

OPERATING AND SERVICE INSTRUCTIONS

SIX-METER TRANSMITTER/RECEIVER MODEL SR-46





Figure 1. Hallicrafters' Model SR-46 Six-Meter Transmitter/Receiver.

SECTION I GENERAL DESCRIPTION

1-1. INTRODUCTION

The Model SR-46 is a compact, self-contained six-meter radio station. Its compact size, ease of mounting, and universal power supply make this equipment ideally suitable as a 12-volt DC mobile unit as well as a 117-volt AC fixedstation unit. The unit is factory equipped with a transmitter crystal installed in position No. 1 for operation on 50.22 MC. Three other positions are available for four-channel transmitter operation. The receiver is tunable throughout the 50 to 54 MC band.

The only additional items required for AC operation are a high-impedance microphone with a push-to-talk switch and a suitable antenna.

A Model MR-40 Mobile Kit is required for 12volt DC operation. This kit includes a heavy-duty vibrator, a DC power cable assembly, and the necessary brackets and hardware for mobile mounting.

NOTE

An FCC license is required by anyone operating this equipment.

1-2. FEATURES

The receiver used in the SR-46 is a doubleconversion superheterodyne type, incorporating the following features:

> Low-noise, neutralized-nuvistor RF stage. Low-noise triode first mixer. Low-pass input filter. Eleven tuned RF and IF circuits. Automatic full-time noise limiter. Zener-regulated variable oscillator. Crystal-controlled second oscillator. Double-spaced, copper-plate variable oscillator capacitor. Planetary drive for easier tuning. Dual tuning range for greater bandspread. Calibrated "S" meter. Heavy-duty speaker with a 3/4-inch voice coil and a one-ounce Alnico V magnet.

High-frequency type CR-23/U crystals for less TVI.

Frequency "SPOT" switch.

Automatic RF output meter switching.

Bridge neutralized final amplifier.

Pi network output.

Four panel-switch selected crystal sockets.

Provisions for external VFO.

Microphone gain control.

Convenient "Push-to-Talk" operation.

High-quality, sealed, changeover relay.

Hinged cover for easy access to crystal sockets and tubes.

1-3. TELEVISION INTERFERENCE

Precautions have been taken to reduce TVI to a minimum. However, in areas of low-signal intensity, particularly where Channel 2 is used, additional rejection may be required. A ground lead from the rear chassis ground terminal to a cold water pipe ground is recommended. Different ground lead lengths should be tried and leads which are odd multiples of a quarter wave length should be avoided.

For maximum reduction of TVI, a low-pass filter with 52-MC cutoff, such as R.L. Drake's Model TV-100-LP, should be used. With such a filter connected between the ANTENNA receptacle and the 50-ohm coaxial feed line, the SR-46 will be limited to operation in the 50 to 52 MC range.

SECTION II SPECIFICATIONS

RECEIVER

Sensitivity

Less than 1 microvolt for 10-DB signal-to-noise ratio (30% modulation).

Noise Figure

4 to 6 DB.

Power Gain

0.5 watt for a one-microvolt, 30%-modulated input.

AVC Figure of Merit

Better than 50 DB.

IF Rejection

60 DB.

Input Impedance

50 ohms (unbalanced).

Output Impedance

3.2 ohms.

Tuning Range

49.9 to 54.0 MC (minimum).

IF Frequencies

20.15 MC and 1650 KC.

Reception Mode

Type A3 emission (AM).

TRANSMITTER

Power Input

10 to 12 watts.

Tuning Range

49.75 to 54.0 MC (minimum).

Crystal Type CR-23/U

Crystal Frequency

25 to 27 MC; Output Frequency

Microphone Input High impedance with "push-to-talk."

Frequency Response -3 DB at 300 and 3800 CPS.

Output Impedance

50 ohms (unbalanced).

Transmission Mode

Type A3 emission (AM).

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NOTE

A Model MR-40 Mobile Kit is required for 12-volt mobile operation. This Kit includes a heavy-duty vibrator, a DC power cable assembly and the necessary brackets and hardware for mobile mounting.

AC OPERATION

105/125 volts, 60 cycles, 65 watts maximum.

DC OPERATION

11/16 volts (negative ground), 5 amperes maximum

Antenna Receptacle

Accepts Amphenol Type 83-1SP connector.

Microphone Receptacle

Accepts Amphenol Type 80-MC2M connector.

Number of Tubes

Ten, plus four diodes and one zener regulator.

Overall Dimensions (HWD)

5-1/2 by 12-1/8 by 8-1/4 inches.

Shipping Weight

17 pounds.

SECTION III INSTALLATION

3-1. UNPACKING

After unpacking the SR-46, examine it for damage which may have occurred in transit. Should any sign of damage be apparent, immediately file a claim with the carrier stating the extent of the damage. Carefully check all shipping labels and tags for instructions before removing or destroying them.

3-2. LOCATION

The SR-46 unit may be placed in any location that will permit free air circulation through the ventilation holes and openings in the cabinet.

In fixed-station use, avoid excessively warm locations such as those near radiators and heating vents. Also, avoid direct blasts of air from circulating fans, etc. Do not place any object on the cabinet cover that will impair natural ventilation.

In mobile installations, avoid direct air blasts from heaters or air conditioning units.

3-3. CONNECTION TO POWER SOURCE

The SR-46 may be used for 117-volt, 60-cycle AC operation or 12-volt DC, negative-ground operation by selecting the correct power cord and plug assembly.

In fixed installations where a 117-volt AC source will be used, the power cord with the standard

two-contact, molded plug on one end is used to connect to the AC outlet.

In mobile installations, the power lead with the in-line fuseholder is used. It is recommended that the bare end of this wire be connected directly to the <u>positive</u> (ungrounded) battery terminal. If additional length is required, wire no smaller than No. 14 AWG should be used. Connection of this lead to other points may cause reduced voltage, increased ignition interference, etc, which will impair normal operation.

The Hallicrafters Company has available two Electrical Noise Suppression Kits, Models HA-3 and HA-3A. These kits and instructions for their installation are available from your local Hallicrafters' dealer.

CAUTION

The SR-46 is wired for 12-volt negative-ground operation. If it is desired to use this unit in vehicles having a 12-volt positive-ground electrical system, it will be necessary to reverse the polarity of relay diode CR3 and relay electrolytic filter capacitor C61. An additional wire is required to be connected from the SR-46 chassis (screw terminal on rear) to the firewall or frame of the vehicle. This wire, No. 14 AWG or larger, completes the battery circuit.



Figure 2. Mobile Installation of the SR-46 Unit

3-4. ANTENNAS

The SR-46 is designed for 50-ohm termination; therefore, any six-meter antenna providing 50ohm termination may be used. Antenna polarization is very important at these frequencies and should be considered when choosing an antenna. Generally speaking, the antenna polarization should be compatible with that of the stations you will normally be in contact with.

The antenna should be connected to the antenna receptacle on the back of the unit using RG-8/U or RG-58/U coaxial cable (RG-8/U is recommended for lengths in excess of 25 feet).

It is important that the antenna be adjusted for the lowest possible VSWR at your normal operating frequency. Additional information on antennas may be found in the ARRL Handbook or in the ARRL Antenna Manual.

3-5. VFO INPUT SOCKET CONNECTIONS

When the SR-46 XTAL-VFO switch is placed in the VFO position, it is possible to control the transmitter frequency from an external variablefrequency oscillator.

The external oscillator should be capable of supplying 3 to 4 volts (RMS) across 150 ohms over a frequency range of 25 to 27 MC. The output of this oscillator should be connected to pin 6 and ground (pin 7) of the VFO socket which is mounted on the rear chassis apron.

Voltages are available at this socket to provide power for such a unit (see figure 3).



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Figure 3. VFO Socket, Showing Pin Applications.

3-6. HEADPHONES

The headphone jack, located on the rear chassis apron, is wired so that the internal speaker is automatically disabled when the headphone plug is inserted.

The headphone impedance is not critical; therefore phones up to 2000 ohms impedance will give good results.

SECTION IV CONTROLS AND OPERATION

CAUTION

Do not apply power unless this unit is terminated into an antenna or dummy load known to be near 50 ohms.

In mobile operation, turn the SR-46 OFF before engaging the engine starter switch. Failure to do so may materially shorten the life of the power-supply vibrator.

4-1. CONTROLS

A. OFF – AF GAIN

After the antenna and power source connections have been made, rotate the gain control knob clockwise until a click is heard. The dial and meter windows should illuminate indicating that power is applied. Rotate control clockwise as necessary for desired audio output level.

B. REC. RANGE

This control selects a receiver tuning range of 50 to 52 MC or 52 to 54 MC.

If the control is set for 50-52, the upper, or 50 to 52 MC dial calibrations should be used to indicate the frequency of reception.

If the control is set for 52-54, the lower, or 52 to 54 MC dial calibrations should be used.

C. TUNING

This control rotates the dial and variable oscillator capacitor through a planetary drive system, to provide the desired frequency of reception. As mentioned in paragraph 4-1B, the dial calibrations used must correspond to the setting of the REC. RANGE control.

D. XTAL-VFO

This is a five-position switch used for selection of any one of four crystals which may be inserted into the corresponding sockets directly behind this control on the inside top of the chassis. In the fifth position, all crystal sockets are disconnected and connection is made to pin 6 of the VFO socket (J3) for external VFO input between pin 6 and ground (pin 7).

E. GRID

This control is used to resonate the final amplifier input to the desired frequency. The 50-54 markings for this control are not calibration points but merely indicate the correct direction of rotation when tuning to a higher or lower operating frequency.

Always adjust this control for maximum upward meter deflection when in the Transmit Mode (i.e., push-to-talk switch on microphone closed).

F. PLATE

This control is used to resonate the plate circuit of the final amplifier to the desired frequency. The same comments as in paragraph 4-1E, apply to this control.

G. LOAD

This control adjusts the output portion of the pi network to provide optimum power transfer into the antenna load. There will be interaction between the PLATE and LOAD controls; therefore both should be adjusted repeatedly until no further upward meter deflection is obtained.

NOTE

The GRID, PLATE, and LOAD controls should always be adjusted for maximum upward meter deflection at the frequency of operation.

H. FREQ. SPOT

This switch, which should normally be in the OFF position, is used to apply plate voltage to the transmitter oscillator when in the Receive Mode. This generates a strong unmodulated signal which may be tuned-in on the receiver to indicate the frequency of transmission.

I. MIC. GAIN (Rear chassis apron)

This control is used to adjust the amount of audio applied to the carrier (percentage of modulation). The correct setting of this control may be determined by viewing the modulated RF output signal on an oscilloscope or by checking with operators of nearby stations. The control should be adjusted for maximum undistorted talk power. Do not attempt to over-modulate. Once set, this control need not be readjusted unless the microphone is changed. Normal setting of this control will usually be between one-half and two-thirds clockwise rotation when viewed from chassis rear.

J. METER ZERO (Rear chassis apron)

This control provides an electrical zero adjustment of the meter to compensate for tube and component aging which normally occurs.

- 1. To zero the meter, apply power to the SR-46 for at least fifteen minutes to allow circuit stabilization.
- 2. Remove the antenna and rotate the METER ZERO adjustment as necessary to cause the meter pointer to rest directly above the calibration mark at the extreme left end of the meter scale.

NOTE

This adjustment must be made in the Receive mode only.

4-2. RECEIVER OPERATION

To operate the SR-46 as a receiver, proceed as follows:

- 1. Connect a six meter, 50-ohm antenna to the ANTENNA receptacle located on the rear of the chassis.
- 2. Connect AC or 12-VDC power cord to an appropriate voltage source.
- 3. Rotate OFF-AF GAIN control clockwise until a click is heard. The dial and meter windows should illuminate, indicating that power has been applied.
- 4. Adjust AF GAIN control for desired audio output level.
- 5. Set REC. RANGE to the desired range.
- 6. Rotate TUNING control to the desired frequency.

NOTE

The dial calibration used must correspond to the setting of the REC. RANGE control.

4–3. TRANSMITTER OPERATION

To operate the SR-46 as a transmitter, proceed as follows:

- 1. Connect antenna and power source.
- 2. Connect microphone to MIC receptacle.
- 3. Insert desired crystal into one of the four crystal sockets which will be found directly behind the XTAL-VFO switch on the chassis top.
- 4. Rotate XTAL-VFO switch to the corresponding XTAL position.
- 5. Preset GRID, PLATE and LOAD control knobs to mid rotation (dot straight up).
- 6. Depress and hold microphone push-to-talk switch in the closed position.
- 7. Adjust GRID, PLATE and LOAD controls for maximum upward meter deflection. Repeat adjustments until no further increase in meter reading is obtainable.
- 8. Release push-to-talk switch.
- 9. Rotate the MIC GAIN control, located on rear chassis apron, to approximately two thirds of full rotation in a clockwise direction (when viewed from chassis rear). See paragraph 4-11 for complete information on adjustment of this control.
- 10. The SR-46 is now ready for transmission.

NOTE

Do not attempt to operate near the band edge unless accurate frequency measuring instruments are available to ensure that all of the transmitted signal is within the specified band limits.

Do not attempt to over-modulate.

- 11. The frequency of transmission can be "spotted" on the receiver dial by placing the FREQ SPOT switch in the ON position and tuning the receiver until a strong unmodulated signal is heard.
- 12. Return the FREQ SPOT switch to the OFF position.

NOTE

If the operating frequency is changed, the GRID, PLATE, and LOAD controls should be readjusted for maximum output.

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4-4. TRANSMITTER CRYSTALS

High-frequency transmitter crystals similar to those used in citizens band and other modern day equipment are used to minimize spurious outputs generated in the process of high-order multiplication.

These crystals are readily available from any of the well-known crystal manufacturers. To order crystals proceed as follows: 1. Divide the desired operating frequency by 2 to determine the crystal frequency.

Example: The desired operating frequency is 50.2 MC.

 $\frac{50.2}{2}$ = 25.1 MC (crystal frequency).

2. The crystal order to the manufacturer should contain the following information: Crystal Type CR-23/U

Crystal Frequency 25.1 MC

SECTION V

THEORY OF OPERATION

5-1. RECEIVER (Figure 4)

An RF signal (50 to 54 MC) is applied to the antenna input (J1) and is fed through the changeover relay, (K1), through the low-pass filter, to the broadband antenna coil (L1). The signal is transformed to a higher impedance and the resultant voltage is applied to the grid of the neutralized 13CW4 Nuvistor (V1) where it is amplified.

After amplification, the signal is fed through a 50 to 54 MC bandpass coupler to the first mixer stage (V2A). Here it is heterodyned with the voltage developed by the variable oscillator (V2B) to produce a difference or IF frequency of 20.15 MC.

The variable oscillator has a basic tuning range of 29.85 to 31.85 MC to provide a tuning range of 50 to 52 MC. In the 52 to 54 MC range, a coil (L6) is connected in parallel with the oscillator coil (L7) to shift the oscillator tuning range exactly two megacycles higher in frequency. The oscillator plate voltage is controlled by a zener regulator (CR2) to maintain stable operation over a wide range of input voltage variations. The 20.15-MC first IF signal is fed through a double-tuned transformer (T1) to the grid of the second mixer (V3A) where it is heterodyned with the output of an 18.5-MC crystal-controlled oscillator (V3B) to produce a second IF frequency of 1650 KC.

The 1650-KC IF signal is fed through three double-tuned transformers (T2, T3, and T4) and two amplifier stages (V4 and V5) to the envelope detector where the signal is rectified to produce an audio signal and AVC voltage.

The AVC voltage after filtering is applied to both 1650-KC IF amplifiers and to the RF amplifier to provide automatic gain control.

The audio signal, after RF filtering, is fed through the automatic, self-adjusting noise-limiter circuitry to the AF GAIN control. From the receiver audio gain control, it is fed through a set of relay contacts, two audio stages (V9B and V10), and the output transformer (T5) to the speaker (LS1). It should be noted that these two audio stages and the output transformer, as well as a microphone preamplifier stage (V9A) are used to modulate the transmitter.



Figure 4. Receiver Block Diagram



Figure 5. Transmitter Block Diagram.

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In the Receive Mode, the antenna is connected to the receiver input, plate voltage is removed from the transmitter oscillator and doubler stage, the microphone preamplifier plate voltage is removed, the receiver audio is connected to the audio amplifier, the speaker voice coil circuit is completed, and the final transmitter amplifier cathode circuit is opened.

5-2. TRANSMITTER (Figure 5)

The transmitter signal is generated in the triode section (V7A) of the 7059 oscillator/doubler stage. This may be done by using a crystal or by placing the XTAL-VFO switch (S4) in the VFO position and feeding in an external signal of the proper amplitude and frequency. The output of the triode section is broad tuned to cover the 25 to 27 MC range.

The 25 to 27 MC signal is applied to the pentode or doubler section of the same tube (V7B) to develop a signal in the 50 to 54 MC range. The output of this stage is resonated by the GRID tuning control (C52) to accept the desired 50 to 54 MC signal and reject the 25 to 27 MC signal.

This signal is fed to the final amplifier stage (V8) for further amplification. The output of the final amplifier is connected to a pi network to resonate the plate circuit and transform the amplifier plate impedance to the desired 50 ohms. The signal is then fed through a set of relay contacts to the ANTENNA receptacle.

Modulation of the plate and screen circuits of the final amplifier is accomplished in the conventional manner. The degree or percentage of modulation is controlled by adjustment of the MIC GAIN control (R29) on the rear chassis apron.

In the Transmit Mode, voltage is removed from RF, mixers, and IF stages of the receiver, the antenna is connected to the transmitter, the speaker voice coil circuit is opened, the final amplifier cathode circuit is completed, and voltage is applied to the microphone preamplifier as well as the transmitter oscillator and doubler stages.

5-3. POWER SUPPLY.

The power supply used is of the universal, fullwave voltage-doubler type. Silicon rectifiers (CR4 and CR5) are used for good voltage regulation and reduced heat. Either 117 VAC or 12 VDC operation is available by proper choice of power cord and plug assemblies. All connections are made automatically when the cords are changed. A heavy-duty vibrator is used for DC operation.

NOTE

The SR-46 is wired for 12-volt negative-ground operation. To use this equipment in vehicles where the positive battery terminal is grounded, it will be necessary to reverse the polarity of the relay diode CR3 and the relay electrolytic filter capacitor C61.

5-4. "S" METER-RF OUTPUT METER.

A bridge circuit is used to provide a forward reading meter which is used in Receive and Transmit. Plate current for the two AVC-controlled IF amplifier tubes is measured by the meter and is proportional to the AVC voltage (or incoming signal strength). The meter is calibrated in "S" units to 9 and in decibels above S9. S9 will represent an incoming signal of 50 microvolts at the ANTENNA receptacle. In Transmit, a small portion of the RF output signal is rectified and filtered. This rectified current is measured by the meter and gives an indication of the relative output of the transmitter. When the SR-46 is terminated into 50 ohms, the meter will read between one-half and threequarters of full scale at maximum transmitter output. Readings above or below this level indicate incorrect antenna termination or improper tuning.

SECTION VI

SERVICE DATA

6-1. CHASSIS REMOVAL

- 1. Remove power cable.
- 2. Disconnect antenna.
- 3. Disconnect microphone.
- 4. Remove six screws in cabinet bottom.
- 5. Slide chassis forward in cabinet to remove.

NOTE

Hinged cover provides easy access to pilot lights, tubes, crystals, etc.

6-2. SERVICE AND OPERATING QUESTIONS.

For further information regarding operation or servicing of this equipment contact the dealer from whom the unit was purchased. The Hallicrafters Company maintains an extensive system of Authorized Service Centers where any required service will be performed promptly and efficiently at no charge if this equipment is delivered to the service center within 90 days from date of purchase by the original buyer and the defect falls within the terms of the warranty. It is necessary to present the bill of sale in order to establish warranty status. After expiration of the warranty, repairs will be made for a nominal charge. All Hallicrafters Authorized Service Centers display the sign shown below. For the location of the one nearest you, consult your dealer or telephone directory.

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.





Figure 6. Voltage Chart.



Figure 7. Resistance Chart

7-1. GENERAL

Alignment should not be attempted until all other possible causes of faulty operation have been exhausted. Alignment should only be performed by qualified personnel familiar with communications equipment and experienced in the alignment of such equipment.

NONE

Do not make any adjustments unless the operation of this unit is fully understood and adequate test equipment is available.

- 7-2. TEST EQUIPMENT REQUIRED (Receiver)
- 1. Signal generator with 1650-KC to 54-MC coverage. 50-ohm termination impedance, and 30%, 400-cycle modulation.
- 2. Audio output meter providing 3.2-ohm termination. The AC scale of a VTVM may be used, in which case a 3 or 4 ohm, 2 watt, resistive load should be used.
- 7–3. INITIAL CONTROL SETTINGS

NOTE

Disconnect speaker and terminate output transformer secondary with 3.2-ohm load. Connect output meter across load.

Allow at least fifteen minutes warmup time before making any adjustment.

TUNING					•			52 MC
REC. RANGE							50	to 52 MC
AF GAIN						Full	va	dvanced.

7-4. 1650-KC IF ALIGNMENT

- 1. Connect the hot lead from the signal generator through a 0.01 to $0.05 \,\mu$ F capacitor to pin 2 of V3 (ground shield of generator lead to the chassis).
- 2. Set generator at 1650 KC (30%, 400-cycle modulation) and increase level as necessary to obtain indication on audio output meter.
- 3. Adjust top and bottom cores of T4, T3, and T2 for maximum audio output. Keep generator output at the lowest practical level.

7-5. 20.15-MC IF ALIGNMENT

- 1. Connect hot lead of signal generator through a 0.01 to 0.05 μ F capacitor to pin 7 of V2 (shield to chassis).
- 2. Set generator at 20.15 MC (30%, 400-cycle modulation) and adjust top and bottom cores of T1 for maximum audio output. Keep generator output at the lowest practical level.

NOTE

With certain core settings in the 20.15-MC IF, the 18.5-MC oscillator will not oscillate causing the receiver to appear dead. Should this occur, rotate the transformer cores one or two turns or until a signal can be found.

- 7-6. ANTENNA AND BANDPASS ALIGNMENT
- 1. Connect signal generator to ANTENNA input receptacle.
- 2. Set generator at 52 MC (30%, 400-cycle modulation) and adjust L3, L2, and L1 for maximum audio output.
- 3. Tune receiver and generator to 50 MC and adjust L3 for maximum audio output.
- 4. Tune receiver and generator to 54 MC and adjust L2 for maximum audio output.
- 5. Check for uniform gain at 50, 52, and 54 MC, If the variation is greater than 3 DB, repeat the above adjustments.
- 7-7. VARIABLE OSCILLATOR ADJUSTMENT
- 1. Disconnect output termination and meter, and connect speaker.
- 2. Set receiver dial at 50 MC. (REC. RANGE at 50-52 MC)
- 3. Set generator at 50 MC (modulated).
- 4. Adjust oscillator coil L7 until a signal is heard.
- 5. Set receiver dial to 52 MC. (REC. RANGE at 50-52 MC)



Figure 8. Top View of Chassis, Showing Component Locations.

- 6. Set generator to 52 MC.
- 7. Adjust trimmer capacitor C28 until a signal is heard.
- 8. Repeat these adjustments until the calibration is correct at 50 and 52 MC.
- 9. Set REC. RANGE switch to 52-54 MC.
- 10. Set receiver dial to 52 MC.
- 11. Set generator to 52 MC.
- 12. Adjust coil L6 until a signal is heard.
- 13. There may be some interaction between the two coil adjustments; therefore, the above adjustments should be repeated, if necessary, for accurate calibration.

NOTE

Small errors in calibration in the 50 to 52 MC range may be corrected by slight readjustment of coil L7 only. Calibration in the 52 to 54 MC range should not be attempted until calibration has been established in the 50 to 52 MC range. Adjustment of the 52 to 54 MC range must be made by coil L6.

7-8. TRANSMITTER OSCILLATOR COIL.

This adjustment should be made with a 27-MC crystal installed in the transmitter. If a 27-MC crystal is not available, select the highest frequency crystal that you intend to use.

- 2. Tune the transmitter in the normal manner for maximum output.
- 3. Adjust the core of coil L9 for maximum upward RF output meter deflection and then back the core out approximately one-quarter turn (high frequency side of resonance) to ensure oscillator starting.

NOTE

If no transmitter output can be obtained, turn core of coil L9 out of coil winding approximately two turns or until an indication of RF output is obtained and then make adjustment as described above.

7-9. TRANSMITTER DOUBLER COIL ADJUSTMENT.

If the GRID control passes through resonance at any point between nine o'clock and three o'clock, no adjustment is necessary. If it does not reach resonance, proceed as follows:

- 1. Select a crystal that will give an output near 50 MC.
- 2. Tune transmitter for maximum RF output.
- 3. Set GRID control near 50.
- 4. Adjust core in coil L11 for maximum RF meter output.



Figure 9. Bottom Chassis View, Showing Component Locations

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SERVICE REPAIR PARTS LIST

Description

Schematic Symbol

Schematic Symbol	Description	Hallicrafters Part Number
	CAPACITORS	
C1,3,35	22 PF, 5%, 300V, Plastic Mica	493-110220-221
C2	3.9 PF, 5%, 300V, Plastic Mica	493-140390-221
C4,31	4.7 PF, 5%, 300V, Plastic Mica	493-140470-221
C5	1.5 PF, 10%, 500V,	047-200403-003
C6,8,9,10, 13,14,15,32, 39,44,45,47, 49,55	$0.001 \ \mu$ F, 20%, 500V, Ceramic Disc	047-001671
C7	5.6 PF, 5%, 300V,	493-140560-221
C11	2.2 PF, 5%, 300V, Plastic Mica	493-140220-221
C12,17,19, 20,33,38, 54,67	0.01 μ F, +80-20%, 450V, Ceramic Disc	047-100217
C16	$0.02 \ \mu$ F, 20%, 600V, Ceramic Disc	047-100471
C18,21,24,	$0.005 \ \mu$ F, 20%, 500V,	047-100442
C22,63,64,	$0.1 \ \mu F, +80-20\%, 50V,$	047-001146
C23,41,43,	$0.002 \ \mu$ F, 20%, 500V,	047-100395
C25,46	150 PF, 5%, 300V, Plastic Mice	493-110151-224
C26	82 PF, 5%, 300V, Plastic Mica	493-110820-223
C27	3.3 PF, 5%, 300V, Diastic Mice	493-140330-221
C28	Variable, Trimmer, 1-8 PF,	044-000593
C29	Variable, Tuning	048-000570
C34	Plastic Mica	493-110471-224
C34	Tubular	491-045620-042
030 51	Plastic Mica	493-110100-221
C37,51	Plastic Mica	493-110101-224
C48	47 PF, 5%, 300V, Plastic Mica	493-110470-223
C50	47 PF, 2%, Ceramic Tubular	491-104470-053
C52	1 PF, 10%, 500V, Composition	047-200403-002
C53,57	Variable, Trimmer, 2-11.9 1 500V, Air Type, GRID and DLATE	PF, 048-000571
C56	0.001 μF, 20%, 1000V, Ceramic Disc	047-101172
C58	$0.005 \ \mu$ F, 20%, 1000V,	047-200523
C59	Variable, Trimmer, 6-100.5	PF, 048-000572
C60	75 PF, 5%, 300V,	493-110750-223
C62	100 μ F, 25V, Electrolytic	045-001204
C68,69	0.0033 μ F, 1400V, Ceramic Disc	047-001618
C70	0.22 μF, 10%, 600V, Paper Tubular	046-001434-464

$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	CAPACITORS (CONT).								
*RESISTORS R1,9 500 Chm 451-252564 R2,5,11, 100K Chm 451-252164 R3,5,11, 100K Chm 451-252104 R4,8,17, 820 Chm 451-252201 R7 27K Ohm, 1 watt 451-252233 R16 Variable, Composition, 025-002402 500K Ohm, 2 watt 451-252233 R16 Variable, Composition, 1000 025-002402 500K Ohm, 30%, 1/4 watt R18 Variable, Composition, 1000 025-002402 S00K Ohm, 30%, METER ZERO 700K Ohm, 100K METER ZERO R12 150K Ohm, 1 watt 451-252233 R25 18K Ohm, 1 watt 451-252234 R27 150K Ohm, 1 watt 451-252164 R23,39 47K Ohm, 1 watt 451-252164 R24 20K Ohm, 1 watt 451-252164 R25 18K Ohm, 1 watt 451-252103 R26 100 Megohm 451-252103 R34 100 Kegohm 451-252103 R35 330 Ohm 451-252103 R36 150 Ohm, 1 watt 451-252103<	C71 C72A,B,C, D	40 μF, 200V. Electrolytic 40 μF, 350V-40 μF, 350V- 40 μF, 200V-10 μF, 50V Electrolytic	045-000633 045-000632						
R1,9 560K Ohm 451-252564 R2,10,14, 1500 Ohm 451-252152 R3,5,11, 100K Ohm 451-252104 24 451-25220 451-252220 R7 27K Ohm, 1 watt 451-252220 R7 27K Ohm, 1 watt 451-352233 R12 39K Ohm, 1 watt 451-352393 R13 22K Ohm, 2 watt 451-652233 R16 Variable, Composition, 00 025-002402 500K Ohm, 30%, METER ZERO 500K Ohm, 30%, METER ZERO R18 Variable, Composition, 1000 025-002383 Ohm, 30%, METER ZERO 851-25223 R18 Variable, Composition, 500K 025-002382 Ohm, 30%, METER ZERO 851-252164 R23, 39 47K Ohm, 1 watt 451-252134 R25 18K Ohm, 1 watt 451-252163 R27 150K Ohm, 1 watt 451-252164 R33 390 Ohm, 1 watt 451-252164 R33 10 Megohm 451-252103 R34 10K Ohm 451-252103 R35 330 Ohm, 1 watt 451-252103 R36 150 Ohm, 1 watt<	*RESISTORS								
R2,10,14, 1500 0hm 451-252152 R3,5,11, 100K 0hm 451-252104 24 R4,8,17, 820 0hm 451-252821 19,20 85 22 0hm 451-252220 R7 27K 0hm, 1 watt 451-352273 R12 39K 0hm, 1 watt 451-352393 R12 39K 0hm, 2 watt 451-652223 R16 Variable, Composition, 025-002402 500K 0hm, 30%, 1/4 watt AF GAIN R18 Variable, Composition, 1000 025-002383 Ohm, 30%, METER ZERO R21 22K 0hm 451-252134 R25 18K 0hm, 1 watt 451-252184 R23,39 R27 150K 0hm, 1 watt 451-252183 R27 R28 31,32 220K 0hm 451-252164 R33 390 0hm, 1 watt 451-252164 R33 R34 10K 0hm 451-252106 R33 390 0hm, 1 watt 451-252103 R34 10K 0hm 451-252161 R37 47K 0hm, 1 watt 451-252103 R35 330 0hm 451-2522331 R36 <td>R1,9</td> <td>560K Ohm</td> <td>451-252564</td>	R1,9	560K Ohm	451-252564						
H3,5,11, 100K Ohm 451-252104 24 7 19,20 7 R6 22 Ohm 451-252221 R7 27K Ohm, 1 watt 451-252220 R7 27K Ohm, 1 watt 451-352233 R12 39K Ohm, 2 watt 451-65223 R13 22K Ohm, 2 watt 451-65223 R16 Variable, Composition, 025-002402 500K Ohm, 30%, METER ZERO S00K Ohm, 30%, METER ZERO 61-252223 R12 2150K Ohm, 1 watt 451-252223 R21 22K Ohm, 1 watt 451-25223 R22 150K Ohm, 1 watt 451-252164 R23, 39 47K Ohm, 1 watt 451-252163 R27 150K Ohm, 1 watt 451-252163 R28 Variable, Composition, 500K 025-002382 Ohm, 30%, 1/4 watt MIC GAIN R30 10 Megohm 451-252103 R33 390 Ohm, 1 watt 451-252103 R34 10K Ohm 451-252103 R35 330 Ohm 451-252103 R34 10K Ohm, 1 watt 451-2522331 R36 <	R2,10,14, 15 26	1500 Ohm	451-252152						
R4, 8, 17, 820 Ohm 451-252821 19, 20 7 27K Ohm, 1 watt 451-252220 R7 27K Ohm, 1 watt 451-35273 R12 39K Ohm, 1 watt 451-352393 R13 22K Ohm, 2 watt 451-652233 R16 Variable, Composition, 025-002402 500K Ohm, 30%, 1/4 watt AF GAIN 818 Variable, Composition, 1000 025-002383 Ohm, 30%, METER ZERO 451-252223 R21 22K Ohm 451-252154 R25 18K Ohm, 1 watt 451-252144 R25 18K Ohm, 1 watt 451-252144 R27 150K Ohm, 1 watt 451-252163 R28 31,32 220K Ohm 451-252164 R38 60K Ohm, 1 watt 451-252163 R39 Variable, Composition, 500K 025-002382 Ohm, 30%, 1/4 watt MIC GAIN R30 10 Megohm 451-252103 R33 390 Ohm, 1 watt 451-252103 R36 150 Ohm 451-252163 R37 47K Ohm, 1 watt 451-252243 R41 120 Ohm, 1 watt 451-2521	R3,5,11,	100K Ohm	451-252104						
$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	R4,8,17, 19.20	820 Ohm	451-252821						
R7 27K Ohm, 1 watt 451-352273 R12 39K Ohm, 1 watt 451-352393 R13 22K Ohm, 2 watt 451-652233 R16 Variable, Composition, 00 025-002402 500K Ohm, 30%, 1/4 watt AF GAIN R18 Variable, Composition, 1000 025-002383 Ohm, 30%, METER ZERO 451-252233 R21 22K Ohm 451-252154 R23 150K Ohm, 1 watt 451-252243 R25 18K Ohm, 1 watt 451-352183 R27 150K Ohm, 1 watt 451-352184 R28, 31,32 220K Ohm 451-252243 R29 Variable, Composition, 500K 025-002382 Ohm, 30%, 1/4 watt 451-352163 R30 10 Megohm 451-252106 R33 390 Ohm, 1 watt 451-252103 R35 330 Ohm, 1 watt 451-252131 R36 150 Ohm 451-252161 R37 47K Ohm, 1 watt 451-2522683 R40, 42 33K Ohm 451-2522683 R41 120 Ohm, 1 watt 451-2522683 R44 10 Ohm, 1 watt 45	R6	22 Ohm	451-252220						
R12 39K Ohm, 1 watt 451-352393 R13 22K Ohm, 2 watt 451-652233 R16 Variable, Composition, 025-002402 500K Ohm, 30%, 1/4 watt AF GAIN R18 Variable, Composition, 1000 025-002383 Ohm, 30%, METER ZERO 611-25223 R21 22K Ohm 451-25223 R22 150K Ohm 451-252154 R23 39 47K Ohm 451-252163 R27 150K Ohm, 1 watt 451-352183 R27 150K Ohm, 1 watt 451-352184 R28 Variable, Composition, 500K 025-002382 Ohm, 30%, 1/4 watt MIC GAIN R30 10 Megohm 451-252106 R33 390 Ohm, 1 watt 451-252103 R34 10K Ohm 451-252103 R35 330 Ohm 451-252103 R36 150 Ohm 452-252161 R37 47K Ohm, 1 watt 451-252103 R36 120 Ohm, 1 watt 451-252103 R40, 42 33K Ohm 451-252333 R41 120 Ohm, 1 watt 451-352121 <td>R7</td> <td>27K Ohm, 1 watt</td> <td>451-352273</td>	R7	27K Ohm, 1 watt	451-352273						
R13 22K Olm, 2 walt 401-052223 S00K Ohm, 30%, 1/4 watt AF GAIN R18 Variable, Composition, 1000 025-002363 Ohm, 30%, METER ZERO 451-252223 R21 22K Ohm 451-25223 R22, 150K Ohm 451-252154 R23, 39 47K Ohm, 1 watt 451-25214 R25 18K Ohm, 1 watt 451-35214 R27 150K Ohm, 1 watt 451-25224 R29 Variable, Composition, 500K 025-002382 Ohm, 30%, 1/4 watt 451-35214 R29 Variable, Composition, 500K 025-002382 Ohm, 30%, 1/4 watt 451-252106 R33 390 Ohm, 1 watt 451-252106 R33 390 Ohm, 1 watt 451-252105 R34 10K Ohm 451-252131 R36 150 Ohm 451-252131 R36 150 Ohm 451-2522331 R36 150 Ohm 451-2522331 R36 150 Ohm, 1 watt 451-252168 R40, 42 33K Ohm 451-252161 R41 120 Ohm, 10%, 5 watt, 445-052210 R45 </td <td>R12</td> <td>39K Ohm, 1 watt</td> <td>451-352393</td>	R12	39K Ohm, 1 watt	451-352393						
Alto Variable, Composition, 100 025-002402 500K Ohm, 30%, 1/4 watt AF GAIN 818 Variable, Composition, 1000 025-002383 Ohm, 30%, METER ZERO 451-252223 R21 22K Ohm 451-25223 R22 150K Ohm, 1 watt 451-252154 R25 18K Ohm, 1 watt 451-352183 R27 150K Ohm, 1 watt 451-352183 R29 Variable, Composition, 500K 025-002382 Ohm, 30%, 1/4 watt MIC GAIN R30 10 Megohm 451-252106 R33 390 Ohm, 1 watt 451-252106 R34 10K Ohm 1 watt 451-252101 R35 330 Ohm, 1 watt 451-252131 R36 150 Ohm 451-252031 R37 47K Ohn, 1 watt 451-252663 R40, 42 33K Ohm 451-252663 R41 120 Ohm, 1 watt 451-352121 R43 100 Ohm, 1 watt 451-352121 R44 10 Ohm, 1 watt 451-552683 R41 120 Ohm, 1 watt 451-552700 R44 10 Ohm, 1 watt 451-552	RI3	ZZK Ohm, Z watt	451-652223						
R18 Variable_Composition, 1000 025-002383 Ohm, 30%, METER ZERO All R21 22K Ohm 451-252223 R22, 150K Ohm 451-252154 R23, 39 47K Ohm 451-252154 R25 18K Ohm, 1 watt 451-352183 R27 150K Ohm, 1 watt 451-352144 R28, 31, 32 220K Ohm, 1 watt 451-252244 R29 Variable, Composition, 500K 025-002382 Ohm, 30%, 1/4 watt MIC GAIN R30 10 Megohm 451-252106 R33 390 Ohm, 1 watt 451-252106 R33 390 Ohm, 1 watt 451-252131 R36 150 Ohm 451-252133 R36 150 Ohm 451-252131 R36 68K Ohm 451-2522331 R36 68K Ohm 451-252168 R40, 42 33K Ohm 451-252163 R44 10 Ohm, 1 watt 451-552121 R43 47 Ohm, 2 watt 451-652330 R44 10 Ohm, 10%, 5 watt, 445-012102 <	RIU	500K Ohm, 30%, 1/4 watt AF GAIN	025-002402						
R21 22K Ohm 451-25223 R23, 39 47K Ohm 451-252154 R23, 39 47K Ohm, 1 watt 451-252473 R25 18K Ohm, 1 watt 451-252143 R27 150K Ohm, 1 watt 451-252143 R27 150K Ohm, 1 watt 451-252143 R29 Variable, Composition, 500K 025-002382 Ohm, 30%, 1/4 watt 451-252106 R33 390 Ohm, 1 watt 451-252106 R34 10K Ohm 451-252103 R34 10K Ohm 451-252103 R35 330 Ohm, 1 watt 451-252133 R36 150 Ohm 451-252133 R36 150 Ohm 451-252331 R36 68K Ohm, 1 watt 451-352131 R37 47K Ohm, 1 watt 451-552473 R38 68K Ohm, 1 watt 451-552133 R40, 42 33K Ohm, 1 watt 451-5521201 Wire Wound Wire Wound R45 R45 500 Ohm, 10%, 5 watt, 445-012102 Wire Wound 050-001632 <td>R18</td> <td>Variable, Composition, 1000 Ohm, 30%, METER ZERO</td> <td>025-002383</td>	R18	Variable, Composition, 1000 Ohm, 30%, METER ZERO	025-002383						
R22 150K Ohm 451-252154 R23,39 47K Ohm 451-252163 R25 18K Ohm, 1 watt 451-352163 R27 150K Ohm, 1 watt 451-352154 R28,31,32 220K Ohm 451-252244 R29 Variable, Composition, 500K 025-002382 Ohm, 30%, 1/4 watt MIC GAIN R30 10 Megohm 451-252106 R33 390 Ohm, 1 watt 451-252106 R34 10K Ohm 451-252106 R35 330 Ohm, 1 watt 451-252131 R36 150 Ohm 451-252331 R36 150 Ohm 451-252633 R41 120 Ohm, 1 watt 451-2522331 R43 47 Ohm, 2 watt 451-252233 R44 10 Ohm, 1 watt 451-252100 R45 500 Ohm, 10%, 5 watt, 445-012102 Wire Wound Wire Wound 844 R46 1000 Ohm, 10%, 5 watt, 445-012102 Wire Wound 84 50-001633 L2,3 Coil, Receiver Antenna 050-001633 L2,3 Coil, Receivere Oscillator <	R21	22K Ohm	451-252223						
R25, 39 47K Ohm, 1 watt 451-252473 R25 18K Ohm, 1 watt 451-352183 R27 150K Ohm, 1 watt 451-352184 R28, 31, 32 220K Ohm 451-252244 R29 Variable, Composition, 500K 025-002382 Ohm, 30%, 1/4 watt 451-252106 R33 390 Ohm, 1 watt 451-252103 R34 10K Ohm 451-252103 R35 330 Ohm, 1 watt 451-252131 R36 150 Ohm 450-252151 R37 47K Ohm, 1 watt 451-252683 R40, 42 33K Ohm 451-252683 R41 120 Ohm, 1 watt 451-2522683 R41 120 Ohm, 1 watt 451-252683 R41 120 Ohm, 1 watt 451-352121 R43 47 Ohm, 2 watt 451-652303 R44 10 Ohm, 10%, 5 watt, 445-012102 Wire Wound Wire Wound 851-652300 R47 33 Ohm, 2 watt 451-65230 * All RESISTORS are carbon type, 10%, 1/2 watt unless otherwise stated. 050-001633 L4,5 Coil, Receiver Antenna 050-001633 <t< td=""><td>R22</td><td>150K Ohm</td><td>451-252154</td></t<>	R22	150K Ohm	451-252154						
123 16K Olim, 1 watt 451-352143 127 150K Ohm, 1 watt 451-352154 128 220K Ohm 451-252224 R29 Variable, Composition, 500K 625-002362 Ohm, 30%, 1/4 watt MIC GAIN R30 10 Megohm 451-252106 R33 390 Ohm, 1 watt 451-252103 R34 10K Ohm 451-252131 R36 150 Ohm 451-252133 R36 150 Ohm 451-252131 R36 150 Ohm 451-252331 R36 150 Ohm 451-252633 R40, 42 33K Ohm 451-252633 R41 120 Ohm, 1 watt 451-352121 R43 47 Ohm, 2 watt 451-652470 R44 10 Ohm, 10%, 5 watt, 445-012501 Wire Wound Wire Wound 845 R47 33 Ohm, 2 watt 451-652330 * All RESISTORS are carbon type, 10%, 1/2 watt unless otherwise stated. 050-001632 L4,5 Coil, Receiver Antenna 050-001632 L4,5 Coil, Receiver Oscillator 050-001634 L4 Coil, Re	R23,39	47K Ohm	451-252473						
123, 31, 32 120K 0hm, 1 watt 451-35224 R29 Variable, Composition, 500K 025-002382 Ohm, 30%, 1/4 watt MIC GAIN R30 10 Megohm 451-252106 R33 390 0hm, 1 watt 451-252106 R34 10K Ohm 451-252106 R35 330 0hm, 1 watt 451-252103 R36 150 0hm 451-252331 R36 150 0hm 451-252683 R47 451-252683 747K Ohm, 1 watt R48 68K Ohm 451-252683 R40, 42 33K Ohm 451-252683 R41 120 0hm, 1 watt 451-552100 R43 47 0hm, 2 watt 451-652300 R44 10 0hm, 10%, 5 watt, 445-012102 Wire Wound Wire Wound 844 R46 1000 0hm, 10%, 5 watt, 445-052300 * A11 RESISTORS are carbon type, 10%, 1/2 watt unless otherwise stated. 050-001632 L4, 5 Coil, Receiver Antenna 050-001633 L2, 3 Coil, Receiver Oscillator 050-001643 L4, 5 Coil, Receiver Oscillator 050-001643 </td <td>R25</td> <td>150K Ohm 1 watt</td> <td>401-002100</td>	R25	150K Ohm 1 watt	401-002100						
R29 Variable, Composition, 500K 025-002382 Ohm, 30%, 1/4 watt MIC GAIN R30 10 Megohm 451-252106 R33 390 Ohm, 1 watt 451-352391 R34 10K Ohm 451-252103 R35 330 Ohm, 1 watt 451-252103 R35 330 Ohm 451-252131 R34 10K Ohm 450-252151 R37 47K Ohm, 1 watt 451-252683 R40,42 33K Ohm 451-252683 R41 120 Ohm, 1 watt 451-552121 R43 47 Ohm, 2 watt 451-552213 R43 470 Ohm, 1 watt 451-5522433 R41 120 Ohm, 1 watt 451-5522683 R44 10 Ohm, 1 watt 451-552270 R44 10 Ohm, 1 watt 451-552270 Wire Wound Wire Wound Wire Wound R46 1000 Ohm, 10%, 5 watt, 445-012102 Wire Wound S050-001633 R47 33 Ohm, 2 watt 451-652330 * All RESISTORS are carbon type, 10%, 1/2 watt unless otherwise stated. L4,5 Coil, Receiver Antenna 050-001633 050-001633	R28 31 32	220K Ohm	451-252224						
R30 10 Megohm 451-252106 R33 390 Ohm, 1 watt 451-252103 R34 10K Ohm 451-252103 R35 330 Ohm 451-252103 R35 330 Ohm 451-252103 R36 150 Ohm 450-252151 R37 47K Ohm, 1 watt 451-252833 R40,42 33K Ohm 451-252833 R41 120 Ohm, 1 watt 451-252833 R41 120 Ohm, 1 watt 451-352121 R43 47 Ohm, 2 watt 451-352100 R44 10 Ohn, 1 watt 451-352100 R45 500 Ohm, 10%, 5 watt, 445-012501 Wire Wound Wire Wound 445-012102 R46 1000 Ohm, 10%, 5 watt, 445-012102 Wire Wound Wire Wound 451-652330 * All RESISTORS are carbon type, 10%, 1/2 watt unless otherwise stated. 50-001632 L4,5 Coil, Receiver Antenna 050-001633 L2,3 Coil, Receiver Oscillator 050-001641 L6 Coil, Receiver Oscillator <t< td=""><td>R29</td><td>Variable, Composition, 500K Ohm, 30%, 1/4 watt MIC GAIN</td><td>025-002382</td></t<>	R29	Variable, Composition, 500K Ohm, 30%, 1/4 watt MIC GAIN	025-002382						
R33 390 Ohm, 1 watt 451-352391 R34 10K Ohm 451-252103 R35 330 Ohm 451-252103 R36 150 Ohm 451-252331 R36 150 Ohm 450-252151 R37 47K Ohm, 1 watt 451-252683 R40,42 33K Ohm 451-252683 R41 120 Ohm, 1 watt 451-352121 R43 47 Ohm, 2 watt 451-652470 R44 10 Ohn, 1 watt 451-652470 R44 10 Ohn, 1 watt 451-652300 R45 500 Ohm, 10%, 5 watt, 445-012102 Wire Wound Wire Wound R47 33 Ohm, 2 watt 451-652330 * All RESISTORS are carbon type, 10%, 1/2 watt unless otherwise stated. 050-001632 L4,5 Coil, Receiver Antenna 050-001632 L4,5 Coil, Receiver Oscillator 050-001632 L4,5 Coil, Receiver Oscillator 050-001648 L6 Coil, Receiver Oscillator 050-001648 L8 Coil, Crystal Oscillator 050-001648	R30	10 Megohm	451-252106						
R34 10K Ohm 451-252103 R35 330 Ohm 451-252331 R36 150 Ohm 451-252331 R37 47K Ohm, 1 watt 451-252683 R37 47K Ohm, 1 watt 451-252683 R40,42 33K Ohm 451-252683 R41 120 Ohm, 1 watt 451-252683 R43 47 Ohm, 2 watt 451-552101 R44 10 Ohm, 1 watt 451-652470 R45 500 Ohm, 10%, 5 watt, 445-012501 Wire Wound Wire Wound R46 1000 Ohm, 10%, 5 watt, 445-012102 Wire Wound R47 33 Ohm, 2 watt 451-652330 * All RESISTORS are carbon type, 10%, 1/2 watt unless otherwise stated. COILS AND TRANSFORMERS L1 Coil, Receiver Antenna 050-001633 L2,3 Coil, Receiver Oscillator 050-001644 L6 Coil, Receiver Oscillator 050-001664 L8 Coil, Crystal Oscillator 050-001664 L8 Coil, Coscillator Plate Trans- 050-0016652 L1 Coil	R33	390 Ohm, 1 watt	451-352391						
R35 330 Ohm 451-252331 R36 150 Ohm 450-252151 R37 47K Ohm, 1 watt 451-352473 R38 68K Ohm 451-252683 R40,42 33K Ohm 451-252683 R41 120 Ohm, 1 watt 451-352121 R43 47 Ohm, 2 watt 451-352100 R44 10 Ohm, 10%, 5 watt, 445-012501 Wire Wound 445-012501 Wire Wound 445-012102 Wire Wound Wire Wound R47 33 Ohm, 2 watt 451-652330 * All RESISTORS are carbon type, 10%, 1/2 watt unless otherwise stated. COILS AND TRANSFORMERS L1 Coil, Receiver Antenna 050-001633 L2,3 Coil, Receiver Oscillator 050-001644 L6 Coil, Receiver Oscillator 050-0016451 L7 Coil, Receiver Oscillator 050-0016451 L8 Coil, Oscillator Plate Trans- 050-001651 L9 Coil, Oscillator Plate Trans- 050-001652 L9 Coil, Cosillator Plate Trans- 050-001652 L1 Coil, Receiver Scillato	R34	10K Ohm	451-252103						
R35 130 130 131 430-232131 R37 47K Ohm, 1 watt 451-352473 R38 68K Ohm 451-252683 R40,42 33K Ohm 451-252683 R40,42 33K Ohm 451-252683 R41 120 Ohm, 1 watt 451-352121 R43 47 Ohm, 2 watt 451-652470 R44 10 Ohm, 1 watt 451-352100 R45 500 Ohm, 10%, 5 watt, 445-012501 Wire Wound Wire Wound R47 33 Ohm, 2 watt 451-652330 * All RESISTORS are carbon type, 10%, 1/2 watt unless otherwise stated. O50-001633 12,3 Coil, Receiver Antenna 050-001632 14,5 Coil, Receiver Antenna 050-001634 164 L4,5 Coil, Receiver Oscillator 050-001644 L6 Coil, Receiver Oscillator 050-001644 L8 Coil, Crystal Oscillator 050-001648 L8 Coil, Q.2 μ H, FC Choke 050-001648 L9 Coil, Q.2 μ H, RF Choke 050-001642 L1 Coil, 2.2 μ H, RF Choke 050-001642	R35	330 Ohm	451-252331						
	R30 R37	47K Ohm 1 watt	450-252151						
R40, 42 33K Ohm 33K Ohm 451-252333 R41 120 Ohm, 1 watt 451-352121 R43 47 Ohm, 2 watt 451-552470 R44 10 Ohm, 1 watt 451-552100 R45 500 Ohm, 10%, 5 watt, 445-012501 Wire Wound Wire Wound 445-012102 R47 33 Ohm, 2 watt 451-652330 * All RESISTORS are carbon type, 10%, 1/2 watt unless otherwise stated. COILS AND TRANSFORMERS L1 Coil, Receiver Antenna 050-001633 L2, 3 Coil, Receiver Oscillator 050-001644 L6 Coil, Receiver Oscillator 050-0016451 L7 Coil, Receiver Oscillator 050-001648 L8 Coil, Oscillator Plate Trans- 050-001651 L9 Coil, Oscillator Plate Trans- 050-001651 L9 Coil, Oscillator Plate Trans- 050-001652 L1 Coil, 2.2 μ H, RF Choke 050-001652 L11 Coil, 2.2 μ H, RF Choke 050-001654 L3 Coil, Final Plate Transmitter 050-001654 L14 Coil, Bath Filter 050-001654	R38	68K Ohm	451-252683						
R41 120 0hm, 1 watt 451-352121 R43 47 0hm, 2 watt 451-352121 R44 10 0hm, 1 watt 451-352100 R45 500 0hm, 10%, 5 watt, 445-012501 Wire Wound Wire Wound R45 R46 1000 0hm, 10%, 5 watt, 445-012102 Wire Wound R47 33 0hm, 2 watt 451-652330 * All RESISTORS are carbon type, 10%, 1/2 watt unless otherwise stated. COILS AND TRANSFORMERS L1 Coil, Receiver Antenna 050-001633 L2,3 Coil, Receiver Antenna 050-001634 L4,5 Coil, Receiver Oscillator 050-001648 L8 Coil, Crystal Oscillator 050-001648 L8 Coil, Crystal Oscillator 050-001648 L9 Coil, Oscillator Plate Trans- 050-001652 L1 Coil, 2.2 μ H, RF Choke 050-001658 L1 Coil, 2.2 μ H, RF Choke 050-001652 L11 Coil, 2.2 μ H, RF Choke 050-001652 L12 Coil, 6.8 μ H, RF Choke 050-001652 L13 Coil, Final Plate Transmitter 050-001657 L13 Coil, Fi	R40.42	33K Ohm	451-252333						
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	R41	120 Ohm, 1 watt	451-352121						
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	R43	47 Ohm, 2 watt	451-652470						
R45 500 Ohm, 10%, 5 watt, Wire Wound 445-012501 Wire Wound R46 1000 Ohm, 10%, 5 watt, Wire Wound 445-012102 Wire Wound R47 33 Ohm, 2 watt 451-652330 * All RESISTORS are carbon type, 10%, 1/2 watt unless otherwise stated. 500-001633 L1 Coil, Receiver Antenna 050-001633 L2,3 Coil, Receiver Antenna 050-001632 L4,5 Coil, Receiver Antenna 050-001634 L6 Coil, Receiver Oscillator 050-001648 L8 Coil, Crystal Oscillator 050-001648 L8 Coil, Crystal Oscillator 050-001650 mitter, 27 MC mitter, 27 MC 050-001652 L1 Coil, 2.2 μ H, RF Choke 050-001652 L12 Coil, 6.3 μ H, RF Choke 050-001652 L12 Coil, 6.3 μ H, RF Choke 050-001652 L12 Coil, 6.3 μ H, RF Choke 050-001652 L13 Coil, Final Plate Transmitter 050-001657	R44	10 Ohm, 1 watt	451-352100						
R46 1000 Ohm, 10%, 5 watt, Wire Wound 445-012102 Wire Wound 847 33 Ohm, 2 watt 451-652330 * All RESISTORS are carbon type, 10%, 1/2 watt unless otherwise stated. COILS AND TRANSFORMERS L1 Coil, Receiver Antenna 050-001633 L2,3 Coil, Receiver Antenna 050-001632 L4,5 Coil, Receiver Antenna 050-001632 L4,5 Coil, Receiver Antenna 050-001654 L6 Coil, Receiver Oscillator 050-001654 L8 Coil, Crystal Oscillator 050-001648 L8 Coil, Crystal Oscillator 050-001650 mitter, 27 MC 100 Coil, 2.2 μ H, RF Choke 050-001652 L1 Coil, 2.2 μ H, RF Choke 050-001652 112 L11 Coil, 2.2 μ H, RF Choke 050-001652 112 L12 Coil, 6.3 μ H, RF Choke 050-001652 113 Coil, Final Plate Transmitter 050-001657 L13 Coil, Final Plate Transmitter 050-002740 050-002740	R45	500 Ohm, 10%, 5 watt, Wire Wound	445-012501						
R47 33 Ohm, 2 watt 451-652330 * All RESISTORS are carbon type, 10%, 1/2 watt unless otherwise stated. COILS AND TRANSFORMERS L1 Coil, Receiver Antenna 050-001633 L2,3 Coil, Receiving Band Pass 050-001632 L4,5 Coil, Low Pass Filter, 0.26 μH, 050-001654 050-001654 L6 Coil, Receiver Oscillator 050-001648 L8 Coil, Crystal Oscillator 051-003353 L9 Coil, Oscillator Plate Trans. 050-001650 mitter, 27 MC 100 Coil, 2.2 μH, RF Choke 050-001652 L1 Coil, 0.52 μH, RF Choke 050-001652 12 L1 Coil, 0.52 μH, RF Choke 050-001652 12 L11 Coil, 0.2.2 μH, RF Choke 050-001652 12 L12 Coil, 6.8 μH, RF Choke 050-001652 12 L13 Coil, Final Plate Transmitter 050-001653 14	R46	1000 Ohm, 10%, 5 watt, Wire Wound	445-012102						
* All RESISTORS are carbon type, 10%, 1/2 watt unless otherwise stated. COILS AND TRANSFORMERS L1 Coil, Receiver Antenna 050-001633 L2,3 Coil, Receiving Band Pass 050-001632 L4,5 Coil, Low Pass Filter, 0.26 μ H, 050-001654 L6 Coil, Receiver Oscillator 050-001654 L7 Coil, Receiver Oscillator 050-001648 L8 Coil, Crystal Oscillator 050-001648 L8 Coil, Crystal Oscillator 050-001648 L9 Coil, Oscillator Plate Trans- mitter, 27 MC L10 Coil, 2.2 μ H, RF Choke 050-001652 L12 Coil, 6.8 μ H, RF Choke 050-001652 L12 Coil, 6.8 μ H, RF Choke 050-001652 L13 Coil, Final Plate Transmitter 050-001653 L14 Coil, Jash Filter 050-002740	R47 33 Ohm, 2 watt 451-652330								
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	* All RESIS' otherwise	FORS are carbon type, 10%, 1/2 was stated.	att unless						
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		COILS AND TRANSFORMERS							
L2,3 Coil, Receiving Band Pass 050-001632 L4,5 Coil, Low Pass Filter, 0.26 μH, 050-001654 050-001654 L6 Coil, Receiver Oscillator Shunt 050-001651 L7 Coil, Receiver Oscillator 050-001651 L8 Coil, Crystal Oscillator 051-003353 L9 Coil, Crystal Oscillator 050-001650 mitter, 27 MC 10 Coil, 2.2 μH, RF Choke 050-001652 L11 Coil, 2.2 μH, RF Choke 050-001652 12 L12 Coil, 6.8 μH, RF Choke 050-001652 12 L12 Coil, 7.8 μH, RF Choke 050-001652 13 L13 Coil, Final Plate Transmitter 050-001653 14	L1	Coil. Receiver Antenna	050-001633						
	L2.3	Coil, Receiving Band Pass	050-001632						
L6 Coil, Receiver Oscillator Shunt 050-001651 L7 Coil, Receiver Oscillator 050-001648 L8 Coil, Crystal Oscillator 051-003353 L9 Coil, Oscillator Plate Trans- mitter, 27 MC 050-001650 L10 Coil, 2.2 μH, RF Choke 050-001682 L11 Coil, 0.8 μH, RF Choke 050-001682 L12 Coil, 6.8 μH, RF Choke 050-001687 L13 Coil, Final Plate Transmitter 050-001687 L14 Coil, Final Plate Transmitter 050-001674	L4,5	Coil, Low Pass Filter, 0.26 μ H,	050-001654						
$ \begin{array}{cccc} L7 & {\rm Coil, Receiver Oscillator} & 050-001648 \\ {\rm L8} & {\rm Coil, Crystal Oscillator} & 051-003553 \\ {\rm L9} & {\rm Coil, Oscillator Plate Trans-} \\ & {\rm mitter, 27 \ MC} \\ {\rm L10} & {\rm Coil, 2.2 \ \mu H, RF \ Choke} & 050-001658 \\ {\rm L11} & {\rm Coil, Doubler Transmitter} & 050-001652 \\ {\rm L12} & {\rm Coil, 6.8 \ \mu H, RF \ Choke} & 050-001657 \\ {\rm L13} & {\rm Coil, Final \ Plate \ Transmitter} & 050-001653 \\ {\rm L14} & {\rm Coil, 8 \ Filter} & 050-002740 \\ \end{array} $	L6	Coil, Receiver Oscillator Shunt	050-001651						
L8 Coil, Crystal Oscillator 051-003353 L9 Coil, Oscillator Plate Trans- mitter, 27 MC 050-001650 L10 Coil, 2.2 μH, RF Choke 050-001658 L11 Coil, 2.2 μH, RF Choke 050-001652 L12 Coil, 6.8 μH, RF Choke 050-001652 L13 Coil, Final Plate Transmitter 050-001653 L14 Coil, Final Plate Transmitter 050-002740	L7	Coil, Receiver Oscillator	050-001648						
L9 Coll, Oscillator Plate Trans- mitter, 27 MC 050-001650 L10 Coll, 2.2 μH, RF Choke 050-001682 L11 Coll, Doubler Transmitter 050-001682 L12 Coll, 6.8 μH, RF Choke 050-001682 L13 Coll, Final Plate Transmitter 050-001687 L14 Coll, Final Plate Transmitter 050-001673	10 LQ	Coil, Crystal Oscillator	051-003353						
L10 Coil, 2.2 μH, RF Choke 050-001588 L11 Coil, Doubler Transmitter 050-001652 L12 Coil, 6.8 μH, RF Choke 050-001687 L13 Coil, Final Plate Transmitter 050-001653 L14 Coil, Final Plate Transmitter 050-002740	га	mitter, 27 MC	090-001090						
L11 Coil, Loubler Transmitter 050-001652 L12 Coil, 6.8 μ H, RF Choke 050-001587 L13 Coil, Final Plate Transmitter 050-001653 L14 Coil, Hash Filter 050-0012740	L10	Coil, 2.2 μ H, RF Choke	050-001588						
L12 Coil, 0.5 µ n, Rr Choke 050-001587 L13 Coil, Final Plate Transmitter 050-001653 L14 Coil, Hash Filter 050-002740	L11 112	Coil, Doubler Transmitter	050-001652						
L14 Coil, Hash Filter 050-002740	1.13	Coil Final Diate Transmitten	050-001587						
	L14	Coil, Hash Filter	050-002740						

T1 T2,3,4	Transformer, 1st IF, 20.15 M Transformer, Intermediate	IC	050-00164 050-00078	9
T5 T6	Frequency, 1650 KC Transformer, Audio Modulato Transformer, Power	o r	055-00054 050-00168	6
	ELECTRON TUBES AND DIO	DES		
V1	Tube Type 13CW4 Nuvistor		090-00156	3
V2.9	Tube, Type 12AT7		090-90003	4
V3.7	Tube, Type 7059		090-00156	1
V4.5	Tube, Type 12BA6		090-90003	9
V6	Tube, Type 12AL5		090-90118	6
V8	Tube, Type 7551		090-00156	2
V10	Tube, Type 12AQ5		090-00143	2
CR1	Diode, Germanium,		019-30198	0
	Type 1N295			_
CR2	Diode, Zener, Type VR120		019-00340	7
CR3	Diode, Silicon, Type 1N3253	019-	002939-00	1
CR4,5	Diode, Silicon, Type 1N3254	019-	002939-00	z
	MISCELLANEOUS			
	Bumper Plastic 7/8 inch		016-00244	R
	O.D.		010-00211	Č
	Bumper, Plastic, 1-3/32		016-00107	7
	Cabinet Assembly, Bottom, Riveted		150-00767	2
	Cabinet Assembly, Top, Riveted		150-00767	3
	Cable Assembly, AC		087-00813	3
J2	Connector, Microphone		010-00156	9
	(Inc. Hardware)			
J4	Connector, Receptacle, Power	r	010-10023	9
J1	Connector, Receptacle, ANTENNA		010-10005	6
¥1	Crystal, Quartz, 18.5 MC		019-00340	8
Y2	Crystal, Transmitting		019-00340	9
	(Not Supplied)			
	Dial, Scale		083-00104	9
Al	Filter, Couplate		049-00024	4
A2	Filter, Couplate		049-00028	1
A3	Filter, Couplate		049-00028	2
TE	Iron Core		003-20338	8
10	Jack, Phone		036-00035	4
	LOAD YTAL VEO)	,	015-00184	*
	Knob (PLATE GRID)	015-	001844_00	1
	Knob Dial Scale	510-	015-00184	ŝ
DS1 2	Lamp Pilot		039-10003	ĭ
201,4	Latch, Bottom	030-	000777-00	ī
	Latch, Top	030-	000777-00	ŝ
M1	Meter		082-00063	7
	Medallion		007-00085	0
	Panel, Front		068-00154	6
K1	Relay, Armature (4PDT)		021-00076	4
S1	Switch, Rotary, REC RANGE		060-00270	5
S2	Switch, Slide (SPDT) FREQ SPOT		060-00254	8
S3	Part of R16			
S4	Switch, Rotary, XTAL-VFO		060-00269	7
LSI	Speaker		085-00024	9
	Trim Strip		007-00089	D E
	window, Plexigiass		044-00072	э

Hallicrafters Part Number

Schematic Symbol

Description

COILS AND TRANSFORMERS (CONT).

Hallicrafters Part Number



NOTE: UNLESS OTHERWISE SPECIFIED, ALL RESISTORS ARE IN OHMS±10%,1/2 WATT ALL CAPACITORS ARE IN MICROFARADS (SEE PARTS LIST FOR VOLTAGE RATINGS).

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