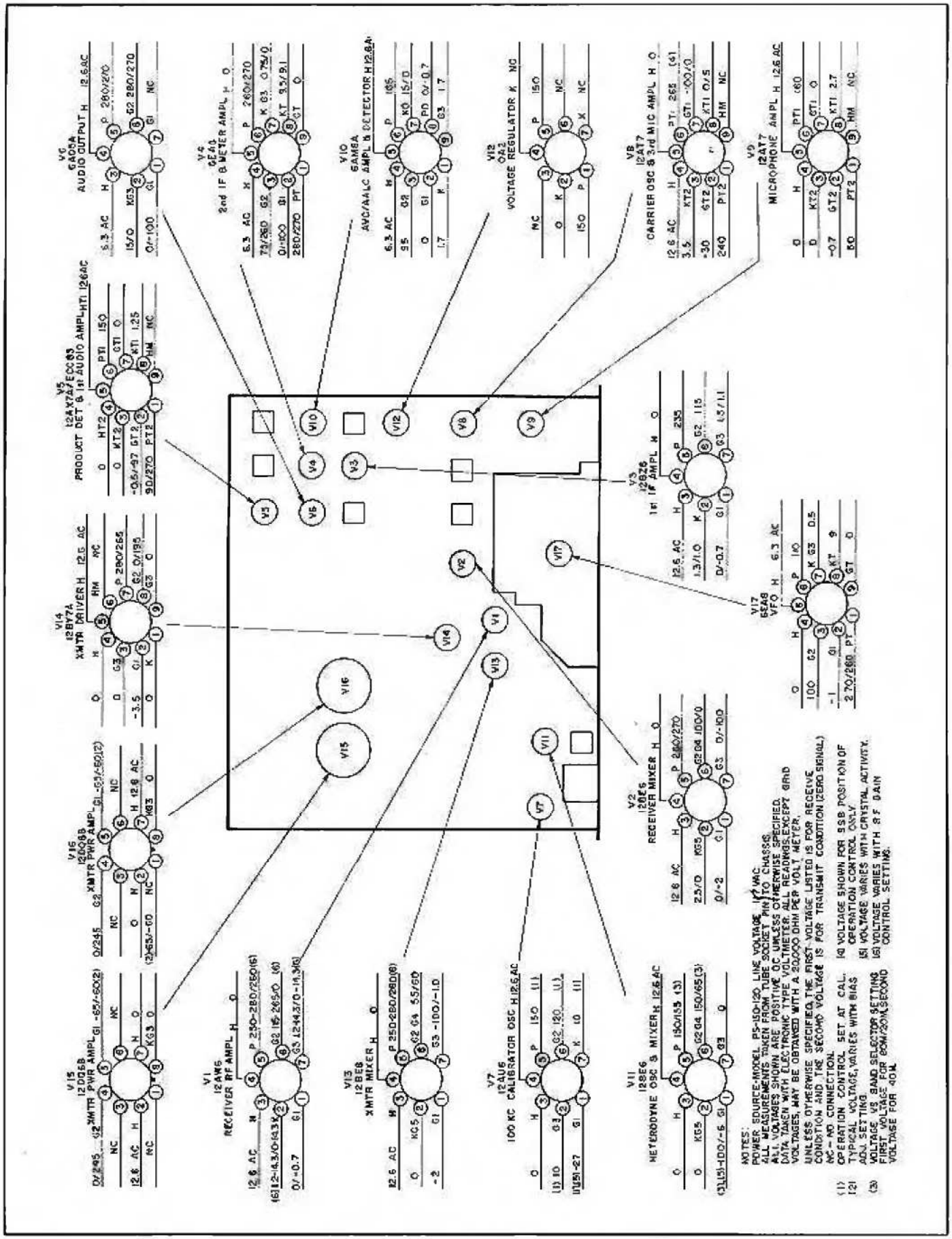
8-2. EQUIPMENT REQUIRED.

1. RF Signal Generator; Hewlett-Packard Model 606A or an equivalent signal generator having up to 1 volt output at an impedance of 70 ohms or less. Throughout the alignment procedure, unless otherwise specified, the signal generator output is unmodulated.
2. A Vacuum Tube Voltmeter (VTVM); Hewlett-Packard Model 410B, or equivalent VTVM having an RF probe good to 30 MC.
3. A dummy Load; 50 ohms non-reactive, rated at 100 watts. Bird Wattmeter or equivalent. The load may be made up of carbon resistors totaling 130 watts dissipation.
4. A DC Voltmeter having a 2.5-volt or 3.0-volt scale for final plate current measurements when using the Model PS-150-120 Power Supply or a 0-300 MA DC milliammeter when using the Model PS-150-12 Power Supply.
5. AF Signal Generator; Hewlett-Packard Model 200 AB, or equivalent.
6. Ballantine voltmeter or equivalent, capable of measuring 1 to 4 millivolt level.
7. A general-coverage receiver covering the frequency range from 3 MC to 30 MC with a 100-KC calibrator.

8-3. BIAS ADJUSTMENT.

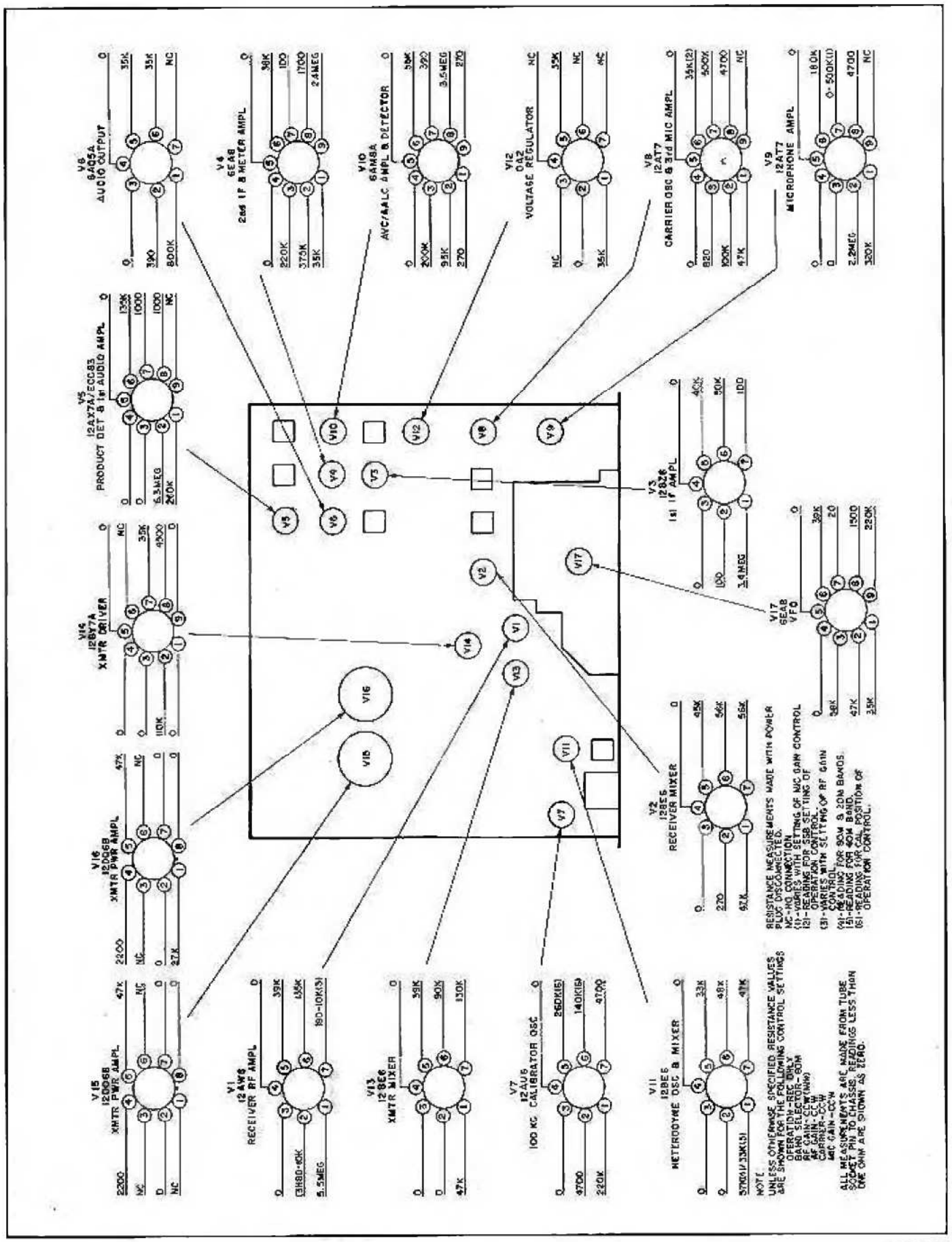
The final amplifier bias, must be properly set before any extensive checks are made on the transmitter portion of the Model SR-160.

1. When using the AC power supply (PS-150-120), proceed as follows:
   a. Before turning the transceiver on, connect a DC voltmeter to the two jacks on the power supply (see figure 15), positive to red and negative to blue. Set the voltmeter on a low scale (2.5 volts or 3.0 volts). There is a 10-ohm resistor across the tip jacks so that the meter will indicate 1 volt for 100 milliamperes, 2 volts for 200 milliamperes, etc.



156-002818

Figure 10. Voltage Chart.



156-002819

Figure 11. Resistance Chart.

b. Set the OPERATION switch at REC ONLY and allow approximately ten minutes for the unit to warm up. Then set the OPERATION switch at SSB, the MIC GAIN full CCW, and press the microphone switch to close the relays.

c. Adjust the bias for 60 milliamperes idle plate current with the BIAS ADJ. control (R206) on the power supply (0.6 volt on the voltmeter scale).

2. When using the DC power supply (PS-150-12), proceed as follows:

a. Disconnect the high voltage lead (red/white) from the power supply terminal strip (terminal 1).

b. Connect a DC milliammeter (0-300 MA) between the lead and the high voltage terminal on the power supply.

c. Follow the procedure outlined in the preceding paragraph (step b) and set the BIAS ADJ. control (R306) on the power supply for 60 milliamperes.

8-4. S-METER ZERO ADJUSTMENT.

Periodically the meter should be zero set to maintain accuracy. To accomplish this proceed as follows:

1. Set the OPERATION control at REC ONLY, and the RF GAIN control fully counterclockwise. Allow about 15 minutes for the equipment to stabilize.

2. Turn the METER ZERO ADJ. control (R76) until the meter pointer is directly over the end calibration mark at the left end of the meter scale. The control is located on the rear chassis apron.

8-5. CARRIER BALANCE.

Adjust the carrier balance as follows:

1. The equipment should be allowed to reach operating temperature before making the carrier balance adjustments. Remove the chassis unit from the cabinet as described in paragraph 7-1. With the chassis resting on the table, right side up, and connected to a dummy load or antenna load, tune the unit for SSB operation.

2. Turn the MIC GAIN control fully counterclockwise to remove all audio from the modulator stage. With the OPERATION control set at SSB, close the microphone switch and adjust the CARRIER BAL controls (capacitor C51 and potentiometer R45) for minimum S-meter reading. With an antenna or dummy load connected to the Model SR-160 the meter will drop to zero near the null. Release the microphone switch.

3. Disconnect the antenna load and again close the microphone switch and repeat the balance adjustment. The meter will still drop to zero but will be more sensitive with the load removed. Take care not to feed excessive carrier through the system with the load removed.

8-6. CRYSTAL CALIBRATOR ADJUSTMENTS.

If a 100-KC crystal unit and the 12AU6 tube (V7) have been installed in the Model SR-160, the following adjustments apply:

The crystal calibrator trimmer (C45) is used to set the 100-KC crystal exactly to frequency by comparing its harmonic frequency with the signal transmitted by station WWV.

With a general coverage receiver, tune in station WWV and connect a lead between the Model SR-160 REC ONLY antenna connector and the antenna connector of the external receiver. Set the OPERATION control at CAL and carefully adjust the calibrator trimmer (C45) until the 100-KC oscillator harmonic is at zero beat with station WWV. This adjustment should be made only during periods of NO modulation on station WWV's signal.

8-7. FINAL AMPLIFIER NEUTRALIZATION.

1. Neutralization Check

Connect a voltmeter to the AC supply or a milliammeter to the DC supply to meter the final amplifier plate current as described in paragraph 8-3. With the Model SR-160 in its cabinet (all hardware in place) and connected to a dummy load, tune the unit at 14,150 KC in the CW mode as described in paragraph 5-4. Adjust the CARRIER control for 50 volts RMS output (approximately S-9 on the S-meter if an RF voltmeter is not available). Carefully tune the FINAL TUNE control through resonance and observe the plate current dip and output voltage maximum. If both occur at the same setting, the amplifier is neutralized.

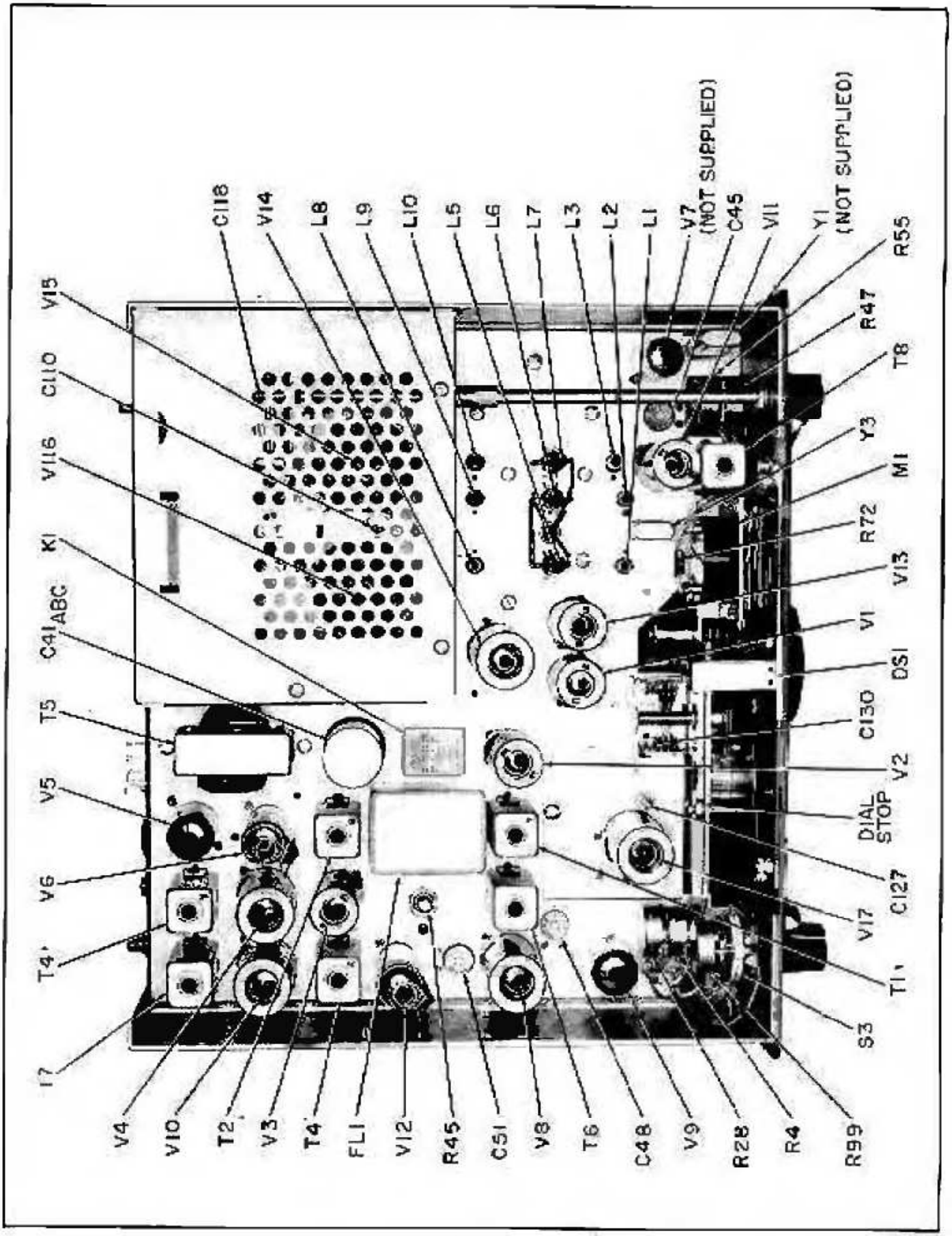


Figure 32. Top Chassis View of Transceiver.

156-002530

The neutralizing circuits may be checked on 80M and 40M by switching bands and tuning at the same VFO dial setting.

2. Neutralizing the Model SR-160

If the check outlined above indicates a need for neutralization, remove the unit from the cabinet. (Refer to paragraph 7-1.) Use the setup as for the neutralizing check and tune the unit at 14,050 KC. Adjust neutralizing capacitor C110 in 1/2 turn or 1/4 turn steps until neutralization is accomplished. Recheck at 14,150 KC with the unit mounted in the cabinet as described above.

HIGH VOLTAGE APPEARS ON THE ADJUSTMENT SCREW OF THE NEUTRALIZING CAPACITOR AT ALL SETTINGS OF THE OPERATION CONTROL EXCEPT OFF.

8-8. VFO MECHANICAL INDEX.

If the pointer position has been disturbed, check the pointer alignment as follows:

1. Loosen the dial stop lock nut and back-off the dial stop screw. (See figure 12.)

2. Carefully turn the dial beyond 3500 KC until the VFO tuning capacitor rotor stop contacts the stator plates. Exercise care in this operation as the gear train provides enough mechanical advantage to lift the rotor plates out of their mounting.

3. The pointer should line up with the index mark on the dial located to the right of the 3500 KC dial calibration. Shift the pointer position or, if necessary, center the pointer in the window opening and loosen the capacitor drive gear from the capacitor shaft and relocate as required. Retighten the set screws.

4. Turn the dial clockwise beyond the dial stop and reset and relock the dial stop screw. Check for clearance between the dial and the screw end. It should be approximately equal to one-half the dial stop spacer thickness.

8-9. VFO CALIBRATION ALIGNMENT (Trimmer adjustment only).

A trimmer capacity correction is indicated if the dial calibration check across the dial, at the 100-KC check points, consistently falls to one side of the pointer and cannot be corrected by the DIAL CAL control range.

Recalibrate the VFO as follows if the 100-KC marker crystal has been set up as outlined in paragraph 8-6.

1. Set the BAND SELECTOR at 80M, the OPERATION control at CAL and the RIT control at OFF.

2. Center the DIAL CAL control. The dot on the knob should fall at top dead center.

3. Set the dial at exactly 4000 KC and carefully adjust trimmer C127 for zero beat. Care should be exercised to make sure that the correct 100-KC beat is tuned in with the trimmer.

4. Check across the dial at the 100-KC check points. If the frequency error is less than approximately 3000 CPS, the calibration is within acceptable limits. If the error increases and exceeds 3000 CPS at the low frequency end of the dial, the VFO will require a coil adjustment in addition to the trimmer adjustment.

NOTE

If the Model SR-160 calibrator circuitry is not set up for the calibration check, the VFO signal may be picked up with a general coverage receiver tuned to the 3700 KC to 3200 KC VFO tuning range. The receiver used must be equipped with an accurate crystal calibrator.

8-10. VFO CALIBRATION ALIGNMENT (Trimmer and coil adjustment).

If the check carried out in paragraph 8-9 (step 4) indicates a need for both trimmer and coil adjustment, proceed as follows:

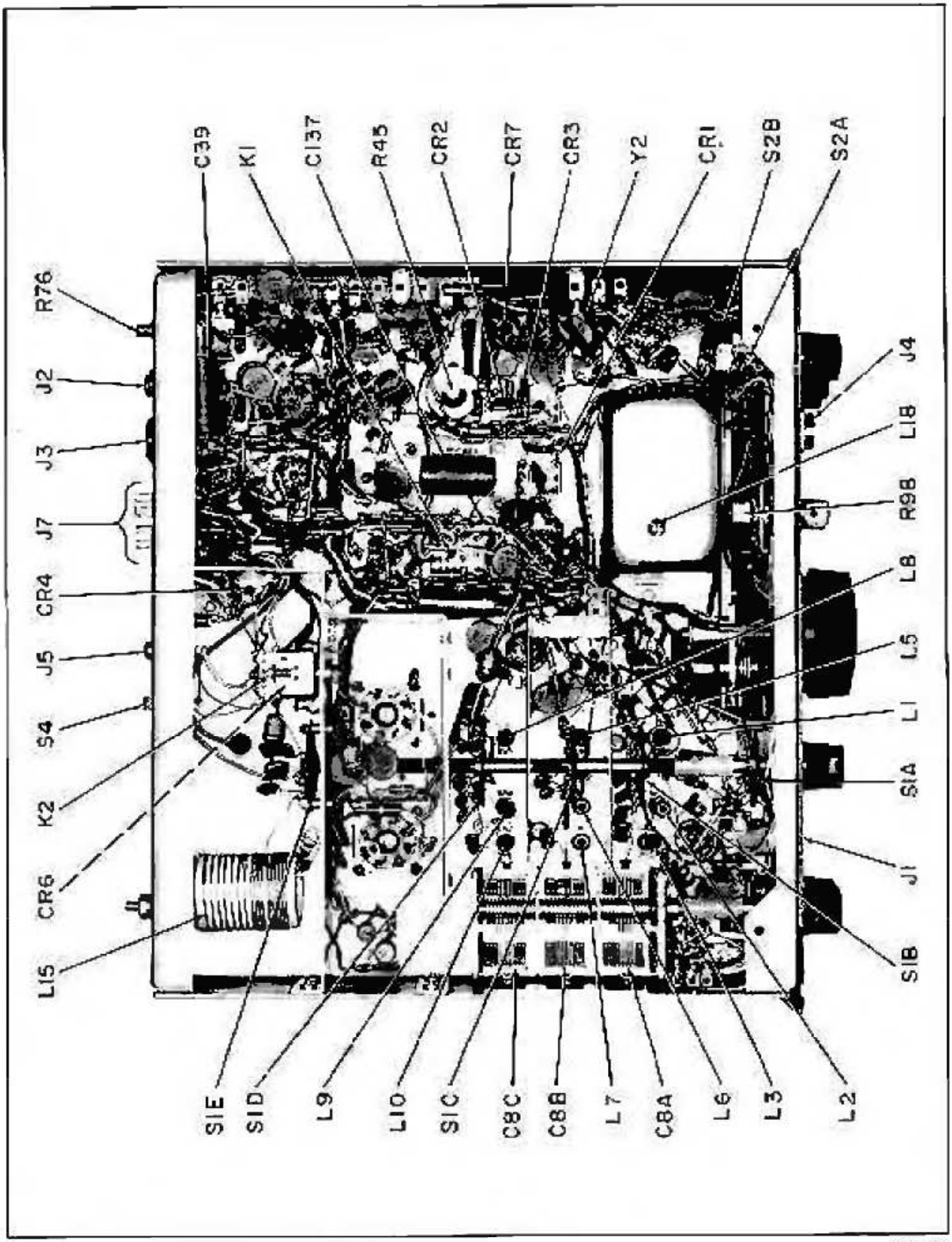
1. Check the pointer alignment at the index mark on the VFO dial as described in paragraph 8-8. Be sure to reset the dial stop.

2. Set the BAND SELECTOR at 80M, the OPERATION control at CAL, and the RIT control at OFF.

3. Center the DIAL CAL control. The dot on the knob should fall at top dead center.

4. Set the dial at 4000 KC and adjust trimmer C127 for zero beat.

5. Set the dial at 3500 KC and adjust coil L18 for zero beat.



ISA-E02131

Figure 13. Bottom Chassis View of Transceiver.

6. Repeat steps 4 and 5 until both the 4000-KC and 3500-KC settings are exactly on frequency.

7. Check the calibration across the dial at the 100-KC points. If the frequency error is less than 3000 CPS, the calibration is within acceptable limits. If the error is in excess of 3000 CPS at any of the mid-points, with the end limits at zero error, the VFO capacitor C130 should be "knifed." This operation should not be attempted by other than qualified personnel, thoroughly familiar with the technique.

NOTE

If the Model SR-160 calibrator circuitry is not set up for the calibration check, the VFO signal may be picked up with a general coverage receiver tuned to the 3700-KC to 9200-KC VFO tuning range. The receiver used must be equipped with an accurate crystal calibrator.

8-11. HETERODYNE MIXER/OSCILLATOR BAND-PASS TRANSFORMER ALIGNMENT.

Before changing the core settings in transformer T8, check the injection voltage between the junction of capacitors C80 and C81 and ground. (Test point A.) The VFO calibration must be within acceptable limits before adjusting this transformer. The following procedure should be used to check and adjust the transformer.

1. Set the OPERATION control at REC ONLY and the BAND SELECTOR at 40M.

2. Connect the VTVM probe to the test point A and ground clip to the chassis.

3. Tune the VFO from 6900 KC to 7400 KC and note the variation in injection voltage. A correctly adjusted transformer will produce equal voltages at 6900 KC and 7400 KC and equal amplitude peaks within the tuning range. The injection level at this test point will run 1.6 volts RMS to 1.8 volts RMS. Switching to 80M will produce approximately 2.0 volts RMS from the VFO directly at the test point.

4. To adjust the transformer for equal injection voltages at 6900 KC and 7400 KC, set the VFO dial to the frequency of lowest injection voltage and turn both cores into or out of their respective coils as required to raise the lower voltage to a new level half way between the two voltages noted. Repeat the process until both dial frequencies produce equal injection voltages.

5. To adjust the transformer for equal peak response voltages within the passband, set the dial to the frequency of lowest peak response voltage and adjust the cores in equal steps to produce a new peak voltage approximately midway between the original voltage levels noted. If one core is turned into its coil, turn the other core an equal distance out of its coil.

6. The adjustments in steps 4 and 5 interact upon each other and require that the steps be repeated. Keep in mind that the passband is shifted in frequency by turning both cores into or out of their coils in approximately equal amounts and that the response peaks are equalized by turning one core into its coil and the other out of its coil in approximately equal amounts.

   Do not misadjust the cores so that they rest in between the two windings.

8-12. BFO/CARRIER OSCILLATOR TRANSFORMER ALIGNMENT.

With the unit operating in the REC ONLY position of the OPERATION control, connect the probe of the VTVM to test point B, ground clip to chassis. If the voltage measured is approximately 1.0 volt RMS no adjustment is required.

If adjustment is required, set the core of transformer T6 for approximately 90 percent of the peak voltage obtained on the high frequency side of the peak setting of the core, that is, turn the core counterclockwise from the peak output voltage setting.

8-13. BFO/CARRIER OSCILLATOR FREQUENCY ADJUSTMENT.

Transformer T6 should be in proper alignment before setting the carrier oscillator to frequency. The oscillator frequency may be adjusted with warping trimmer C48 to exactly 5200 KC. The carrier oscillator signal may be picked up in a general coverage receiver equipped with a 100-KC calibrator known to be correlated with station WWV. Obtain zero beat between the carrier oscillator signal and the 100-KC calibrator in the receiver. Do not use the BFO in the general coverage receiver.

8-14. ALIGNMENT OF TRANSMITTER MIXER AND DRIVER STAGES.

The final amplifier bias adjustment must be properly set as in paragraph 6-3 before extensive operation of the transmitter is attempted. It is assumed that the 5200-KC signal generating stages of the Model SR-160 are functioning properly. Using the internally generated signal of the transmitter, the mixer and driver stages are aligned as follows:

1. Connect a 50-ohm dummy load to the COMMON ANTENNA jack, J5. Set the OPERATION control at CW-TUNE with the CARRIER control set for minimum output.
2. Set the BAND SELECTOR at 80M, the VFO dial at 3500 KC, and the DRIVER TUNE control at approximately 30° clockwise from its CCW stop.
3. Advance the CARRIER control and adjust the FINAL TUNE control for resonance in the 80M panel segment. Maintain an output signal level of 50 volts RMS across the 50-ohm load or approximately S-9 on the output meter as the alignment progresses.
4. Adjust cores of coils L5 and L8 for maximum output meter reading.
5. Set the VFO dial at 4000 KC and adjust the DRIVER TUNE and FINAL TUNE controls for maximum output. Note the position of the DRIVER TUNE control. If its settings at 3500 KC and 4000 KC fall an equal distance from the limits of knob rotation the alignment is complete for this band. If not, change the 3500 KC DRIVER TUNE position slightly, repeak cores L5 and L8 and again recheck the 4000 KC setting. Repeat the procedure until the tuning range centers within the rotational limits of the control.

The 80M coils are common to the 40M and 20M band circuitry, therefore, they must be in alignment before these last two bands can be aligned. Repeat the above procedure for each band referring to the tuning chart for the appropriate data.

TRANSMITTER TUNING CHART

Band	Final Tune Segment	Adjust Coils At	Adjust Coils For Maximum Output		Check Driver Tune Setting At
80M	80M	3500 KC	L5	L8	4000 KC
40M	40M	6900 KC	L6	L9	7400 KC
20M	20M	13900 KC	L7	L10	14400 KC

A neutralization check (paragraph 8-7) is recommended following alignment of the mixer and driver stages. If a major neutralization adjustment is required, recheck the alignment.

8-15. ALIGNMENT OF RECEIVER ANTENNA STAGE.

The transmitter mixer and driver stages must be in alignment before the receiver antenna stage can be adjusted. The 80M band coil is common to the 40M and 20M band circuitry, therefore the 80M band must be aligned first. The alignment procedure for the antenna stage coils is as follows:

1. Connect the 50-ohm dummy load to the COMMON ANTENNA jack (J5), the RF Signal Generator to the REC ONLY ANTENNA jack (J6), and set the antenna switch at SEPARATE (up). If an AC voltmeter is connected across the speaker circuit, maximum audio output can be monitored visually.
2. Set the OPERATION control at REC ONLY, RF GAIN at maximum, AF GAIN as required.
3. Set the OPERATION control at CW-TUNE and tune the transmitter at 3500 KC (80M band). Adjust the DRIVER TUNE control carefully as outlined in paragraph 5-4.
4. Set the OPERATION switch at REC ONLY and adjust RF signal generator for approximately 1000 CPS audio beat note. Use just enough signal generator output to keep from developing AVC voltage at test point C. (Approximately 1 microvolt for an aligned unit.) Adjust coil L1 for maximum audio output without developing AVC voltage.
5. Repeat the alignment procedure outlined in steps 3 and 4 for the 40M and 20M bands. On 40M, tune the transmitter at 6900 KC and adjust coil L2. On 20M, tune the transmitter on 13900 KC and adjust coil L3.

8-16. ALIGNMENT OF FIRST IF AMPLIFIER STAGE.

To adjust the core of coil T3 in the plate circuit of the first IF amplifier tube, tune the transmitter at approximately 3800 KC into the dummy load, following the procedure outlined in paragraph 5-4. With the CARRIER control adjusted for a carrier output level of 50 volts RMS (S-9 on the output meter) or less, adjust the core of coil T3 for maximum RF output. Back off the CARRIER control setting if the output level exceeds 50 volts RMS during adjustment.

8-17. ALIGNMENT OF SECOND IF AMPLIFIER AND AVC AMPLIFIER STAGES.

Coil T4 in the plate circuit of the second IF amplifier tube and coil T7 in the plate circuit of the AVC/AALC amplifier tube are adjusted in the receive mode as follows:

1. Connect the RF signal generator to the REC ONLY ANTENNA jack (J6). Connect an AC voltmeter across the speaker circuit.

2. Set the OPERATION switch at REC ONLY, RF GAIN control at maximum, AF GAIN control as required and tune the RF signal generator and receiver to 3800 KC for approximately a 1000-CPS audio beat note.

3. Use just enough signal generator output to keep from developing AVC voltage at test point C, and adjust the core of coil T4 for maximum audio output.

4. Increase the RF signal generator output until AVC voltage equal to approximately minus one volt appears at test point C and adjust the core of coil T7 for maximum AVC voltage.

8-18. CRYSTAL FILTER ALIGNMENT.

The filter alignment consists of adjusting the impedance matching transformers, T1 and T2 associated with the hermetically sealed crystal filter unit FL1.

1. The filter response should be checked as follows before any termination adjustments are attempted.

   a. Tune the transmitter for SSB operation on 3800 KC into a dummy antenna load.

   b. Connect the AF signal generator to the MIC connector and monitor the input voltage with the Ballantine voltmeter. Set the AF signal generator at 1000 CPS and adjust the generator level for 50 volts RMS RF output with the MIC GAIN control set near maximum gain.

   c. Maintain constant AF signal generator input voltage and change the frequency of the generator above and below 1000 CPS, recording the frequency at which the transmitter RF output voltage drops to 35 volts RMS (-3 DB). Also note the maximum and minimum RF voltage excursions between these two frequencies. A normal 3-DB frequency response will run 400 to 600 CPS at the low end, 2700 to 3500 CPS at the high end, and less than 3-DB variation (10 volts RMS change) in the passband.

2. If the check made in step 1 indicates a need for filter termination adjustment proceed as follows:

   a. Disconnect the crystal filter unit (FL1) input and output wires at the filter terminals. Connect a 270,000-ohm resistor between the wires lifted from the filter terminals.

   b. Tune the transmitter for CW operation on 3800 KC into a dummy antenna load.

   c. Set the CARRIER control for approximately 10 volts RMS RF output at the dummy load, and adjust the cores of transformer T1 and coil T2 for maximum RF output.

   d. Remove the resistor and reconnect the filter. Check the filter response as outlined in step 1. If a major change occurred in the core setting of coil T2, recheck the alignment of the first IF amplifier stage coil T3. (See paragraph 8-16.)

SECTION IX

AC POWER SUPPLY MODEL PS-150-120

Figure 14. Hallicrafters Model PS-150-120 AC Power Supply.

9-1. DESCRIPTION.

Hallicrafters' Model PS-150-120 Power Supply is a complete, self-contained power unit designed to permit Hallicrafters' Model SR-160 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-160.

Hallicrafters' Model PS-150-120 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-160 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.

After connecting the power supply to the SR-160 and to the proper power source, the transmitter bias must be adjusted to achieve optimum performance of the transceiver.

1. Connect a voltmeter 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-160 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 0.6 volt on the meter.
4. Disconnect the meter after turning the equipment off.

This adjustment is not necessary each time the SR-160 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-150-120 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, 3000V, Ceramic Disc	047-000152
C203	Capacitor, 0.001 μF, 3000V, Ceramic Disc	047-000297
C204A&B	Capacitor, 2 x 30 μF, 150V, Electrolytic	045-000902
C205,206	Capacitor, 80 μF, 450V, Electrolytic	045-033359
C207,208	Capacitor, 20 μF, 250V, Electrolytic	045-003903
CR201,202, 203,204	Diode, Silicon, Type 1N3487	027-000214
CR205	Diode, 1N3154	019-002789
F201	Fuse, 5 Amperes, 125 Volts, 3AG, (Slow Blow)	029-100390
J201	Connector, Power (12-pin)	010-002613
L201	Choke, Filter	056-000596
L202	Choke, Filter	056-000595
L203	Choke, Filter	056-000601
R201,202	Resistor, 348 Ohms, 10%, 10 watts, Wire Wound	446-032153
R203	Resistor, 100 Ohms, 10%, 1/2 watt, Carbon	451-252101
R204	Resistor, 4700 Ohms, 10%, 2 watts, Carbon	451-852472
R205	Resistor, 22K Ohms, 10%, 1 watt, Carbon	451-352223
R206	Resistor, Variable, 10K Ohms, 20%, 1/4 watt, Bias Adj.	025-002320
R207	Resistor, 10 Ohms, 5%, 1 watt, Carbon	451-351100
T201	Transformer, Power	052-001307
TP201	Tip Jack, Red	036-000354
TP202	Tip Jack, Blue	036-000307
	Baffle Board	078-001711
	Baffle, Felt	014-000476
	Cabinet	066-003437
	Cable (9-conductor)	087-007659
	Cable Assembly	087-007346
	Cable Clamp	075-202740
	Foot, Plastic (4)	016-201072
	Front Panel	069-001263
	Fuse Holder	005-200837
	Line Cord	087-804690
	Lock, Line Cord	078-100953
	Rear Panel	068-001401
	Speaker, 4 x 6 inch PM, 3.2 Ohms	085-000218

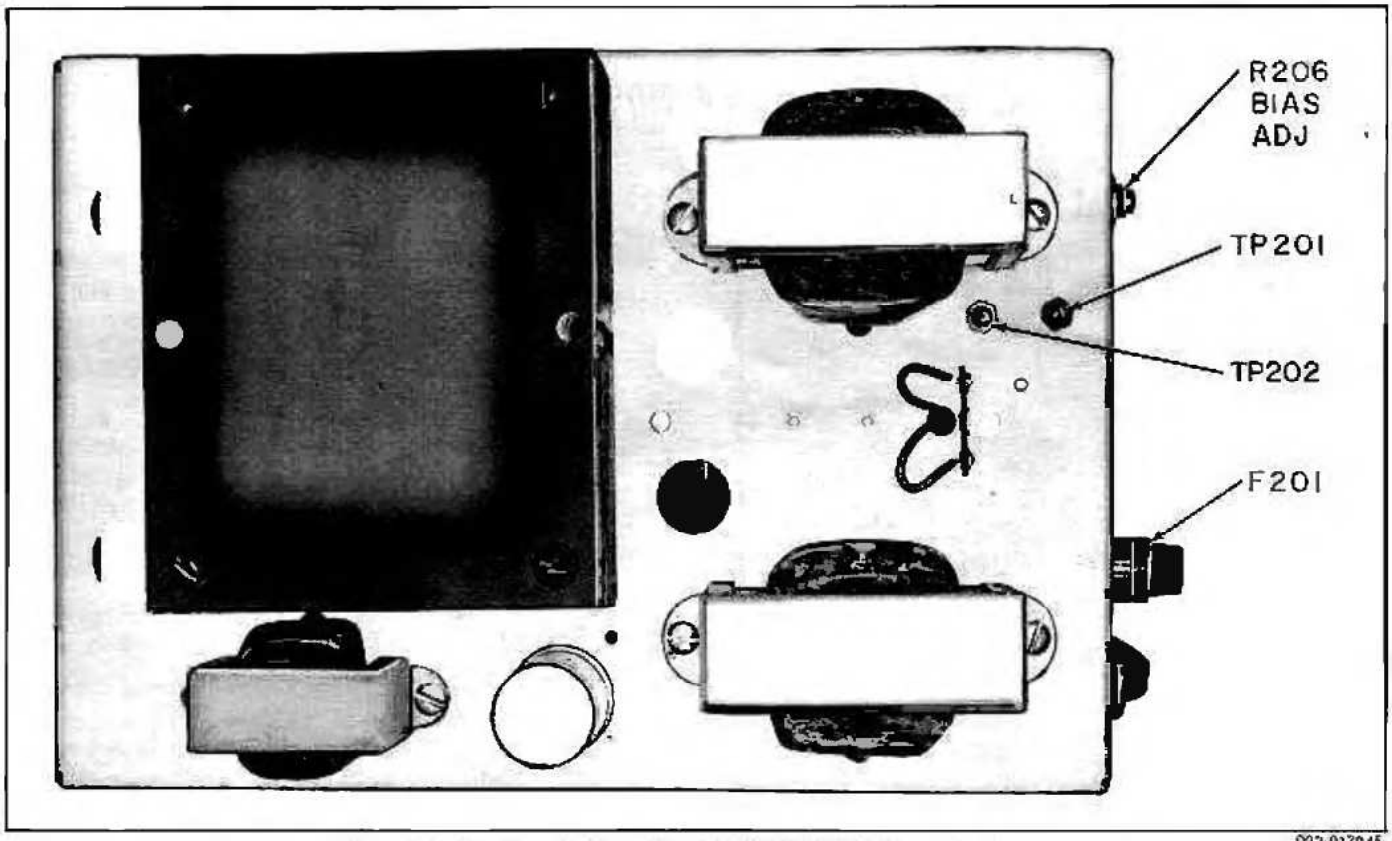


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Figure 15. Top Chassis View of Model PS-150-120 AC Power Supply.

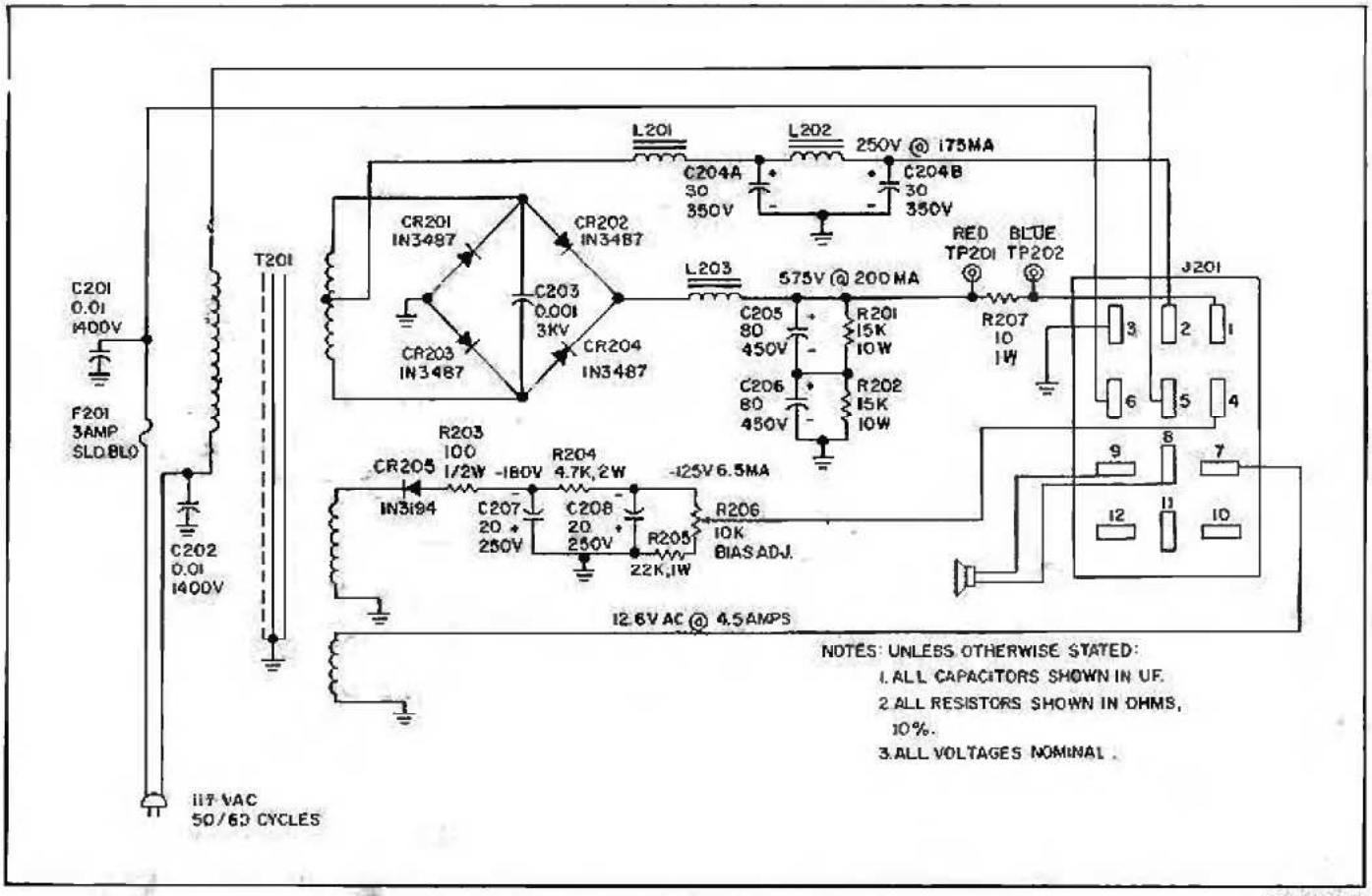

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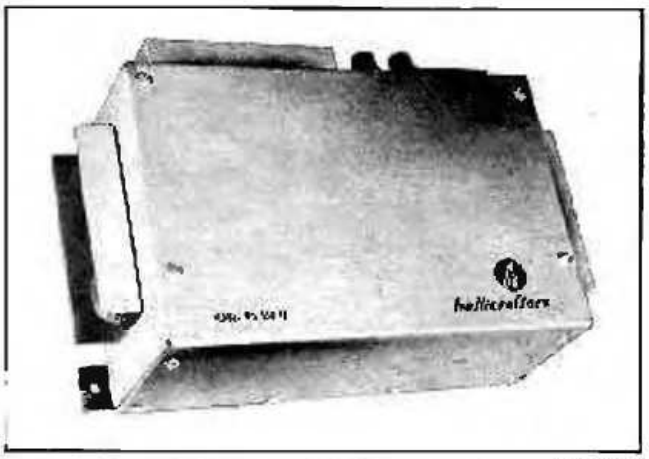
Figure 16. Schematic Diagram of Model PS-150-120 AC Power Supply.

SECTION X

DC POWER SUPPLY MODEL PS-150-12



092-017344

Figure 17. Hallicrafters Model PS-150-12 DC Power Supply.

10-1. DESCRIPTION.

Hallicrafters' Model PS-150-12 Power Supply is a complete, compact, self-contained power unit designed to permit Hallicrafters' Model SR-160 Transceiver to be operated from a nominal 12-volt DC source. This power supply is shipped for operation in conjunction with a negative-grounded power source. However, it is operable with a positive grounded source by changing two internal soldered connections as described in figure 19.

The Model PS-150-12 Power Supply, is designed to operate from a 11.6 volt to 16.0 volt DC source with 13.6 volt as nominal voltage.

All connections are made to the power supply through two terminal strips on one side of the unit (see figures 6 and 18). The two-connector strip (TS301) is used for connection to the 12-volt source through the wires supplied. The seven-connector strip (TS302) 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 pin 1 of TS302.
2. Connect an ammeter, with a full-scale deflection of 0-300 MA, between the high voltage lead and pin 1 of TS302.
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, R308 on the side of the power supply chassis, for a reading of 60 MA on the meter.
5. Disconnect the meter and reconnect lead to pin 1 of TS302.

This adjustment is not necessary each time the SR-160 is used; however, it should be checked periodically and whenever the transmitter final amplifier tubes are replaced.

10-3. COVER REMOVAL.

Remove the nine screws on the top and one side of the unit and lift the cover off. This will provide easy access to all the components in the power supply.

REPAIR PARTS LIST

Schematic Symbol	Description	Hallicrafters Part Number
C301	Capacitor, 25 μF, 50V, Electrolytic	045-000853
C302	Capacitor, 0.001 μF, 3000V, Ceramic Disc	047-100397
C303,304, 306	Capacitor, 40 μF, 450V, Electrolytic	045-000804
C305	Capacitor, 0.22 μF, 10%, 600V, Mylar	046-001870
C307,308	Capacitor, 20 μF, 250V, Electrolytic	045-000903
CR301,302, 303,304	Diode, Silicon, Type 1N3467	027-000314
CR305	Diode, Type 1N3194	019-002738
F301	Fuse, 15 Amperes, 32 Volts, SAG	059-000709
F302	Fuse, 7.5 Amperes, 32 Volts, SAG	059-000708
K301,302	Relay	021-000371
L301	Choke, Filter	053-000555
Q301,302, 303,304	Transistor, Type 2N441	112-000194
R301	Resistor, 5.5 Ohms, 10%, 10 watts, Wire Wound	443-012078
R302	Resistor, 220 Ohms, 10%, 2 watts, Carbon	451-652221
R303	Resistor, 100 Ohms, 10%, 7 watts, Wire Wound	443-012101
R304	Resistor, 100 Ohms, 10%, 1/2 watt, Carbon	451-252101
R305	Resistor, 1000 Ohms, 10%, 1/2 watt, Carbon	451-252152
R306,307	Resistor, 47K Ohms, 10%, 2 watts, Carbon	451-652472
R308	Resistor, Variable, 10K Ohms, 20%, 3/4 watt, Bias Adj.	025-002330
R309	Resistor, 100K Ohms, 10%, 1/2 watt, Carbon	451-252104
T301	Transformer, Power	052-000368
	Cabinet Cover	030-003484
	Cable Clamp	036-202744
	Clamp, Resistor 1R3011	076-034121
	Cover, Terminal Strip (TS302)	038-003594
	Fuse Holder	006-200837

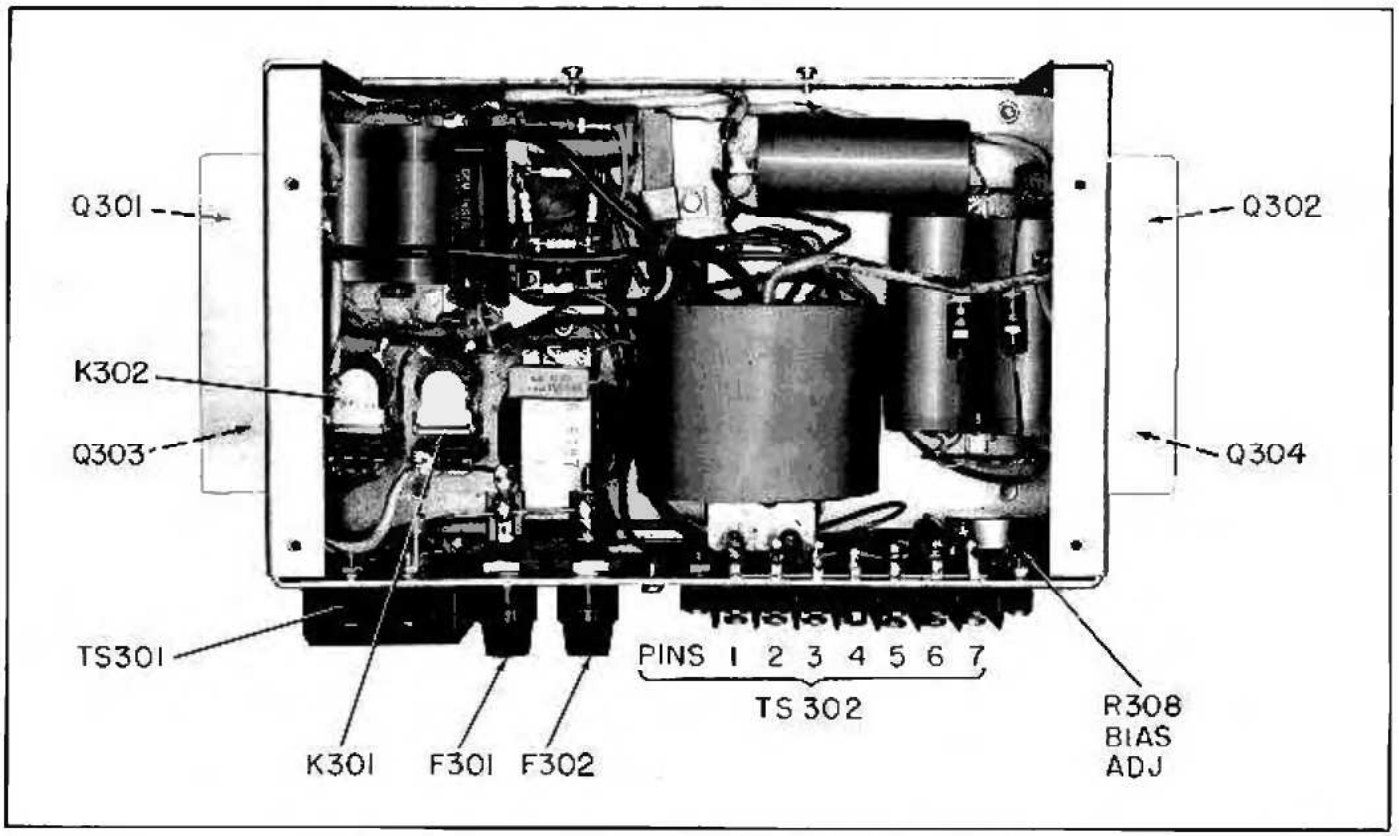
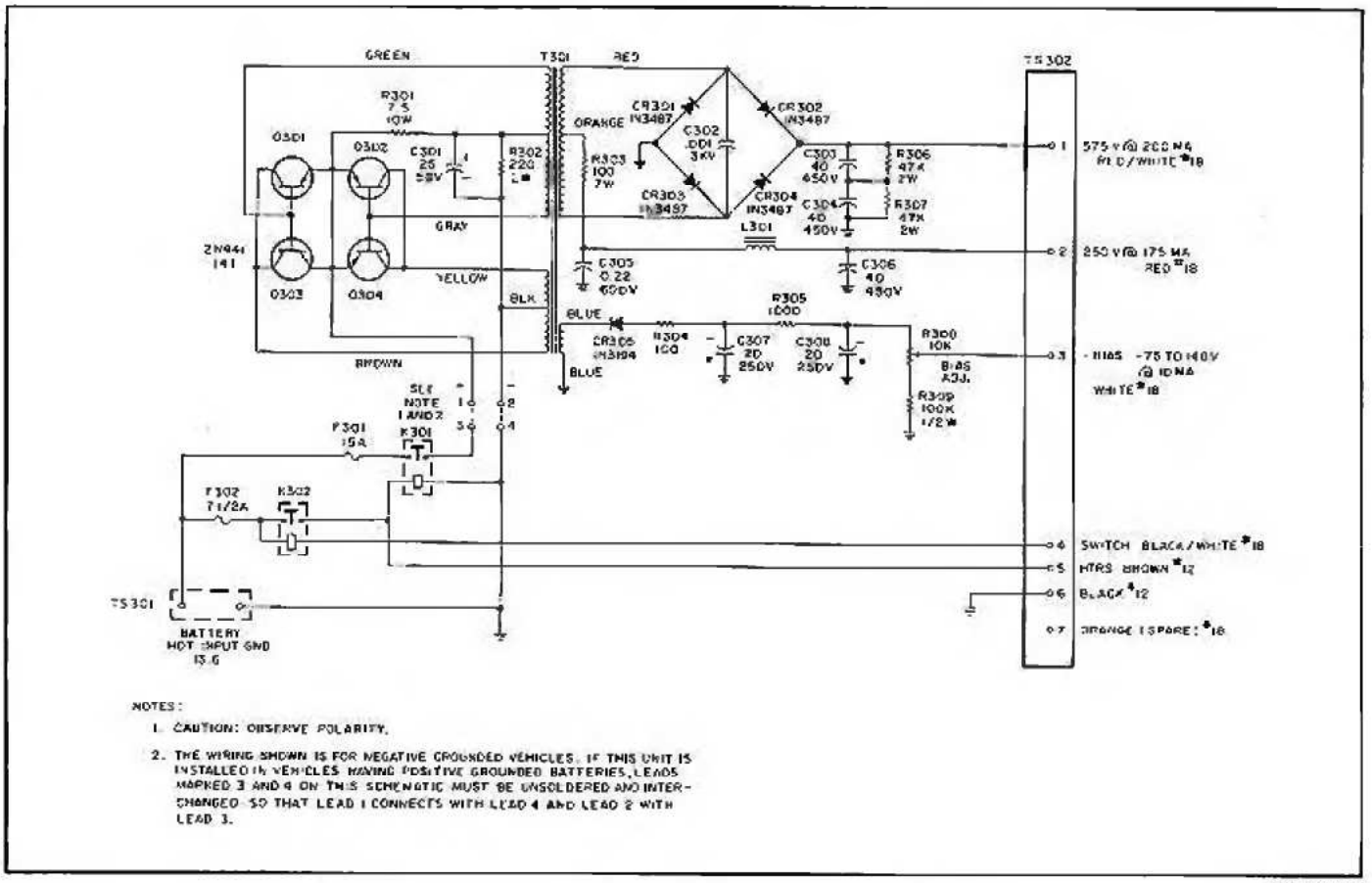


Figure 18. Internal Top View of Model PS-150-12 DC Power Supply.

092-017843



NOTES:

1. CAUTION: OBSERVE POLARITY.
2. THE WIRING SHOWN IS FOR NEGATIVE GROUNDED VEHICLES. IF THIS UNIT IS INSTALLED IN VEHICLES HAVING POSITIVE GROUNDED BATTERIES, LEADS MARKED 3 AND 4 ON THIS SCHEMATIC MUST BE UNSOLDERED AND INTERCHANGED SO THAT LEAD 1 CONNECTS WITH LEAD 4 AND LEAD 2 WITH LEAD 3.

089-002979C

Figure 19. Schematic Diagram of Model PS-150-12 DC Power Supply.

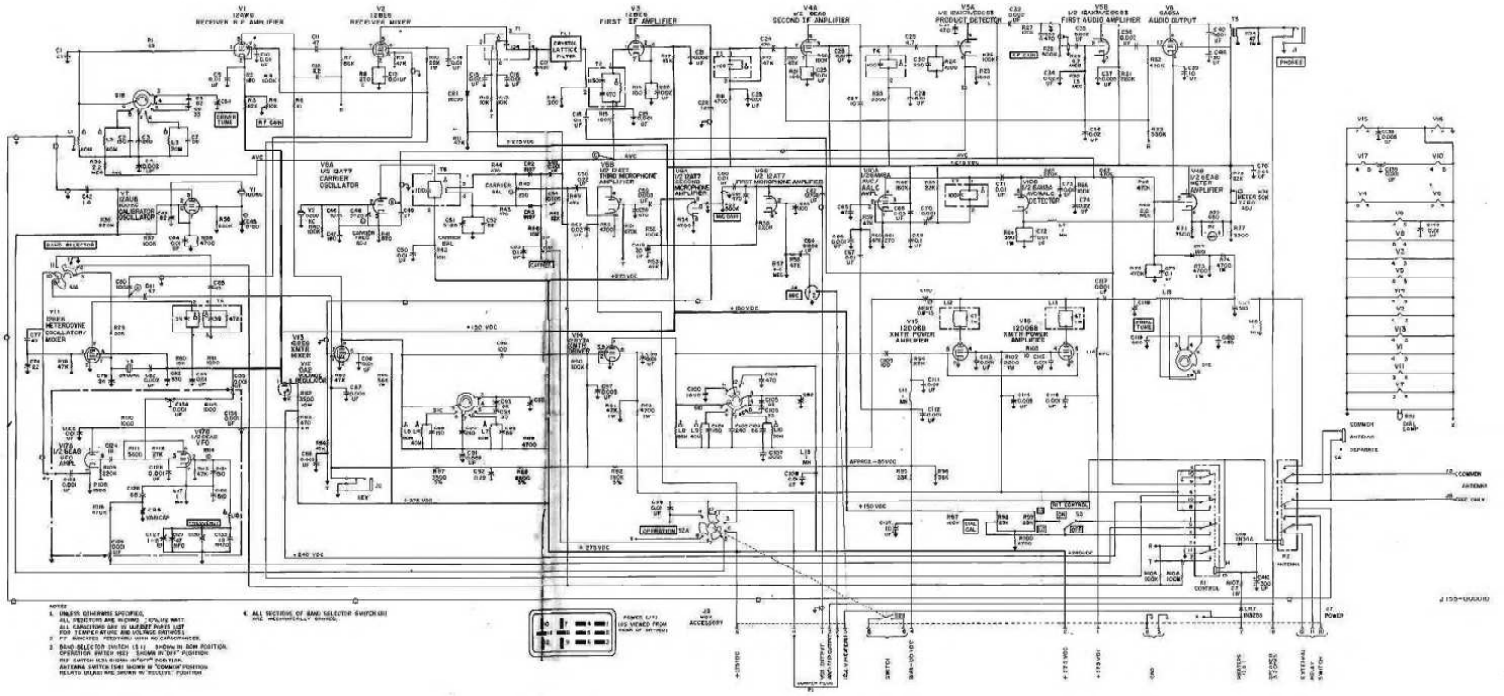


Figure 20. Schematic Diagram of Model SR-160 Transceiver.