

# Service Bulletin



## hallicrafters

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### BIAS ADJUSTMENT PROCEDURE FOR SR-150 COMMUNICATIONS TRANSCEIVER

### CIRCUIT REVISIONS IN THE SR-150 COMMUNICATIONS TRANSCEIVER

**BIAS ADJUSTMENT:** The correct setting of the Bias Adjustment on the SR-150 is of prime importance and, if not correctly done, can result in premature failure of the 12DQ6B final amplifier tubes and other transmitter problems. Note that the transceiver must be in the transmit mode when the adjustment is made. This is done by depressing the microphone button when the SR-150 is in MOX and USB or LSB. The procedure is fully described on Page 16 in Paragraph 8-3 of the Operating and Service Instructions and is repeated here for your convenience.

When using the AC power supply (PS-150-120), proceed as follows: Before turning the transceiver on, connect a DC voltmeter to the two tip jacks on the power supply (see figure 14), 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 MA.

Set the OPERATION switch to STBY and allow the unit to warmup about 5 minutes. Then set the FUNCTION switch to USB or LSB, MIC GAIN to "0", and OPERATION switch to MOX. Plug in a microphone and press the microphone switch. Adjust BIAS ADJ control, R206 on the power supply, for 0.7 volt (70 MA plate current) on voltmeter.

When using the DC power supply (PS-150-12) the high voltage (red/white) lead must be disconnected from the power supply terminal strip (pin 1) and a DC milliammeter, having a full-scale deflection of not less than 300 MA, connected between the lead and the high voltage terminal on the power supply. Follow the procedure outlined in the preceding paragraph and set the BIAS ADJ control, R308 on the power supply, for 70 MA.

**CIRCUIT REVISIONS:** A number of circuit revisions have been made in the Model SR-150 Transceiver since it was originally introduced. These revisions, and the reasons for making them, are shown on the attached list. The changes incorporated in any particular SR-150 may be determined by comparing the first six digits of the serial number with those listed, all preceding numbers contain the modifications listed previously. A revised schematic diagram and parts list containing all changes are included.

This information is intended to assist in identifying the various changes made; they are not necessarily required in units previously produced. As stated on Page 13 of the Operating and Service Instructions for the SR-150, 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.

Cordially yours,

A. R. Dambrauskas,  
National Service Manager

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## ERRATA SHEET

### MODEL SR-150

Prior to production but after the Handbook of Instructions was printed, certain minor circuit modifications were made in the Model SR-150 Transceiver to improve its performance. These changes are itemized below and should be included in the handbook as applicable.

1. Change capacitors C62 and C65 from 470  $\mu\mu\text{F}$  to 0.001  $\mu\text{F}$ , 500V, ceramic disc type (part number 047-001671).
2. Change capacitor C76 from 4.7  $\mu\mu\text{F}$  to 10  $\mu\mu\text{F}$ , 5%, 500V, plastic mica type (part number 482-132100).
3. Capacitor C100 has been moved. Show this capacitor connected to ground from the junction of R80, R81, and R82.
4. Change capacitor C116 from 0.005  $\mu\text{F}$  to 0.001  $\mu\text{F}$ , 500V, ceramic disc type (part number 047-001671).
5. Change capacitor C163 from 27  $\mu\mu\text{F}$  to 18  $\mu\mu\text{F}$ , 500V, plastic mica type (part number 482-132180).
6. Add a 100  $\mu\mu\text{F}$ , 500V, plastic mica capacitor (C14), part number 482-161101, between the wiper arm of the QT Gain control (R96) and ground.
7. Add a silicon diode (CR12), type 1N456, part number 019-002964 between R1 and the control grid, pin 6, of V1. (Connect cathode of CR12 toward R1.)
8. Change resistor R64 from 47K ohms to 220 K ohms (part number 451-252224). The end of this wire shown connected to ground is now connected to pin 3 of V8.
9. Change resistor R100 from 4700 ohms to 2700 ohms (part number 451-252272).
10. Change resistor R101 from 2700 ohms to 4700 ohms (part number 451-252472).
11. Change resistor R116 from 1.5 megohms to 820K ohms (part number 451-252824).
12. Add two resistors (R161 and R162), one each to the grid pin 5 of V14 and V15 from the junction of C135 and R105. The grid of V15 is erroneously shown as pin 3. These resistors are 10 ohms, 10%, 1/2 watt (part number 451-252100).
13. Page 24 paragraph 10-1. On the last line of the first paragraph, change reference from figure 15 to figure 18.
14. In the filament string, change the second tube from the left from V12 to V2.

Form Number 094-903451B  
Pack with Instruction  
Manual 094-903286

## S-METER

The meter, as used in the Model SR-150 Transceiver, functions as an indicator of relative signal strength in the Receive Mode and as a relative power output indicator in the Transmit Mode.

Periodically, the S-Meter should be zero calibrated. To do this proceed as follows:

1. Set the OPERATION switch to STBY (Receive), the FUNCTION switch to LSB, and the RF GAIN control fully counterclockwise.
2. Allow the unit about 15 minutes to warm up.
3. Adjust potentiometer R120 until the meter pointer is directly over the line on the left side of the dial scale. R120 is located on the left side of the chassis, see figure 12 in alignment section of the manual.

## INPUT POWER REQUIREMENTS

### AC POWER SUPPLY (PS-150-120)

Transmit (CW) . . . . .	290 Watts
Receive . . . . .	150 Watts

### DC POWER SUPPLY (PS-150-12)

Transmit (CW) . . . . .	19 Amperes
Receive . . . . .	14 Amperes

## 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.

This note should be inserted in the handbook in the installation section, in the alignment section, and with both power supplies.

CIRCUIT REVISIONS INCORPORATED IN THE SR-150 TRANSCEIVER

(NOTE: Later production runs contain all of the modifications listed previously)

1st 6 digits of SERIAL NO.	MODIFICATION	REASON
415000 415001	Add capacitor C14, 100 MMF 500V, plastic mica type (part number 482-161101), between the wiper arm of the QT Gain control, R96 and ground.	Improves by-passing action. Eliminates possibility of 1650KC regeneration in receive position.
	Change capacitor C163 (27MMF) to 18MMF, 500V, plastic mica type (part number 482-132180).	This change facilitates balance phasing on the production line and is not required in existing units. If this change is installed, carrier balance will have to be made as outlined in the manual, Page 20, Paragraph 8-11.  (These changes are incorporated in most sets produced.)
415002	Change capacitors C62 and C65 (470MMF) to 0.001 MF, 500V ceramic disc type (part number 047-001671).  Change capacitor C116 (0.005MMF) to 0.001MMF, 500V, ceramic disc type (part number 047-001671).	Reshapes the receiver audio response to reduce the highs.
	Add silicon diode CR12, type 1N456, (part number 019-002964), between R1 and the control grid, pin 6, of V1. (Connect cathode of CR12 toward R1.  Change resistor R100 (4700 ohms) to 2700 ohms (part number 451-252272).  Change resistor R101 (2700 ohms) to 4700 ohms (part number 451-252472).  Change resistor R116 (1.5 meg-ohms) to 820K ohms (part number 451-252625).	Improves AGC action and also provides complete cut-off of the RF tube during transmitting.
415003	Change capacitor C76 (4.7MMF) to 10MMF, 5%, 500V, plastic mica type (part number 482-132100).  Change resistor R64 (47K ohms) to 220K ohms (part number 451-252224). The end of this wire shown connected to ground is now connected to pin 3 of V8.	Ensures starting of the Heterodyne oscillator if the crystal has a tendency to be sluggish.
	Capacitor C100 has been moved. Show this capacitor connected to ground from the junction of R80, R81, and R62. (Physical location between RIT control potentiometer (high side) and ground lug installed under escutcheon mounting screw).	Corrects frequency chirp when going from receive to transmit.

1st 6 digits of SERIAL NO.	MODIFICATION	REASON
415004	Add two resistors, R161 and R162, one each to the grid, pin 5, of V14 and V15 from the junction of C135 and R105. The grid of V15 is erroneously shown as pin 3. These resistors are 10 ohms, 10%, 1/2 watt (part number 451-252100).	Removes parasitics noticed in some units when operating on 15 meters.
415005	Change R123 (150 ohms) to 10K ohms (part number 451-252103). Change C166 (.005 MMF) to .001 MF, 500V, ceramic disc type (part number 047-001671).	Improves transmitter audio response.
	Add .01 20% ceramic disc type (part number 047-100354) between terminal strip connection of R85 (620 ohms) and ground terminal of same strip. Change C113 (.01MF) to .005MF, 500V, ceramic disc type, (part number 047-100442).	Reduces spurious signal at 21425KC receive and reduces motor boating when sidebands are switched.
	See attached instruction sheet.	Removes transmitted "click" from SR-150 when switching from transmit to receive.

**There was one final change to the SR-150 after this bulletin was posted. R110 [100k on the grid of V16] is replaced with a 1mh choke to improve drive to the driver.**

## MODIFICATION INSTRUCTIONS

The following procedures outline the modifications necessary to remove the transmitted "click" from the SR-150 Transceiver, when switching from transmit to receive.

1. Remove white/green wire from terminal 4 of terminal strip near tubes V1 and V7. (Junction of R1, 1 megohm, and C10, .005 MF.)
2. Replace capacitor C10 (.005 MF) with a .02 MF disc capacitor. (Connected between terminals 4 and 5 of terminal strip.)
3. Add a .02 MF disc capacitor between terminals 4 and 6 of terminal strip.
4. Add a 220 K ohm, 1/2 watt resistor between terminals 3 and 4 of terminal strip.
5. Replace capacitor C37 (.005 MF) with a .02 MF disc capacitor. (Located at 6 MC IF can, T2.)

