$10.00

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Printed in U.S.A.

hallicrafters

OPERATING AND SERVICE INSTRUCTIONS

COMMUNICATION RECEIVER MODEL CRX-1

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.

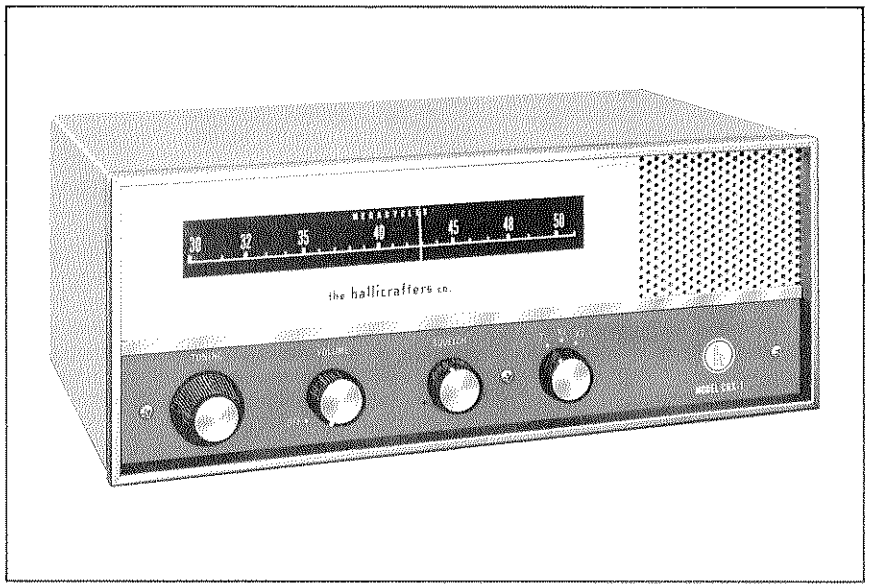
This warranty does not extend to any of our radio products which have been subjected to misuse, neglect, accident, incorrect wiring not our own, improper installation, or to use in violation of instructions furnished by us, nor extended to units which have been repaired or altered outside of our factory 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.

092-014037



092-012513

Figure 1. View of Model CRX-1 Receiver.

SECTION 1

GENERAL DESCRIPTION

1-1. INTRODUCTION.

Your new Hallicrafters Model CRX-1 is a precision-built, sensitive, reliable FM communications receiver providing complete coverage in the frequency range from 30 megacycles to 50 megacycles. Nine tubes, plus two silicon rectifiers, are employed in advanced, efficient electronic circuitry to give maximum performance in the reception of the FM services. These services include the receiving of emergency-vehicle communications, bus communications, private-telephone use, forestry signals, power-company communications, and other industrial communication uses.

Tuning in the crowded portions of the 30-MC to 50-MC frequency band is controlled by vernier-drive and fast-drive controls. These controls are mounted on coaxial shafts which are coupled to a slide-rule pointer. The pointer traverses a dial calibrated directly in megacycles. An electronic squelch control permits easy and accurate setting of the squelch function. In addition to the manual-tuning function, two optional crystal-controlled channels are available.

Other important and special features of the Model CRX-1 Receiver include . . . narrow selectivity . . . and an external-internal speaker connector and switch, permitting the use of an external speaker, headphones, or recorder.

Careful attention should be directed to the installation and operating instructions that follow. These instructions will familiarize you with the routine necessary to insure satisfaction in the ownership of a Hallicrafters' precision-built product.

TECHNICAL SPECIFICATIONS

RECEPTION	FM, ±5-KC deviation.
INTERMEDIATE FREQUENCIES	4.5 MC and 455 KC.
FREQUENCY COVERAGE	30 MC to 50 MC.
POWER SOURCE	105 volts to 125 volts AC, 50/60 cycles.
POWER CONSUMPTION	50 watts.
NUMBER OF TUBES	9 tubes plus two silicon rectifiers.
SPEAKER OUTPUT	Internal speaker provided; toggle switch and two-contact, screw-type terminal strip provided on the chassis rear for alternate use of external 3-ohm to 4-ohm speaker.
ANTENNA INPUT	50-ohm to 75-ohm coaxial; a pin-type receptacle provided on rear of chassis to accept a pin-type connector.
DIMENSIONS	13-1/2 inches wide, 5-3/4 inches high, and 8 inches deep.
SHIPPING WEIGHT	15.50 pounds.
NET WEIGHT	12.75 pounds.

SECTION II

INSTALLATION

2-1. UNPACKING.

After unpacking the receiver, examine it closely for damage that 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 the instructions on all shipping labels and tags before removing or destroying them.

2-2. LOCATION.

The receiver is equipped with mounting feet for table-top or shelf mounting. In selecting a location, avoid excessively warm locations near radiators and heating vents. Also, avoid drafty places. This latter precaution is particularly desirable if manual-controlled operation is intended. For proper ventilation, allow at least one inch of clearance between the back of the receiver and the wall.

2-3. POWER SOURCE.

The Model CRX-1 is designed to operate from a 105-volt to 125-volt, 50/60-cycle AC power source. Power consumption is 50 watts.

IMPORTANT

Your power outlet must furnish AC (alternating current). If in doubt about your power source, contact your local power company prior to inserting the power cord in a power outlet. Plugging the cord into the wrong power source may cause extensive damage to the unit, requiring costly repairs.

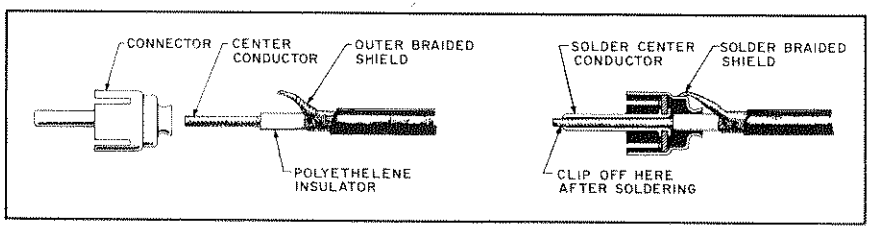


Figure 2. Fabricating the Antenna Input Cable.

2-4. ANTENNAS.

The radio frequency input to the receiver is designed for operation from a 50-ohm to 75-ohm coaxial transmission line, or lead-in, from a suitable outside antenna. The coaxial line allows long lead-ins to be used without impairing the performance of the antenna. The ground-plane vertical antenna is the most widely used type of outdoor antenna suitable for this application. Coaxial cable and ground-plane vertical antennas are available from a number of manufacturers and, in almost all cases, can be obtained from the dealer from whom this receiver was purchased.

Regardless of the antenna type used, it will be found that any given antenna will work best in one range of frequencies but, at the same time, will give satisfactory performance over the entire range of this receiver. Follow the instructions furnished by the antenna manufacturer and cut the antenna to your own requirements. Where you are interested in a specific frequency, cut the antenna to this frequency. Otherwise, the antenna may be cut to approximately 39 megacycles.

For local, ground-wave reception, performance will depend generally on the height of the antenna. Place the antenna in the clear, and if possible, above the tree tops. The higher the antenna, the better the reception. Use any available natural supports, but use a chimney or smoke stack only as the last resort. The fumes from a chimney can be corrosive to the metal elements of the antenna and connections.

Use the antenna connector furnished to connect the coaxial line to the receiver. Strip and connect the line as shown in figure 2. These connections must be soldered to assure a good electrical connection.

2-5. EXTERNAL SPEAKER.

Screw terminals for an external-speaker connection (see figure 3) are located on the back of the chassis. These terminals can also be used for other external audio connections, such as headphones or a recorder. The switch on the back apron of the receiver selects either the internal speaker or the external connection.

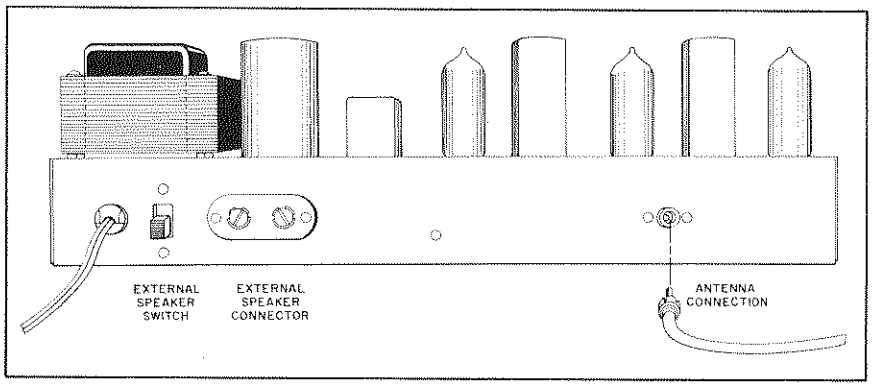


Figure 3. Rear View of Receiver Chassis.

Any size of external speaker may be used. Electrically, a permanent-magnet type speaker with a 3-ohm to 4-ohm voice coil is preferred. The 12-ohm, 1-watt resistor, connected across the terminals, may be removed when using the equipment with an external speaker.

When connecting to a recorder or to headphones, the 12-ohm, 1-watt resistor should remain connected across the terminals in parallel with the external device.

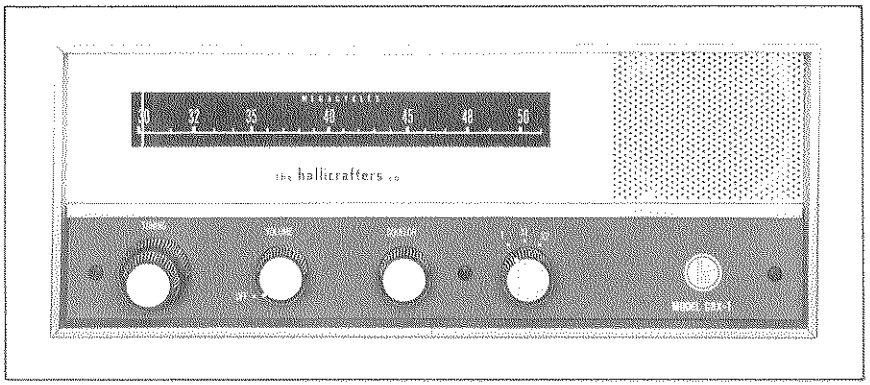


Figure 4. Front Panel View of Receiver. 156-000899

SECTION III
OPERATION

3-1. GENERAL.

There are only four controls on the front panel of the Model CRX-1 Receiver. A few minutes of air-testing will familiarize you with the operation of each control and the effect each control has on the performance of the receiver.

3-2. TUNING CONTROL.

The TUNING control consists of vernier-drive and fast-drive controls mounted on coaxial shafts, located on the extreme left of the front panel of your receiver. The rear knob, fast drive, will move the slide-rule pointer relatively fast from one section of the dial to another to tune-in a station. The vernier drive, front knob, is used as a fine-tuning adjustment to accurately tune-in a desired station in a crowded portion of the band.

3-3. VOLUME CONTROL.

The VOLUME control, in the extreme counterclockwise position, turns the receiver off. To turn the receiver on, rotate the VOLUME control clockwise approximately one-half from the off position. Tune to a station and readjust the VOLUME control to the desired listening level.

3-4. SQUELCH CONTROL.

The SQUELCH control is an automatic electronic switch. This switch silences the receiver when no radio signals are present on a channel. When a radio station comes on the channel, the switch will automatically open and will stay open as long as the radio carrier tuned-in is on the air. The purpose of this switch is to allow the VOLUME control always to be set at a comfortable listening level for message reception, and to silence the noise between radio transmissions.

As the SQUELCH control is rotated in a clockwise direction, a point will be reached in the rotation where the electronic switch opens, allowing off-signal noise to come through. Rotate this control back in a counterclockwise direction until all noise is silenced. This adjustment is to be made when no stations are on the air. A further adjustment can be made depending upon the weakest signal to be received.

3-5. T-X1-X2 (SELECTOR) CONTROL.

For manual tuning operation, the selector switch should be placed in the T position. In this position, you may tune-in stations anywhere on the band and set the VOLUME and SQUELCH controls as desired.

Two crystal positions have been provided for owners who will only be using the receiver on one or two frequencies and who wish to devote a minimum of time to tuning and adjusting the receiver.

Quartz frequency-control crystals may be purchased and installed with a minimum of effort. The installation requires neither special tools nor alignment of any circuitry.

Assume a crystal is on hand for a specific desired channel for this receiver. Insert the crystal into the socket marked X1 on the top deck of the receiver chassis near the front panel. Turn the receiver on and allow 15 minutes for warmup. Rotate the selector knob to the T position, open the SQUELCH control, and set the VOLUME control about one-quarter to one-half turn from the off position. Tune to a station on the desired channel, then rotate the selector knob to the X1 position. If a good quality crystal has been used, the receiver is now locked on the desired channel. Reset VOLUME and SQUELCH controls as required. The receiver should require only occasional resetting of the VOLUME and SQUELCH controls.

If a second crystal-controlled channel is desired, insert the proper crystal in the X2 position and follow the above procedure.

Occasionally, it is possible for permissible tolerances on your quartz crystal and on the quartz crystal at the radio transmitter you are monitoring to add up enough to cause mistuning or off-channel errors. The crystal in your receiver can be shifted slightly in frequency to compensate for reasonable errors. Merely rotate the vernier-tuning knob one or two turns clockwise and the same amount counter-clockwise until the distortion or noise on the signal clears up.

IMPORTANT

Rotating the vernier knob too far in either direction will cause the crystal to go out of oscillation and the variable oscillator will then take over control.

When the proper crystals are obtained, you should experience no difficulty in setting the receiver on the correct frequency. Crystals may be ordered from the dealer from whom you purchased the receiver or directly from The Hallicrafters Company Service Department.

3-6. CRYSTAL ORDERING INFORMATION.

When ordering crystals for your receiver, follow the information given below:

A. Specify receiver model (CRX-1) and the serial number.

B. Specify crystal type as follows:

One each type CR-23/U crystal or commercial equivalent. Hallicrafters part number 019-002840.

C. Compute the required crystal frequency from the transmitter frequency. The following formula is to be used in computing the crystal frequency. An example is given using a transmitting frequency of 33.180 megacycles.

$$\text{CRX-1 Crystal Frequency (in megacycles)} = \frac{\text{Transmitter Frequency (in megacycles)} - 4.500 \text{ MC}}{2}$$

$$\text{Crystal Frequency} = \frac{33.180 - 4.500}{2}$$

$$= \frac{28.680}{2}$$

$$= 14.340 \text{ MC}$$

D. Specify the crystal frequency (not the signal or dial frequency) in five digit numbers.

Example: 21.002 megacycles, 17.000 megacycles, 12.120 megacycles.

Do not estimate the frequency from the dial reading on the receiver. Obtain this information from a reliable source—for instance, the licensed radio operator who maintains the transmitter you wish to monitor.

The non-professional user of this equipment will find that excellent stability and reliability can be obtained from the Model CRX-1 without the crystal-control feature. On the other hand, when the user requires this unit to receive signals directed specifically to him, the use of the crystal-control feature is strongly recommended. The increased reliability justifies the comparatively small additional cost.

SECTION IV

SERVICE DATA

4-1. CHASSIS REMOVAL.

The chassis and front-panel assembly are removable as a unit. Remove the four mounting feet. Slide the chassis out through the rear of the cabinet. Care should be taken to make certain that the tuning dial is at the low end of the band (tuning capacitor fully closed) before removing the chassis.

4-2. TUBE AND LAMP REPLACEMENT.

To gain access to the tubes and dial lamps, see paragraph 4-1.

4-3. DIAL CORD RESTRINGING.

Remove the chassis assembly from the cabinet as described in paragraph 4-1. String the dial cord by following the numerical sequence shown in figure 5.

4-4. SERVICE OR OPERATION QUESTIONS.

For further information regarding operation or servicing of this equipment, contact the Hallicrafters' dealer from whom it 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

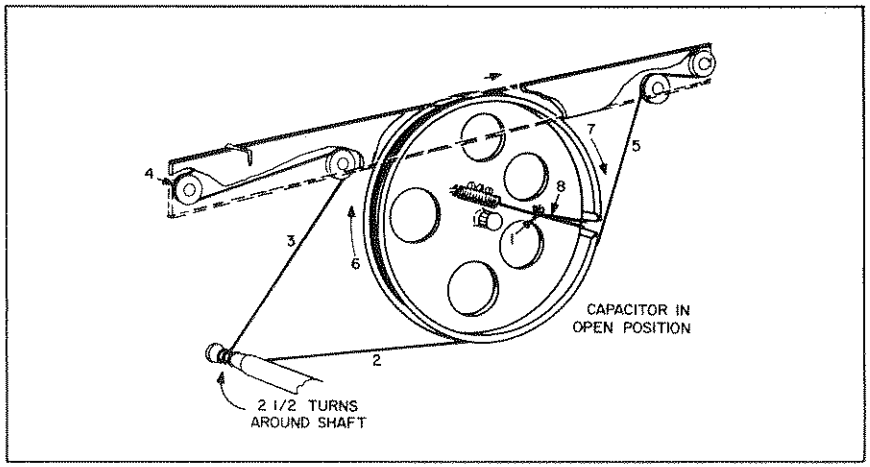


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Figure 5. Dial Stringing Diagram.

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 the expiration of the warranty, repairs will be made for a nominal charge. All Hallicrafters Authorized Service Centers display the sign below. For the location of the one nearest you, consult your local telephone directory.

Service shipments should not be made to the factory unless instructed to do so by letter, as The Hallicrafters Company will not accept responsibility for unauthorized shipments.

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

SECTION V

ALIGNMENT

5-1. GENERAL.

The Model CRX-1 Receiver has been carefully aligned at the factory by specially-trained personnel using precision equipment. Alignment of the receiver should not be attempted until all other possible causes of faulty operation have been investigated. Alignment should not be required unless the receiver has been tampered with or component parts in the RF or IF stages have been replaced. Alignment should only be attempted by persons experienced in this work, using the proper test equipment.

IMPORTANT

Where it is planned to use the crystal-controlled reception feature of this receiver, it is absolutely essential that the 455-KC IF transformer be exactly centered on frequency. The crystal correlation will only hold when this circuit is properly on frequency.

Use of a modulated generator is left to the discretion of the person performing the alignment. However, if a modulated generator is used, no attempt should be made to align for maximum audio output, as this will not work. Also, where a modulated generator is used, the modulation percentage should be kept at a very low level.

The oscillator, RF, and tunable IF must track together, according to the following formulas:

$$\text{OSCILLATOR FREQUENCY} = \frac{RF - 4.5}{2}$$

$$\text{IF FREQUENCY (tunable)} = \frac{RF + 4.5}{2}$$

EXAMPLE

RF	33	47
OSC	14.25	21.25
IF	18.75	25.75
ALL FREQUENCIES IN MEGACYCLES		

With the receiver turned off, this tracking can be checked using a grid-dip meter.

5-2. TEST EQUIPMENT REQUIRED.

The following test equipment, or its approved equivalent, is to be used in performing necessary alignment on the Model CRX-1 Receiver.

1. Signal Generator, Measurements Corporation Model 80; to be used for RF alignment.
2. A good-quality sweep generator in conjunction with an oscilloscope; to be used for IF alignment. Use procedure given in paragraph 5-4.
3. A good-quality signal generator such as the Measurements Corporation Model 65B; to be used as an alternate for the IF alignment if a sweep generator and/or oscilloscope is not available. Use alternate procedure given in paragraph 5-5.

NOTE

Only quality signal generators which operate on fundamentals across their entire range are to be used in this alignment. Generators operating on harmonics should not be used.

4. DC Vacuum Tube Voltmeter (VTVM), RCA Senior Voltohmyst; to be used for RF alignment.
5. Hexagonal alignment tool, preferably plastic.
6. Nylon screwdriver blade (with metal blade on opposite end if one is available).

5-3. INITIAL CONTROL SETTINGS.

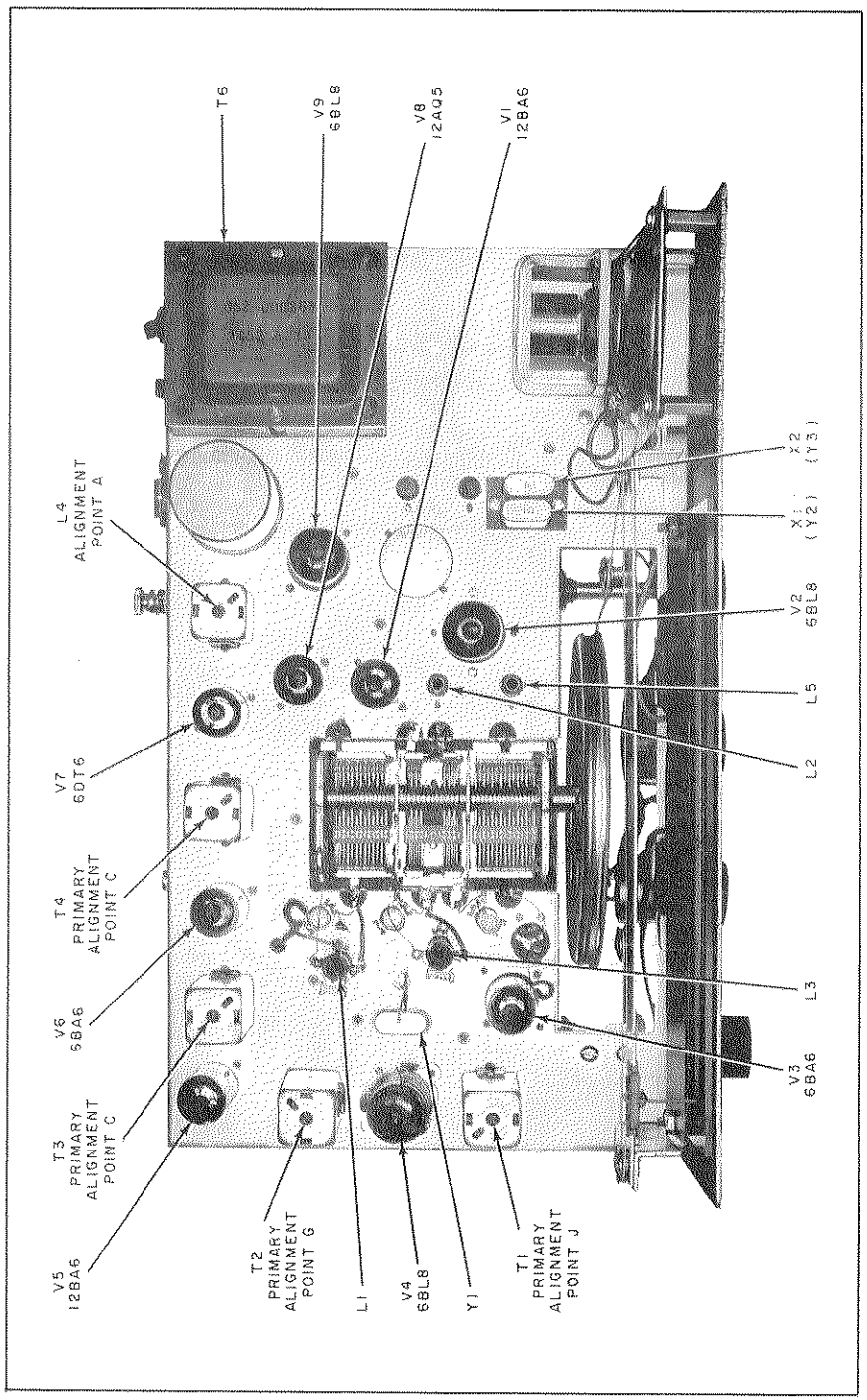
Before the alignment is begun, the front panel controls should be set as follows:

VOLUME . . . . . Approximately centered (one-half clockwise)

T-X1-X2 (Selector) . . . . . T (manual tuning)

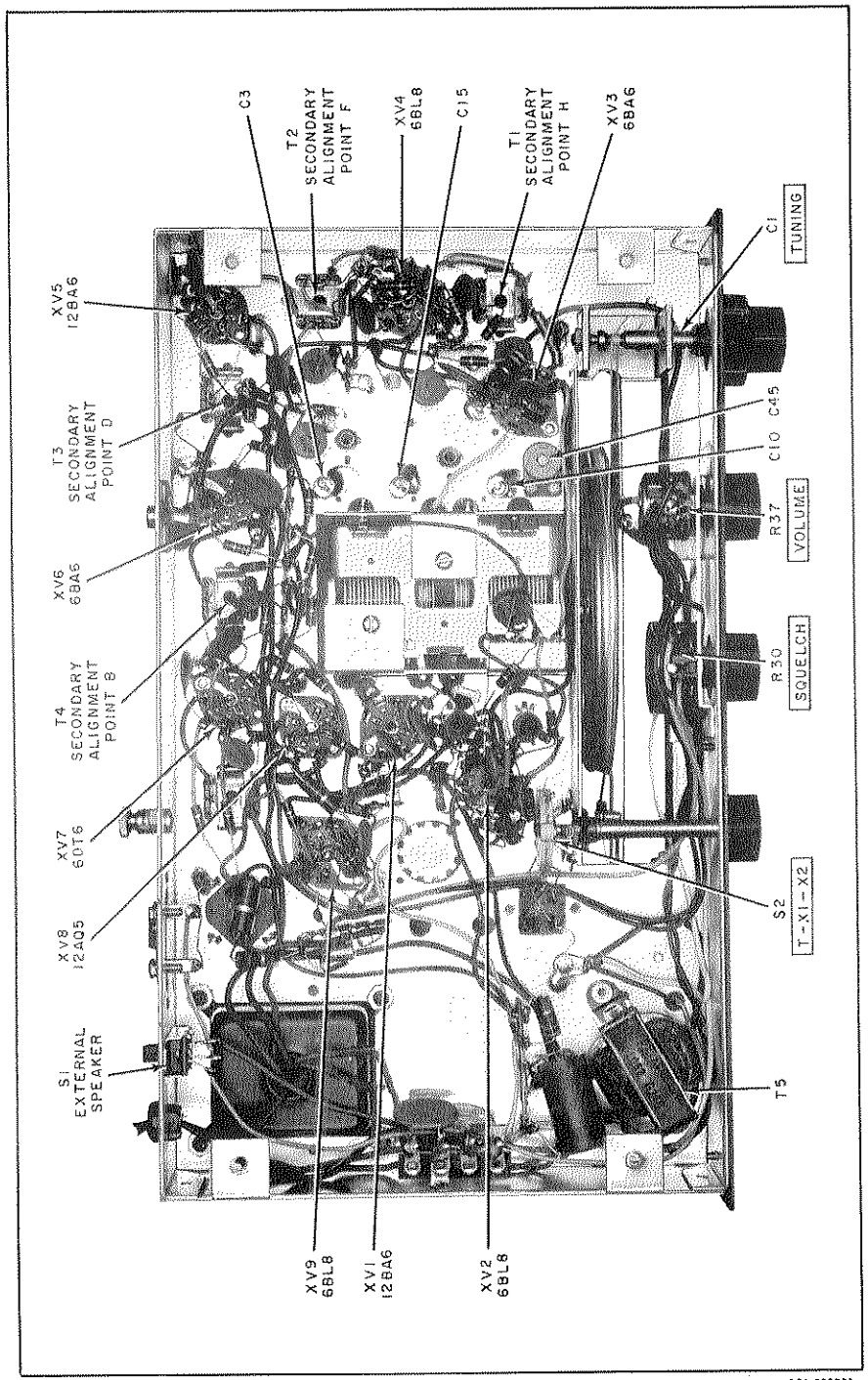
SQUELCH . . . . . Open

TUNING . . . . . As required



156-000900

Figure 6. Top Chassis View of Receiver.



156-000901

Figure 7. Bottom Chassis View of Receiver.

5-4. IF ALIGNMENT PROCEDURE.

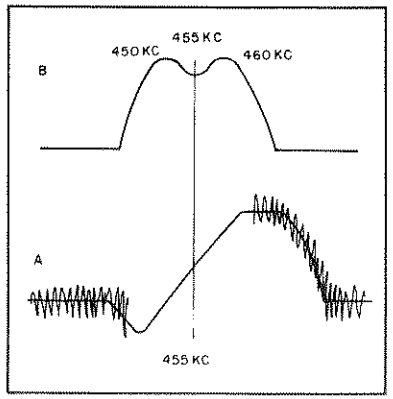


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Figure 8. Alignment Waveforms.

1. 455-KC IF Alignment. — Connect the sweep generator horizontal output to the horizontal connection on the oscilloscope. Connect the RF output from sweep generator to pin 1 of V6. Set the sweep generator to 455 KC. Connect a probe from the vertical connection on the oscilloscope to pin 5 of V7. Adjust alignment point A (quadrature coil, L4) for a signal to appear resembling that shown in figure 8A. Adjust alignment points B (T4 secondary) and C (T4 primary) until the signal on the oscilloscope is the same as that shown in figure 8A.

Move the sweep generator to pin 2 of V4 and connect the oscilloscope probe to pin 1 of V6 through a one-megohm resistor. Adjust alignment points D (T3 secondary), E (T3 primary), F (T2 secondary), and G (T2 primary) for a symmetrical signal the same as shown in figure 8B.

NOTE

The oscilloscope trace should be so positioned that it is symmetrical about 455 KC. The IF must be centered on 455 KC or the 4.5-MC alignment will be inaccurate and, most important, the crystal-control correlation will be wrong.

2. 4.5-MC Alignment. — Reset the sweep generator to exactly 4.5 MC and connect the RF output from the sweep generator to pin 2 of V2. The signal present on the oscilloscope will resemble that shown in figure 8B except it will be centered around 4.5 MC. Adjust alignment points H (T1 secondary) and J (T1 primary) until the scope presentation is symmetrical and the 4.5-MC marker is exactly centered.

5-5. ALTERNATE IF ALIGNMENT PROCEDURE.

This procedure is to be followed if a sweep generator and/or oscilloscope is not available.

1. 455-KC IF Alignment

   a) Connect an accurately-calibrated signal generator to pin 1 of V6.

   b) With a short jumper lead, short pin 7 of V7 to chassis ground.

   c) Connect a high-impedance probe of a DC VTVM to the plate, pin 5, of V7. With no signal input, note the plate voltage of V7.

   d) Tune signal generator to 455 KC and increase signal input until a 6 to 8 volt increase in the plate voltage of V7 is noticed on the VTVM.

   e) Adjust alignment points B and C for maximum V7 plate voltage, readjusting the signal input to maintain a 6 to 8 volt increase in plate voltage.

   f) After alignment points B and C have been properly adjusted, increase the signal-generator input until the plate voltage of V7 has been increased to 20 volts above zero-signal plate voltage.

g) Remove the jumper from pin 7 of V7. Adjust alignment point A until the plate voltage of V7 is the same as noted for zero-signal input. Check for the correct setting of alignment point A by varying the signal-generator frequency 5 KC above and below 455 KC. The plate voltage of V7 should deflect about 20 volts above and below the zero-signal reading.

Move the signal generator to pin 2 of V4 and connect the VTVM to pin 1 of V6 through a one-megohm resistor. Adjust alignment points D, E, F, and G for maximum indication on the VTVM. Generator output level should be reduced continually to provide -2.0 volts indication on the VTVM.

Detune the signal generator 10 KC above and below 455 KC. The output should be reasonably flat on top and symmetrical about the 455-KC center frequency. Retouching one or two of the alignment points should give a symmetrical output.

2. 4.5-MC Alignment. — Set the signal generator to 4.5 MC. Move the generator connection to pin 1 of V3. Adjust alignment points H and J for maximum indication on the VTVM.

This completes the IF alignment. All of the RF alignment procedure which follows can be completed using the Model 80 signal generator connected as specified and the DC VTVM connected to pin 1 of V6 through a one-megohm resistor.

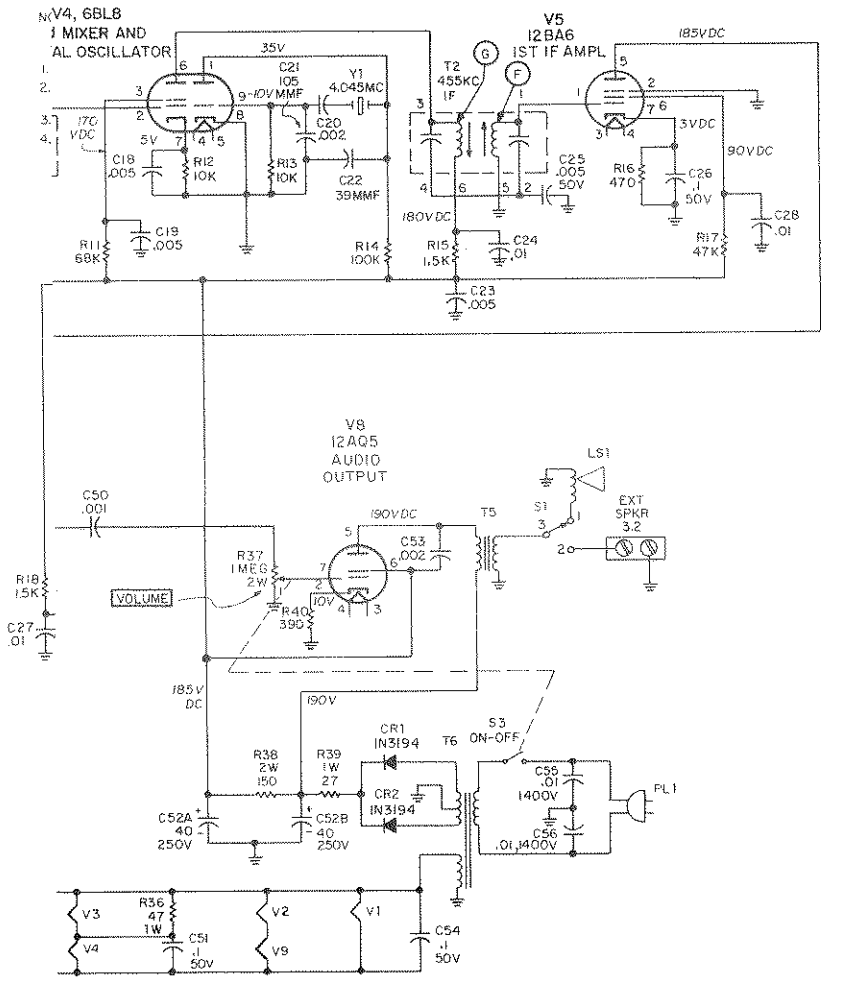
5-6. RF ALIGNMENT PROCEDURE.

Connect the signal generator to the antenna jack (J1). Set the receiver dial to 47 MC. Set the generator output to approximately 10 or 20 microvolts. Rock the generator slowly above and below 47 MC until the generator signal is heard in the receiver. Adjust capacitor C45 (oscillator trimmer) until the dial calibration is correct. Adjust capacitors C3, C10, and C15 for maximum indication on the VTVM. When these circuits are peaked, an immediate performance check can be made before proceeding with the next step in the alignment.

Reduce the generator output to zero. Close the SQUELCH control to the point where the noise is just silenced. Increase the generator output to 1.0 microvolt. As the receiver is slowly tuned through the signal, the squelch should open and close.

Set the receiver dial to 33 MC. Reset the generator output between 10 and 20 microvolts. Rock the generator slowly above and below 33 MC until the generator signal is heard in the receiver. Adjust coil L5 until dial calibration is correct. Adjust coils L1, L2, and L3 for maximum indication on the VTVM.

Repeat the 47-MC and 33-MC adjustments a few times until a negligible increase in output is obtained by further alignment.



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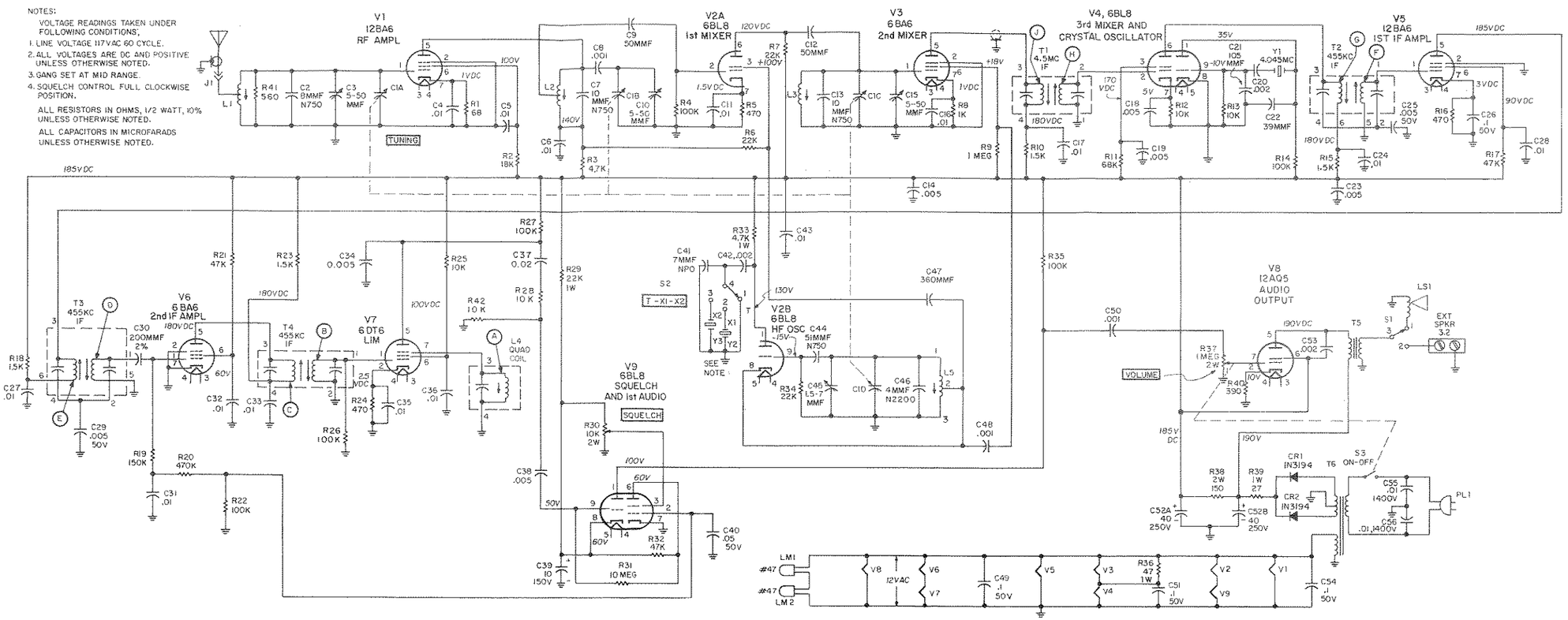

089-002348

Figure 9. Schematic Diagram.

SERVICE REPAIR PARTS LIST

Schematic Symbol	Description	Hallicrafters Part number
	CAPACITORS	
C1A,B, C,D	Variable, TUNING	048-000502
C2	8 mmf, ±0.5 mmf, N750 Ceramic Tubular	491-002080-95
C3,10,15	Variable, Trimmer, 5 mmf to 50 mmf, Tubular	044-000543
C4,5,6, 11,16,17, 24,27,28, 31,32,33, 35,36,43	0.01 mfd, 500V, Ceramic Disc	047-100217
C7,13	10 mmf, ±0.5 mmf, N750, Ceramic Tubular	491-002100-95
C8,48,50	0.001 mfd, 500V, Ceramic Disc	047-200230
C9	50 mmf, 2%, 300V, Plastic Mica	481-151500
C12	50 mmf, 10%, NPO, Ceramic Tubular	491-106500-22
C14,18, 19,23,34, 38	0.005 mfd, 500V, Ceramic Disc	047-100442
C20,42, 53	0.002 mfd, 500V, Ceramic Disc	047-100395
C21	105 mmf, 2%, 300V, Plastic Mica	493-121050-324
C22	39 mmf, 2%, 300V, Plastic Mica	481-151390
C25,29	0.005 mfd, +80%, -20%, 50V, Ceramic Disc	047-001139
C26,49, 51,54	0.1 mfd, 50V, Ceramic Disc	047-001146
C30	200 mmf, 2%, 300V, Plastic Mica	481-161201
C37	0.02 uf, 500V, Ceramic Disc	047-100242
C39	10 mfd, 150V, Electrolytic	045-200307
C40	0.05 mfd, +80%, -20%, 50V, Ceramic Disc	047-101144
C41	7 mmf, ±0.5 mmf, NPO, Ceramic Tubular	491-102070-22
C44	51 mmf, 5%, N750, Ceramic Tubular	491-105510-95
C45	Variable, Trimmer, 1.5 mmf to 7 mmf, Ceramic	044-000544
C46	4 mmf, ±0.25mmf, N2200, Ceramic Tubular	480-021040
C47	360 mmf, 10%, 500V, Ceramic Disc	047-201187
C52 A&B	40 x 40 mfd, 250V, Electrolytic	045-000742
C55,56	0.01 mfd, 1400V, Ceramic Disc	047-200752

Schematic Symbol	Description	Hallicrafters Part Number
	RESISTORS*	
R1	68 Ohm	451-252680
R2	18K Ohm	451-252183
R3	4.7K Ohm	451-252472
R4,14,22, 26,27,35	100K Ohm	451-252104
R5,16,24	470 Ohm	451-252471
R6,7,34	22K Ohm	451-252223
R8	1K Ohm	451-252102
R9	1 Megohm	451-252105
R10,15, 18,23	1.5K Ohm	451-252152
R11	68K Ohm	451-252683
R12,13, 25,28,42	10K Ohm	451-252103
R17,21, 32	47K Ohm	451-252473
R19	150K Ohm	451-252154
R20	470K Ohm	451-252474
R29	22K Ohm, 1 watt	451-352223
R30	Variable 10K Ohm, 2 watt (SQUELCH)	025-001974
R31	10 Megohm	451-252106
R33	4.7K Ohm, 1 watt	451-352472
R36	47 Ohm, 1 watt	451-352470
R37	Variable, 1 Megohm, 2 watt (VOLUME)	025-001973
R38	150 Ohm, 2 watt	451-652151
R39	27 Ohm, 1 watt	451-352270
R40	390 Ohm	451-252391
R41	560 Ohm	451-252561

*All Resistors are carbon type, 1/2 watt, 10% unless otherwise stated.

	COILS AND TRANSFORMERS	
L1	Coil, Antenna	051-003032
L2	Coil, RF	051-003034
L3	Coil, Tunable IF	051-003033
L4	Coil, Quadrature	050-000763
L5	Coil, Tunable Oscillator	051-003031
T1	Transformer, IF (4.5 MC)	050-000766
T2	Transformer, IF (455 KC)	050-000765
T3,4	Transformer, IF (455 KC)	050-000764
T5	Transformer, Output	055-000457
T6	Transformer, Power	052-000863
	SWITCHES	
S1	Switch, Slide (Speaker)	060-200477
S2	Switch, Rotary (T-X1-X2)	060-002398
S3	Switch, ON-OFF (Part of R37)	----------

Schematic Symbol	Description	Hallicrafters Part Number
	TUBES	
V1,5	12BA6-RF Amplifier; First IF Amplifier	090-000039
V2,4,9	6BL8- First Mixer and HF Oscillator; Third Mixer and Crystal Oscillator; Squelch and First Audio	090-001431
V3,6	6BA6-Second Mixer; Second IF Amplifier	090-001112
V7	6DT6- Limiter	090-001430
V8	12AQ5- Audio Output	090-001432
	MISCELLANEOUS	
	Button Plug	017-000481
	Cabinet Assembly	150-001545
	Clip, Transformer Mounting	076-100385
J1	Connector, Antenna Input	036-100041
Y1	Crystal, Quartz (4.045 MC)	019-002772
	Dial Cord	038-100049
	Dial Drive Assembly	150-001578
	Dial Scale (Calibrated)	083-000922
	Foot, Mounting	016-101469
	Front Panel Assembly	150-001580
	Knob, Fine Tuning	015-001569
	Knob, Squelch	015-001571
	Knob, Tuning	015-001570
	Knob, Volume and Selector	015-001572
	Line Cord	087-100078
	Lock, Line Cord	076-200397
LM1,2	Pilot Lamp, #47	039-100004
	Pilot Lamp Socket Assembly	086-000564
	Pointer, Dial	082-000498
CR1,2	Rectifier, Silicon (type 1N3194)	019-002769
	Socket, Crystal (Y1)	006-100320
XV2	Socket, Tube, 9-Pin Mica	006-200493
XV4,9	Socket, Tube, 9-Pin Wafer	006-000907
XV1,5,6, 7,8	Socket, Tube, 7-Pin Wafer	006-200730
XV3	Socket, Tube, 7-Pin Wafer	006-200457
	Socket, Wafer, Crystal (Y2,Y3)	006-000984
LS1	Speaker	085-000211
	Spring, Crystal Retaining	075-000837
	Spring, Dial Cord	075-100012
	Trim Strip, Cabinet	007-000797
	Tube Shield	069-001546
	Tube Shield Base	076-100549