hallicrafters

OPERATING AND SERVICE INSTRUCTIONS

TWO-METER
TRANSMITTER/RECEIVER
MODEL SR-42

WARRANTY

"The Hallicrafter's Company warrants each new radio product manufactured by it to be free from defective material and workmanship and agrees to remedy any such defect or to furnish a new part in exchange for any part of any unit of its manufacture which under normal installation, use and service discloses such defect, provided the unit is delivered by the owner to our authorized radio dealer, wholesaler, from whom purchased, or, authorized service center, intact, for examination, with all transportation charges prepaid within ninety days from the date of sale to original purchaser and provided that such examination discloses in our judgment that it is thus defective.

This warranty does not extend to any of our radio products which have been subjected to misuse, neglect, accident, incorrect wiring not our own, improper installation, or to use in violation of instructions furnished by us, nor extended to units which have been repaired or altered outside of our factory or authorized service center, nor to cases where the serial number thereof has been removed, defaced or changed, nor to accessories used therewith not of our own manufacture.

Any part of a unit approved for remedy or exchange hereunder will be remedied or exchanged by the authorized radio dealer or wholesaler without charge to the owner.

This warranty is in lieu of all other warranties expressed or implied and no representative or person is authorized to assume for us any other liability in connection with the sale of our radio products."

the **hallicrafters** co.

092-014555

Figure 1. Hallicrafters' Model SR-42 Two-Meter Transmitter/Receiver.

156-004321

SECTION I
GENERAL DESCRIPTION

1-1. INTRODUCTION

The Model SR-42 is a compact, self-contained two-meter radio station. Its compact size, ease of mounting, and universal power supply make the SR-42 ideally suitable as a 12-volt DC mobile unit as well as a 117-volt AC fixed-station unit. The unit is factory equipped with a transmitter crystal installed in position No. 1 for operation on 145.14 MC. Three other positions are available for four-channel transmitter operation. The receiver is tunable throughout the 144 to 148 MC band.

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

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

Models HA-3 and HA-3A Noise Suppression Kits with instruction manuals are available through Hallicrafters dealers to provide optimum noise free mobile operation.

NOTE

An FCC license is required by anyone operating this equipment.

1-2. FEATURES

The receiver used in the SR-42 is a double-conversion superheterodyne type, incorporating the following features:

Low-noise, neutralized-nuvistor RF stage.
Low-noise triode first mixer.
High-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 one-ounce Alnico V magnet.

Transmitter features include:

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

Automatic RF output meter switching.

Frequency "SPOT" switch.

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.

SECTION II
SPECIFICATIONS

RECEIVER

Sensitivity

1 microvolt for 10 DB S/N ratio (30% modulation).

Noise Figure

5-7 DB

Power Gain

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

AVC Figure of Merit

Better than 45 DB.

IF Rejection

Better than 85 db

Input Impedance

50 ohms (unbalanced).

Output Impedance

3.2 ohms.

Tuning Range

143.9-148.1 MC

IF Frequencies

20.15 MC and 1650 KC.

Reception Mode

Type A3 emission (AM).

TRANSMITTER

Power Input

12 to 14 watts

Tuning Range

143.75 to 148.1 MC (minimum).

Crystal Type

CR-23/U

Crystal Frequency

24 to 24.66 MC
or
Output Frequency/6
(Amateur Band Coverage).

Microphone Input

High impedance with "push-to-talk"

Frequency Response

-3DB at 300 and 3800 CPS.

Output Impedance

50 ohms (unbalanced).

Transmission Mode

Type A3 emission (AM).

GENERAL

NOTE

A Model MR-40 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), 6 amperes maximum.

Antenna Receptacle

Accepts Amphenol Type 83-1SP connector.

Microphone Receptacle

Accepts Amphenol Type 80-MC2M connector.

Number of Tubes

Eleven, Plus four diodes and two zener regulators.

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-42, 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-42 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-42 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 positive (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 instability due to poor voltage regulation, increased ignition interference, etc., which will impair normal operation.

CAUTION

The SR-42 is wired for 12-volt negative-ground operation. If it is desired to use this unit in vehicles having a 12-volt positive-ground system, it will be necessary to reverse the polarity of relay diode CR3 and relay electrolytic filter capacitor C68.

Also, the zener filament regulator CR6 must be insulated from the chassis and have its connections reversed. Special hardware and instructions are available through the Hallicrafter's Service Dept. An additional wire is required to be connected from the SR-42 chassis (screw terminal on rear) to the firewall or frame of the vehicle. This wire, No. 14 AWG or larger, completes the battery circuit.

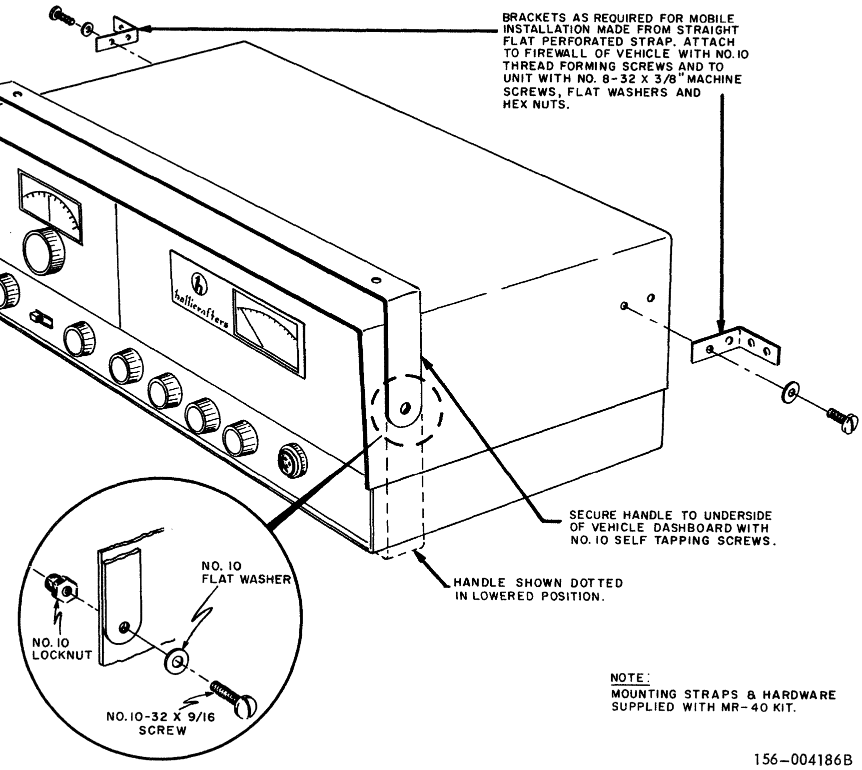

Figure 2. Mobile Installation of the SR-42 Unit.

3-4. ANTENNAS

The SR-42 is designed for 50-ohm termination; therefore any two-meter antenna providing 50-ohm 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 contact.

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.

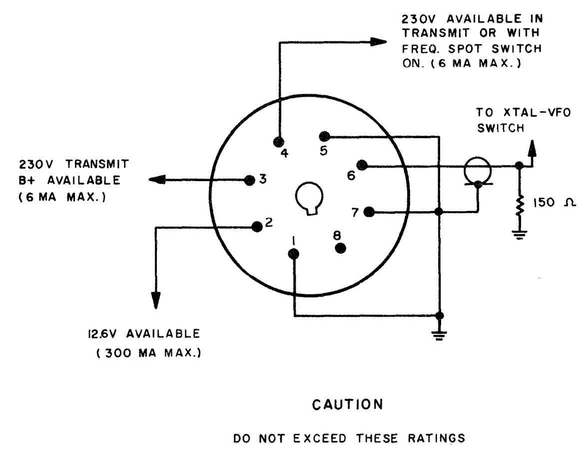

Figure 3. VFO Socket, Showing Pin Applications.

3-5. VFO INPUT SOCKET CONNECTIONS

When the SR-42 XTAL-VFO switch is placed in the VFO position, it is possible to control the transmitter frequency from an external variable frequency oscillator.

The external oscillator should be capable of supplying 3 to 4 volts (RMS) across 150 ohms over a frequency range of 24 to 24.66 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).

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-42 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 144 to 146 MC or 146 to 148 MC.

If the control is set for 144-146, the upper, or 144 to 146 MC dial calibrations, should be used to indicate the frequency of reception.

If the control is set for 146-148, the lower , or 146-to 148-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 No. 6 of the VFO socket for external VFO input between pin No. 6 and ground (pin No. 7).

E. GRID

This control is used to resonate the final amplifier input to the desired frequency. The 144-148 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" position, 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 coupling 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 approximately 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 occur.

1. To zero the meter, apply power to the SR-42 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-42 as a receiver, proceed as follows:

1. Connect a two-meter, 50-ohm antenna to the ANTENNA receptacle located on the rear apron 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-42 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 4-1I for complete information on adjustment of this control.

10. The SR-42 is now ready for transmission.

NOTE

Do not attempt to operate near the band edge unless accurate frequency measuring instruments are available to insure 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.

4-4. TRANSMITTER CRYSTALS

High-frequency transmitter crystals simiilar 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 6 to determine the crystal frequency.

   Example: The desired operating frequency is

   $$\frac{147}{6} = 24.500 \text{ MC (crystal frequency).}$$

2. The crystal order of the manufacturer should contain the following information:

   Crystal Type - CR-23/U

   Crystal Frequency - 24.500 MC.

SECTION V

THEORY OF OPERATION

5-1. RECEIVER (Figure 4)

An RF signal (144 to 148-MC) is applied to the antenna input and is fed through the high-pass filter and the changeover relay, to the broadband antenna coil. The signal is transformed to a higher impedance and the resultant voltage is applied to the grid of the neutralized 13CW4 nuvistor where it is amplified.

After amplification, the signal is fed through a 144-to 148-MC bandpass coupler to the first mixer stage. Here it is heterodyned with the voltage developed by the variable oscillator to produce a difference or IF frequency of 20.15 MC.

The variable oscillator has a basic tuning range of 61.925 to 62.925 MC which is doubled to provide a tuning range of 144 to 146 MC. In the 146 to 148-MC range, a coil is connected in parallel with the oscillator coil to shift the doubled oscillator tuning range exactly two megacycles higher in frequency. The oscillator plate voltage is controlled by a zener regulator to maintain stable operation over a wide range of input voltage variations. In mobile operation, the oscillator filament voltage is also zener regulated to compensate for the wide range of input voltage variations normally encountered in mobile operation.

The 20.15-MC first IF signal is fed through a double-tuned transformer to the grid of the second mixer where it is heterodyned with the output of an 18.5-MC crystal-controlled oscillator to produce a second IF frequency of 1650 KC.

The 1650-KC IF signal is fed through three double-tuned transformers and two amplifier stages 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.

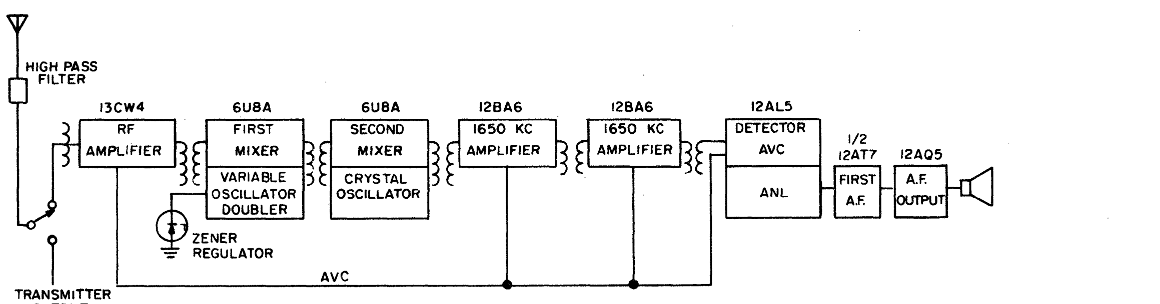

Figure 4. Receiver Block Diagram.

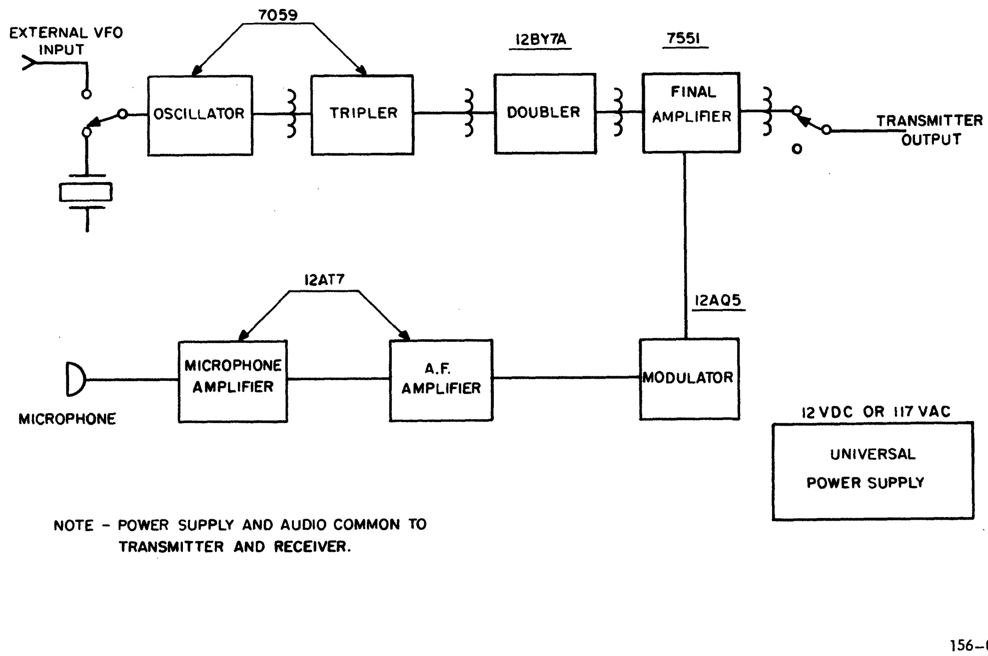

Figure 5. Transmitter Block Diagram.

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, and the output transformer to the speaker. It should be noted that these two audio stages and the output transformer, as well as a microphone preamplifier stage, are used to modulate the transmitter.

In the "Receive" position, the antenna is connected to the receiver input, plate voltage is removed from the transmitter oscillator, tripler 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 of the 7059 oscillator/tripler stage. This may be done by using a crystal or by placing the XTAL-VFO switch in 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 24-to 24.66-MC range.

The 24-to 24.66-MC signal is applied to the pentode or tripler section of the same tube to develop a signal in the 72-to 74-MC range. The output of this stage is fed through a bandpass coupler and applied to the grid of the 12BY7A doubler stage. Here, the frequency is doubled to 144 to 148 MC.

This signal is fed to the final amplifier stage for further amplification. The output of the final amplifier is connected to a link-coupled tank circuit 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 and high pass filter 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 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 tripler and doubler stages.

5-3. POWER SUPPLY

The power supply used is of the universal, full-wave voltage-doubler type. Silicon rectifiers 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.

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-42 is terminated into 50 ohms, the meter will read between one-half and three-quarters 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 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.

Authorized hallicrafters Service Center

Communications Equipment

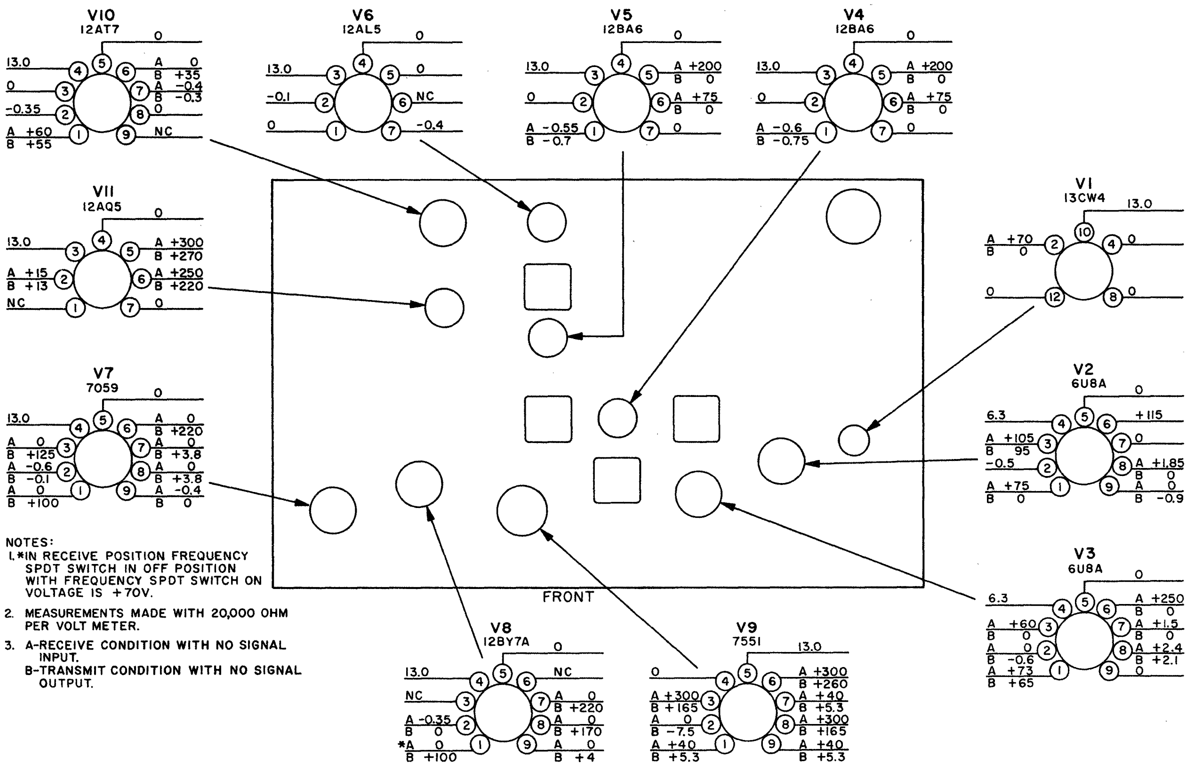

Figure 6. Voltage Chart.

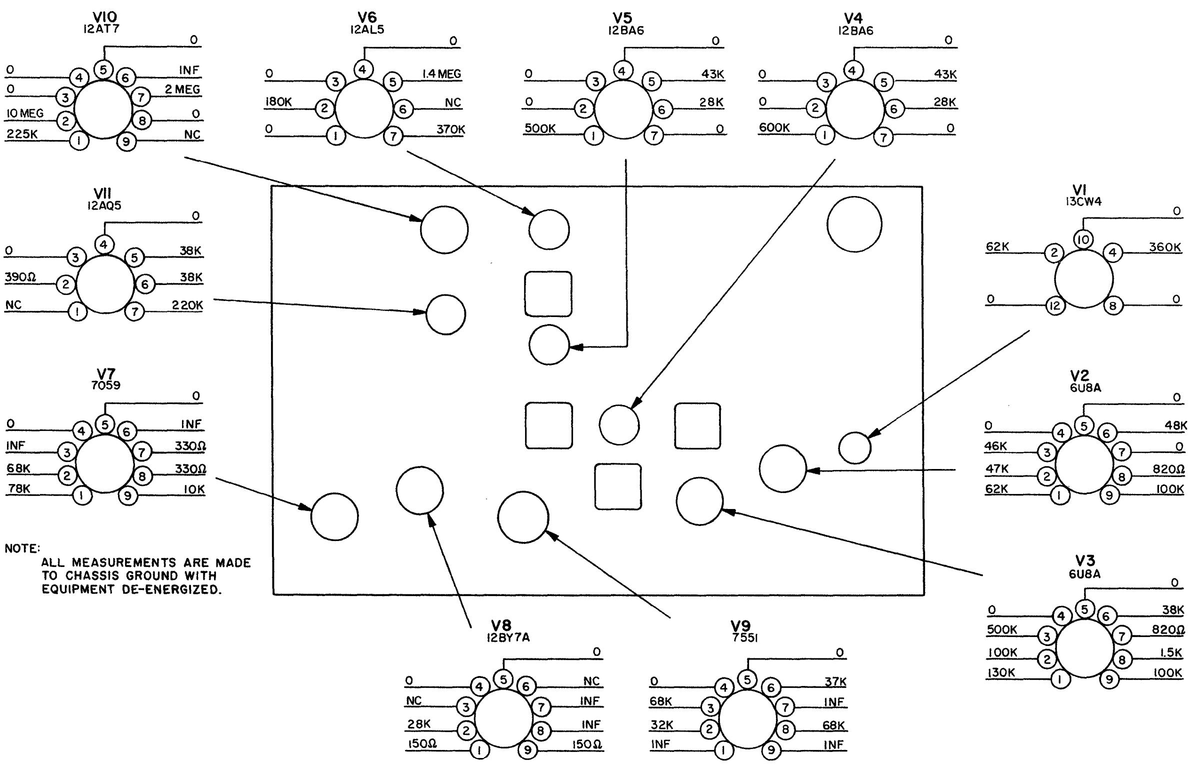

Figure 7. Resistance Chart

SECTION VII
ALIGNMENT

7-1. GENERAL

Alignment should not be attempted until all other possible causes of faulty operation have been exhausted.

NOTE

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 148-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 before making any adjustment.

TUNING . . . . 146 MC
REC RANGE . . . . 144 to 146 MC
AF GAIN. . . . . Fully advanced.

7-4. 1650-KC IF ALIGNMENT

1. Connect the hot lead from the signal generator through a 0.01-to 0.05-mfd. 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-mfd. capacitor to pin 9 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 146 MC (30%, 400-cycle modulation) and adjust L1, L2, and L3 for maximum audio output.
3. Tune receiver and generator to 144 MC and adjust L1 and L3 for maximum audio output.
4. Tune receiver and generator to 148 MC and adjust L2 for maximum audio output.
5. Check for uniform gain at 144, 146 and 148 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 144 MC. (REC. RANGE switch at 144 to 146 MC).
3. Set generator at 144 MC (modulated).
4. Adjust oscillator coil L5 until a signal is heard.
5. Set receiver dial to 146 MC.

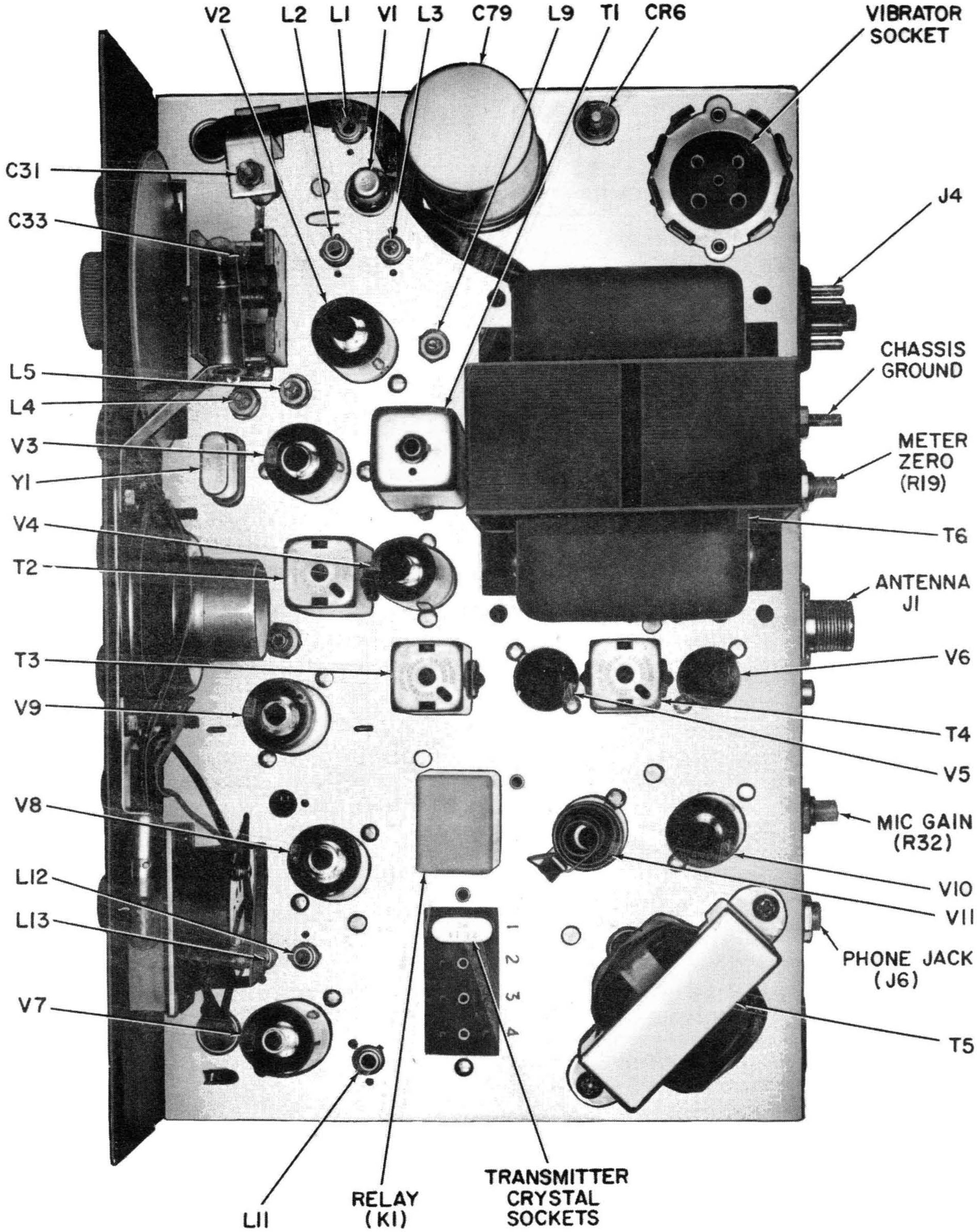

Figure 8. Top View of Chassis, Showing Component Locations.

6. Set generator to 146 MC.

7. Adjust trimmer C31 until a signal is heard.

8. Repeat these adjustments until the calibration is correct at 144 and 146 MC.

9. Set REC RANGE switch to 146 to 148 MC.

10. Set receiver dial to 146 MC.

11. Set generator to 146 MC.

12. Adjust coil L4 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 144- to 146-MC range may be corrected by slight readjustment of trimmer C31 only. Calibration in the 146- to 148-MC range should not be attempted until calibration has been established in the 144- to 146-MC range. Adjustment of the 146- to 148-MC range must be made by coil L4.

7-8. RECEIVER OSCILLATOR MULTIPLIER COIL ADJUSTMENT.

1. Set receiver dial at 146 MC.

2. Adjust coil L9 for maximum increase in circuit noise (no signal).

7-9. HIGH PASS FILTER COIL ADJUSTMENT

1. Set receiver dial at 146 MC.

2. Set signal generator at approximately 106 MC and increase generator output to 10,000 microvolts.

3. Adjust generator tuning slightly until a signal is heard.

4. Adjust core in L8 for minimum receiver output.

7-10. TRANSMITTER OSCILLATOR COIL ADJUSTMENT

1. This adjustment should be made with a 24.66-MC crystal installed in the transmitter. If a 24.66-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 L11 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 L11 out of coil winding approximately two turns or until an indication of RF output is obtained and then make adjustment as described above.

7-11. TRANSMITTER BANDPASS ADJUSTMENT

If the transmitter power output is uniform across the 144- to 148-MC range, no adjustment should be made. If adjustment is found to be necessary, proceed as follows:

1. Insert crystal which will give output near 148 MC and tune transmitter for maximum output.

2. Adjust core in L12 for maximum output.

3. Insert crystal which will give output near 144 MC and tune transmitter for maximum output.

4. Adjust core in L13 for maximum output. Repeat adjustments until power output is uniform at 144 and 148 MC.

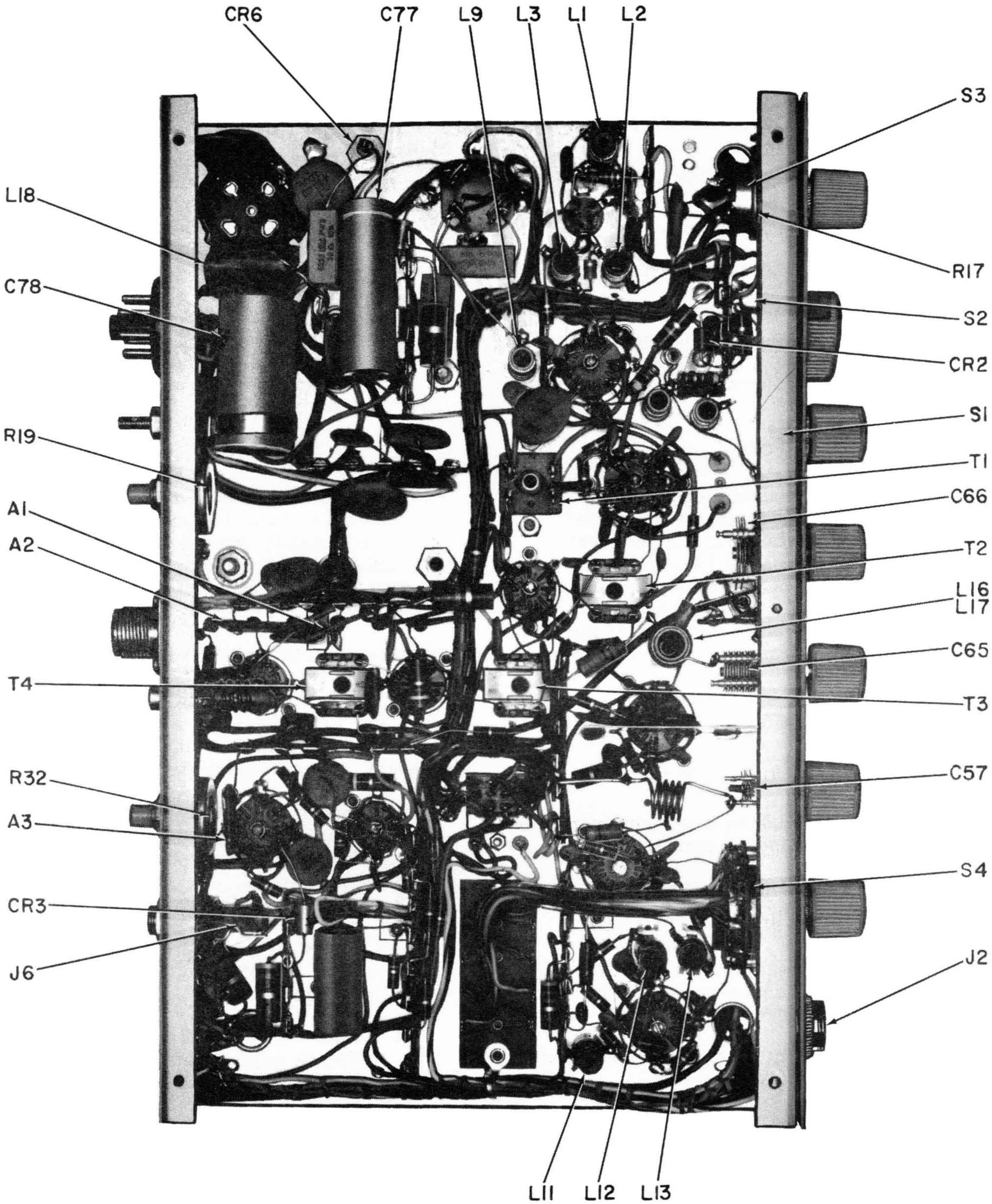

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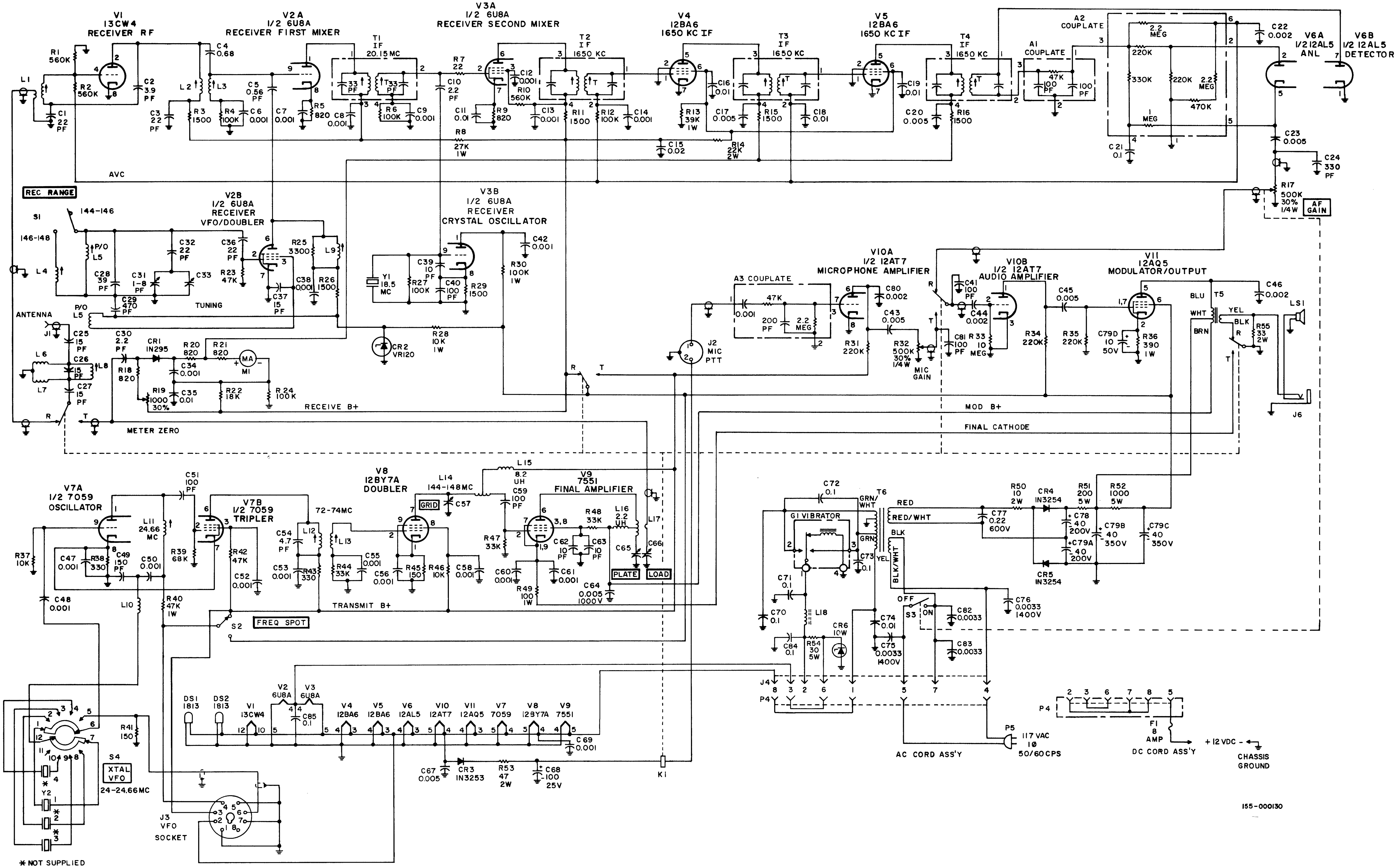
Figure 9. Bottom Chassis View, Showing Component Locations

SERVICE REPAIR PARTS LIST

Schematic Symbol	Description	Hallicrafters Part Number
	CAPACITORS	
C1,3	22 PF, 5%, 300V, Plastic Mica	493-110220-221
C2	3.9 PF ±0.5 PF, 300V, Plastic Mica	493-140390-521
C4	0.68 UF, 10%, 500V, Composition	047-200403-001
C5	0.56 PF, 5%, 500V, Composition	047-300430-012
C6,7,8,9, 12,13,14, 34,38,42, 47,48,50,52,53,55, 56,58,60,61,69	0.001 μF, 20%, 500V, Ceramic Disc	047-001671
C10,30	2.2 PF ±0.5 PF, 300V, Plastic Mica	493-140220-521
C11,16,18, 19,35,74	0.01 μF +80-20%, 450V, Ceramic Disc	047-100217
C15	0.02 μF, 20%, 600V, Ceramic Disc	047-100471
C17,20,23, 43,45,67	0.005 μF, 20%, 500V, Ceramic Disc	047-100442
C21,70,71, 72,73,84, 85	0.1 μF, ±80-20%, 100V, Ceramic Disc	047-001428
C22,44,46, 80	0.002 μF, 20%, 500V, Ceramic Disc	047-100395
C24	330 PF, 5%, 300V, Plastic Mica	493-110331-224
C25,26,27, 37	15 PF, 5%, 300V, Plastic Mica	493-110150-221
C28	39 PF, 2%, Ceramic Tubular	491-004390-043
C29	470 PF, 5%, 300V, Plastic Mica	493-110471-224
C31	Variable, Trimmer, 1-8 PF, 600V, Piston Type	044-000593
C32,36	22PF, 2%, Ceramic Tubular	491-004220-023
C33	Variable, Air Type, Tuning	048-000575
C39,62,63	10 PF ±0.5 PF, 300V, Plastic Mica	493-110100-521
C40,41,51, 59,81	100 PF, 5%, 300V, Plastic Mica	493-110101-224
C49	150 PF, 5%, 300V, Plastic Mica	493-110151-224
C54	4.7 PF, 5%, 300V, Plastic Mica	493-140470-221
C57	Variable, Trimmer, 1.3-4 PF, 500V, Air Type, GRID	048-000577
C64	0.005 μF, 20%, 1000V, Ceramic Disc	047-200523
C65	Variable, Trimmer, 2-11.9 PF, 500V, Air Type, PLATE	048-000571
C66	Variable, Trimmer, 2.8-13.3 PF, 500V, Air Type, LOAD	048-000574
C68	100 μF, 25V, Electrolytic	045-001204
C75,76,82, 83	0.0033 μF, 1400V, Ceramic Disc	047-001618
C77	0.22 μF, 10%, 600V, Paper Tubular	046-001434-464
C78	40 μF, 200V, Electrolytic	045-000633
C79A,B,C, D	40 μF, 350V-40 μF, 200V -10 μF, 50V, Electrolytic	045-000632
	***RESISTORS**	
R1,2,10	560K Ohm	451-252564
R3,11,15, 16,26,29	1500 Ohm	451-252152

Schematic Symbol	Description	Hallicrafters Part Number
	***RESISTORS (CONT).**	
R4,6,12, 24,27	100K Ohm	451-252104
R5,9,18, 20,21	820 Ohm	451-252821
R7	22 Ohm	451-252220
R8	27K Ohm, 1 watt	451-352273
R13	39K Ohm, 1 watt	451-352393
R14	22K Ohm, 2 watt	451-652223
R17	Variable, Composition, 500K Ohm, 30%, 1/4 watt AF GAIN	025-002402
R19	Variable, Composition, 1000 Ohm, 30%, METER ZERO	025-002383
R22	18K Ohm	451-252183
R23,42	47K Ohm	451-252473
R25	3300 Ohm	451-252332
R28	10K Ohm, 1 watt	451-352103
R30	100K Ohm, 1 watt	451-352104
R31,34,35	220K ohm	451-252224
R32	Variable, Composition, 500K Ohm, 30%, 1/4 watt, MIC GAIN	025-002382
R33	10 Megohm	451-252106
R36	390 Ohm, 1 watt	451-352391
R37,46	10K Ohm	451-252103
R38,43	330 Ohm	451-252331
R39	68K Ohm	451-252683
R40	47K Ohm, 1 watt	451-352473
R41,45	150 Ohm	451-252152
R44,47,48	33K Ohm	451-252333
R49	100 Ohm, 1 watt	451-352101
R50	10 Ohm, 2 watt	451-652100
R51	200 Ohm, 5 watt, Wire Wound	445-012201
R52	1000 Ohm, 5 watt, Wire Wound	445-012102
R53	47 Ohm, 2 watt	451-652470
R54	30 Ohm, 10%, 5 watt, Wire Wound	445-012300
R55	33 Ohm, 2 watt	451-652330
	*All RESISTORS are carbon type, 1/2 watt, 10% unless otherwise stated.	
	COILS AND TRANSFORMERS	
L1	Coil, Receiver Antenna	050-001759
L2	Coil, Receiving Band Pass, Plate	050-001760
L3	Coil, Receiving Band Pass, Grid	050-001761
L4	Coil, Receiver Oscillator Shunt	050-001651
L5	Coil, Receiver Oscillator	050-001767
L6,7	RF Choke, High Pass Filter	050-001763
L8	Coil, High Pass Filter	050-001768
L9	Coil, Receiver Oscillator Multiplier	050-001766
L10	Coil, Crystal Oscillator	051-003353
L11	Coil, Oscillator Plate Transmitter 24.66 MC	050-001795
L12,13	Coil, Transmitter Band Pass	050-001762
L14	Coil, Doubler Transmitter	050-001764
L15	Coil, 8.2 μH, RF Choke	053-000687
L16	Coil, 2.2 μH, RF Choke	050-001738
L17	Coil, Final Plate Transmitter	050-001765
L18	Coil, Hash Filter	051-002740
T1	Transformer, 1st IF, 20.15 MC	050-001649

Schematic Symbol	Description	Hallicrafters Part Number
	COILS AND TRANSFORMERS	
T2,3,4	Transformer, IF, 1650 KC	050-000788
T5	Transformer, Audio Modulator	055-000546
T6	Transformer, Power	050-001687
	ELECTRON TUBES AND SOCKETS	
V1	Tube, Type 13CW4, Nuvistor	090-001563
V2,3	Tube, Type 6U8A	090-901285
V4,5	Tube, Type 12BA6	090-900039
V6	Tube, Type 12AL5	090-901186
V7	Tube, Type 7059	090-001561
V8	Tube, Type 12BY7A	090-901192
V9	Tube, Type 7551	090-001562
V10	Tube, Type 12AT7	090-900034
V11	Tube, Type 12AQ5	090-001432
CR1	Diode, Germanium, Type 1N295	019-301980
CR2	Diode, Zener, Type VR120	019-003407
CR3	Diode, Silicon, Type 1N3253	019-002939-001
CR4,5	Diode, Silicon, Type 1N3254	019-002939-002
CR6	Diode, Zener	019-003461
	MISCELLANEOUS	
	Bumper, Plastic, 7/8 inch O.D.	016-002446
	Bumper, Plastic, 1-3/32 inch O.D.	016-001077
	Cabinet Assembly, Bottom Riveted	150-007671
	Cabinet Assembly, Top Riveted	150-007859
	Cable Assembly, AC	087-008133
J2	Connector, Microphone (Inc. Hardware)	010-001569
J4	Connector, Receptacle, Power	010-100239
J1	Connector, Receptacle, ANTENNA	010-100056
Y1	Crystal, Quartz, 18.5 MC	019-003408
Y2	Crystal, Transmitting (Not Supplied)	019-003409
	Dial, Scale	083-001057
A1	Filter, Couplate	049-000244
A2	Filter, Couplate	049-000281
A3	Filter, Couplate	049-000282
	Iron Core	003-203388
J6	Jack, Phono	036-000350
	Knob (AF GAIN, REC RANGE, LOAD, XTAL-VFO)	015-001844
	Knob (PLATE, GRID)	015-001844-001
	Knob, Dial Scale	015-001843
DS1,2	Lamp, Pilot	039-000031
	Latch, Bottom	030-000777-001
	Latch, Top	030-000777-002
M1	Meter	082-000637
	Medallion	007-000850
	Panel, Front	068-001546
K1	Relay, Armature (4PDT)	021-000764
S1	Switch, Rotary, REC RANGE	060-002705
S2	Switch, Slide (SPDT) FREQ SPOT	060-002548
S3	Part of R17	
S4	Switch, Rotary, XTAL-VFO	060-002697
LS1	Speaker	085-000249
	Trim Strip	007-000897
	Window, Plexiglass	022-000725



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

Figure 10. Schematic Diagram of Model SR-42.

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964

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