

## MODEL HA-9

## S-METER INSTALLATION INSTRUCTIONS

## For MODEL CB-3A

The S-meter, when connected to the Hallcrafters Model CB-3A, provides a convenient indication of the relative signal strength of received signals. It will also show noise interference level and, therefore, will indicate the most opportune times to transmit.

The S-meter is connected in the plate circuit of the RF amplifier and measures plate current. Figure 1 is a schematic diagram of the RF amplifier circuit showing how the S-meter is connected.

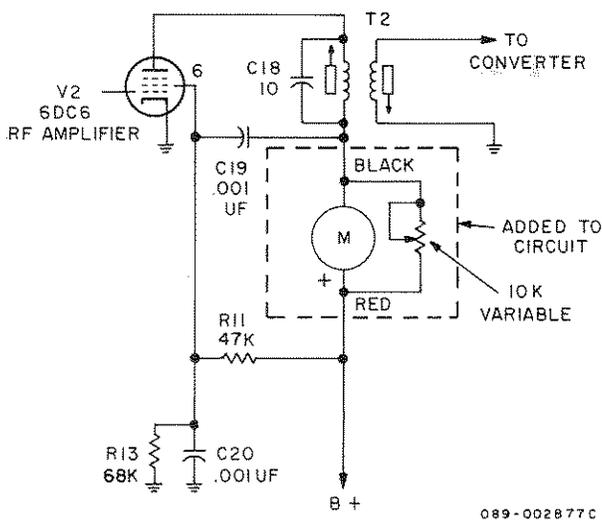


Figure 1. Partial Schematic.

In the transmit mode, the meter indicates the presence of carrier and modulation, thereby providing a convenient performance monitor. The meter does not read power output directly and, therefore, cannot be used for transmitter tuneup or adjustment.

In the receive mode, an incoming signal produces a change in the automatic volume control (AVC) voltage. This voltage, in turn, produces a change in the RF amplifier plate current which is indicated on the S-meter.

The meter scale is calibrated in S units, 1 to 9, and in decibels (DB) over S9. The reference level for signal strength has been established so that S9 is equal to 50 microvolts. This level represents a signal that normally affords full noise quieting. Stronger signals are indicated in DB over S9 (i.e., 20DB/S9 is 10 times stronger than S9, 40DB/S9 is 100 times stronger, and 60DB/S9 is 1000 times stronger).

The following instructions and illustrations describe the method for installing the S-meter.

## INSTALLATION

1. Mount the 10K ohm potentiometer in the location shown in figure 2 using the hardware supplied.
2. Place the meter on the work bench and mount the solder lugs and cover on the meter. See figure 3.
3. Cut a 4-1/2-inch length of black wire; strip the insulation back 1/4 inch on one end and 1/2 inch on the other end. Connect and solder the end stripped 1/4 inch to the negative (-) top solder lug on the meter as shown in figure 3.
4. Cut a 3-1/4-inch length of red wire; strip the insulation back 1/4 inch on both ends. Connect and solder one end to the positive (+) bottom solder lug on the meter as shown in figure 3.

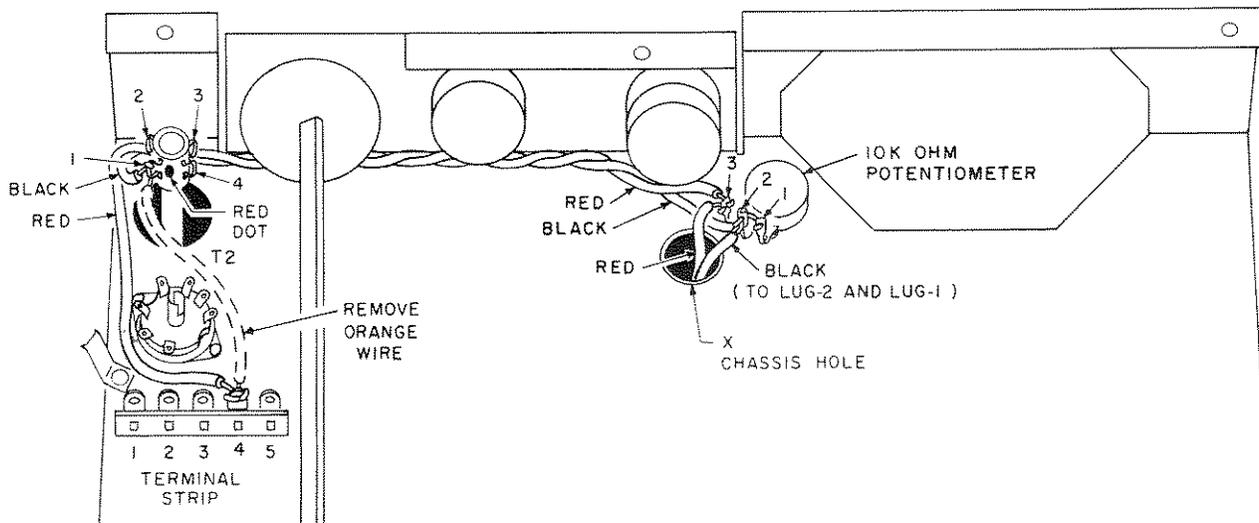


Figure 2. Wiring Under the Chassis.

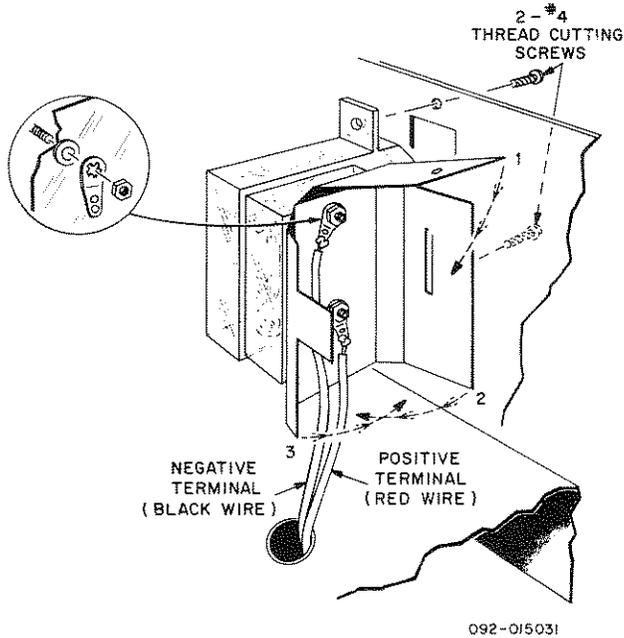
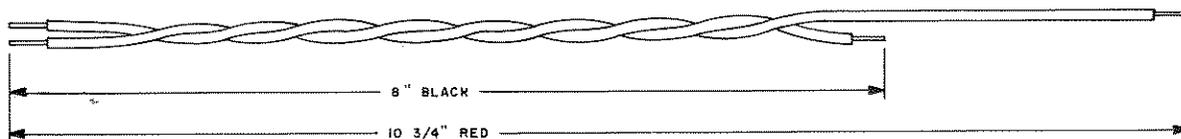


Figure 3. Mounting the S-Meter.

5. Fold the meter cover closed as shown in figure 3. Place a knife blade or other flat object in slot of shield to insert tab.
6. Remove the two screws holding the rectangular plate to the center of the front panel. Remove the plate. Mount the meter in place using the two NO. 4 thread-cutting screws supplied as shown in figure 3. Lubricate the screws before using them.
7. Pass the unconnected ends of the leads from the meter through chassis hole X. Pass the black lead through pin 2 to pin 1 of the 10K ohm potentiometer (solder pin 1 only). Connect the red lead to pin 3 of the potentiometer. Do not solder at this time.
8. Twist the remaining lengths of black and red wire and cut as shown in figure 4. Strip the insulation back 1/4 inch on all ends. Run these wires along the front edge of the chassis as shown in figure 2. Connect and solder one end of the red lead to pin 3 of the 10K ohm potentiometer; connect and solder the black lead on the same end to pin 2 of the potentiometer.



092-015032

Figure 4. Wire Detail.

9. Remove the orange wire connected between pin 1 of coil T2 and pin 4 of the terminal strip.
10. Connect and solder the remaining black lead of the wire, added in step 8, to pin 1 of coil T2. Connect and solder the red lead to pin 4 of the terminal strip.
11. The chassis wiring is now complete. Inspect soldered connections for shorts to chassis and adjacent lugs.

**CAUTION**

DO NOT TOUCH THE METER TERMINALS AFTER POWER HAS BEEN APPLIED. HIGH VOLTAGE IS PRESENT ON THESE TERMINALS.

12. Apply power to the unit and disconnect the antenna. Adjust the 10K ohm potentiometer with a non-magnetic screwdriver for full scale deflection (down) on the S-meter. This completes the S-meter installation.

Periodically disconnect the antenna and check the S-meter reference. A slight adjustment may be necessary as the RF amplifier tube ages or if it is replaced.

**PARTS LIST**

Description	Hallicrafters Part Number
Meter	082-000592
Wire, # 22 Solid Black (15 inches)	087-104115
Wire, # 22 Solid Red (17 inches)	087-104117
Resistor, Variable, "Meter Zero"	025-002104
Solder Lug, #4 (2 each)	011-200064
Screw, Thread-forming, # 4 x 1/4 inch (2 each)	416-020316-04
Shield, Meter Terminal	069-001726