



*hallicrafters*

**OPERATING AND SERVICE INSTRUCTIONS**

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**COMMUNICATION  
RECEIVER  
MODEL CRX-3**

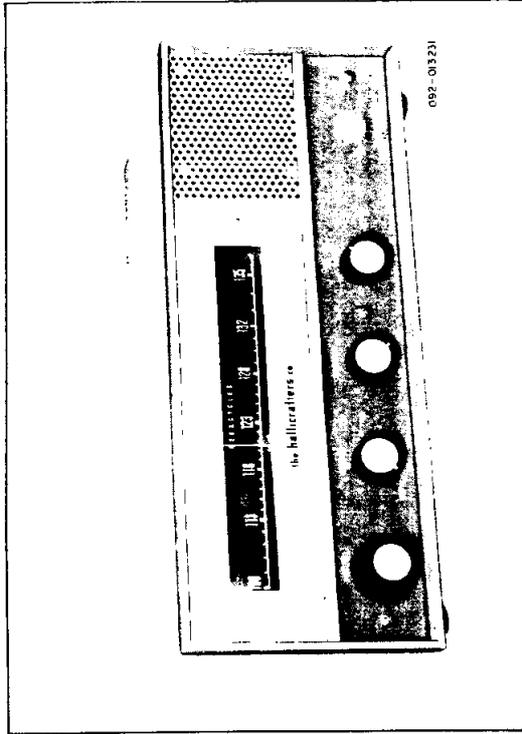


Figure 1. View of Model CRX-3 Receiver.

SECTION I

GENERAL DESCRIPTION

1-1. INTRODUCTION.

Your new Hallicrafters Model CRX-3 is a precision built, sensitive, reliable AM communications receiver providing complete coverage in the frequency range from 1.08 megacycles to 135 megacycles. Seven tubes, plus two silicon rectifiers are employed in advanced, efficient electronic circuitry to give maximum performance in the reception of the VHF Aviation services. These services include the receiving of emergency communications, landing control, central control, and VHF communications.

Tuning in the crowded portions of the 108-MC to 135-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-3 Receiver include . . . narrow selectivity for all possible future operation . . . an external-internal speaker connector and switch . . . and an accessory socket.

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.

WARRANTY

"The Hallicrafters 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 its change 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, which dealer, 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 then defective.

This warranty does not extend to any of our radio products which have been subjected to misuse, neglect, accident, incorrect wiring and 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 areas 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 a dealer seller 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."

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SECTION II

TECHNICAL CHARACTERISTICS

RECEPTION .....	AM.
INTERMEDIATE FREQUENCIES .....	10.7 MC and 455 KC.
FREQUENCY COVERAGE .....	108 MC to 135 MC.
POWER SOURCE .....	105 volt to 125 volts AC, 50/60 cycles.
POWER CONSUMPTION .....	35 watts.
NUMBER OF TUBES .....	Seven 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; 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 6 inches deep.
SHIPPING WEIGHT .....	15.50 pounds.
NET WEIGHT .....	12.75 pounds.

SECTION III  
INSTALLATION

3-1. 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.

3-2. LOCATION.

The receiver is equipped with rubber 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.

3-3. POWER SOURCE.

The Model CRX-3 Receiver is designed to operate from a 105-volt to 125-volt 50/60 cycle AC power source. Power consumption is 35 watts.

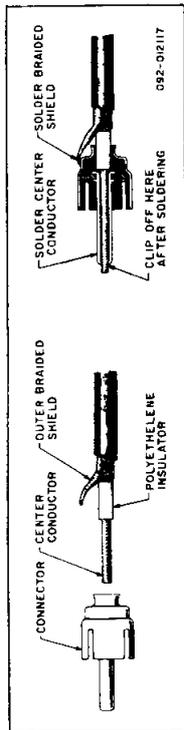


Figure 2. Fabricating the Antenna Input Cable.

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.

3-4. 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 120 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 a 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.

3-5. EXTERNAL SPEAKER.

Screw terminals for an external speaker connection are located on the back of the chassis (see figure 3). 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.

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 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 resistor connected across the terminals in parallel with the external device should remain connected.

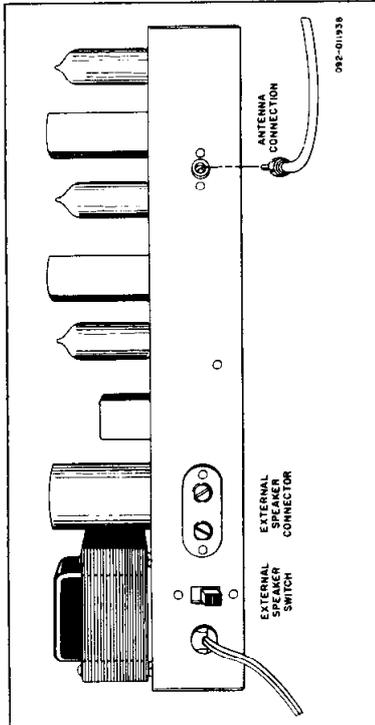


Figure 3. Rear View of Receiver Chassis.

**-6. ACCESSORY SOCKET.**

An accessory socket is located on the top deck of the receiver, immediately behind the speaker. Ground, power, and signal voltages have been brought out to this socket. The accessory socket will furnish 12-volt AC at 150 MA and 180-volt AC power at 0.01 amperes for possible future accessory devices.

**SECTION IV  
OPERATION**

**-1. GENERAL.**

There are only four controls on the front panel of the Model CRX-3 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.

**-2. TUNING CONTROL.**

The TUNING control consists of a vernier-drive and a fast-drive control mounted on coaxial shafts and is 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 on 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. 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.

**-4. SQUELCH CONTROL.**

The SQUELCH control is an automatic electronic switch. This switch silences a 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 to always be set at a comfortable listening level for message reception, and to silence the noise between radio transmissions.

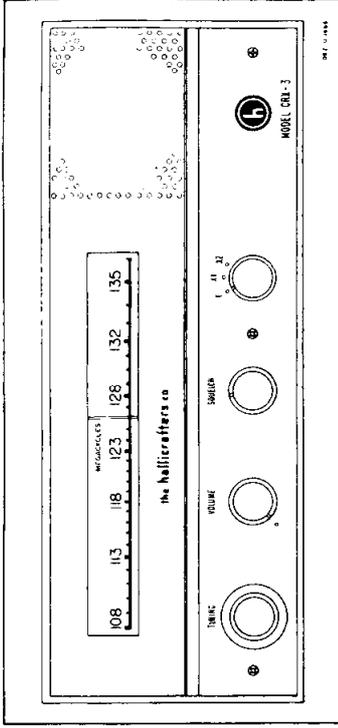


Figure 4. Front Panel View of Receiver.

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.

**4-5. T-XI-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.

Assume a crystal is on hand for a specific desired channel for this receiver. Insert the crystal into the socket marked XI 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 XI position. Connect a probe on a DC VTVM to the test point on the crystal oscillator coil nearest the front panel of the receiver (see figure 7). Set the range on the VTVM to the minus voltage, 0 to 100 scale. Turn the coil slug nearest the front panel until a maximum reading is obtained on the meter. With an antenna connected, stations on the desired channel should be heard. Set the main-tuning pointer to approximately the same frequency being received in the crystal-controlled position. Note the pointer position which gives best reception. You can then switch from crystal control to manual tuning and back, merely by resetting the pointer at the noted position.

Where 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.

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 by inserting a tuning tool through the hole in the bottom of the cabinet to trim the proper crystal oscillator coil.

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.

**4-6. CRYSTAL ORDERING INFORMATION.**

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

- A. Specify receiver model (CRX-3) and the serial number.
- B. Specify crystal type as follows:
  - One each type CR-23/U or commercial equivalent crystal, Hallicrafters part number 019-002642.
- 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 121.5 megacycles.

$$\begin{aligned} \text{Crystal Frequency} &= \frac{121.5 + 10.7}{4} \text{ MC} \\ &= \frac{132.2}{4} \text{ MC} \\ &= 33.0500 \text{ MC} \end{aligned}$$

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

Example: 32.9250 megacycles, 34.4000 megacycles, 38.0125 megacycles.

Do not estimate the frequency from the dial reading on the receiver. Obtain this information from a reliable source. Information on VHF radio frequencies can be obtained at a very small cost from the "Sectional Aeronautical Charts," printed by the "Coast and Geodetic Survey." A catalog of these charts can be obtained from dealers in aviation supplies at the larger airports. The charts are also obtainable from the same suppliers.

The non-professional user of this equipment will find that excellent stability and reliability can be obtained from the Model CRX-3 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 V  
SERVICE DATA**

**5-1. CHASSIS REMOVAL.**

The chassis and front panel assembly are removable as a unit. Remove the four rubber 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.

**5-2. TUBE AND LAMP REPLACEMENT.**

To gain access to the tubes and dial lamps, see paragraph 5-1, CHASSIS REMOVAL.

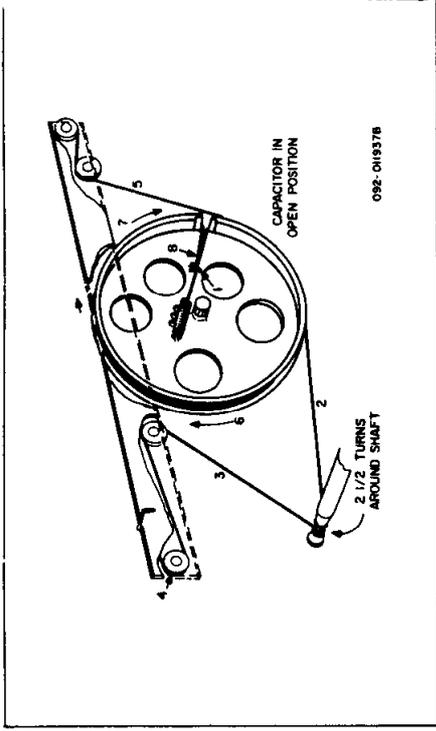


Figure 5. Dial Stringing Diagram.

**5-3. DIAL CORD RESTRINGING.**

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

**5-4. SERVICE OR OPERATION QUESTIONS.**

For further information regarding operation or servicing of your Model CRX-3 Receiver, contact your Hallicrafters dealer. The Hallicrafters Company maintains an extensive system of Authorized Service Centers where any required service will be performed promptly and efficiently at a nominal charge. All Hallicrafters Authorized Service Centers display the sign shown at the right.



For the location of the one nearest you, consult your local dealer or telephone directory. Make no service shipments to the factory, as The Hallicrafters Company will not accept the responsibility for unauthorized shipments.

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

**SECTION VI  
ALIGNMENT**

**6-1. GENERAL.**

The Model CRX-3 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.

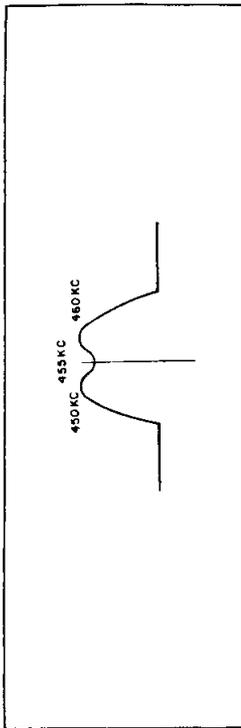


Figure 6. Alignment Waveform.

Move the sweep generator to pin 2 of V3. Adjust alignment points C (T2 secondary) and D (T2 primary) for a symmetrical signal the same as shown in figure 6.

**NOTE**

- The oscilloscope trace should be positioned so that it is symmetrical about 455 KC. The IF must be centered on 455 KC, or 10.7 MC will be inaccurate; and, most important, the crystal-control correlation will be wrong.
- 10.7 MC IF Alignment. - Reset the sweep generator to exactly 10.7 MC and connect the RF output from the sweep generator to pin 2 of V2. The signal presentation on the oscilloscope will resemble that shown in figure 6, except it will be centered around 10.7 MC. Adjust alignment points E (T1 secondary) and F (T1 primary) until the scope presentation is symmetrical and the 10.7-MC marker is exactly centered.

**6-5. ALTERNATE IF ALIGNMENT PROCEDURE.**

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

- 455-KC IF Alignment. - Set the signal generator to exactly 455 KC and connect it to pin 1 of V4 through a 0.01 mfd capacitor. Connect the DC VTVM to pin 5 of the accessory socket. Set the signal generator to maintain an output level at approximately mid-scale. Adjust alignment points A and B for maximum indication on the VTVM.

Move the signal generator to pin 2 of V3. Adjust alignment points C and D for maximum 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.

- 10.7-MC Alignment. - Set the signal generator to 10.7 MC. Move the generator connection to pin 2 of V2. Adjust alignment pins E and F 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 5 of the accessory socket.

**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.

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

$$\text{OSCILLATOR FREQUENCY} = \text{RF} + 10.7 \text{ MC}$$

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

**6-2. TEST EQUIPMENT REQUIRED.**

The following test equipment, or its approved equivalent, is to be used in performing necessary alignment on the Model CRX-3 Receiver.

- Signal Generator, Measurements Corporation Model 80; to be used for RF alignment.
- A good quality sweep generator, in conjunction with an oscilloscope; to be used for IF alignment. Use procedure given in paragraph 6-4.
- 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 6-5.

**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.

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

**6-3. 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

**6-4. IF ALIGNMENT PROCEDURE.**

- 455-KC IF Alignment - Connect sweep generator horizontal output to horizontal connection on oscilloscope. Connect RF output from the sweep generator to pin 1 of V4. Set sweep generator frequency to 455 KC. Connect probe from vertical connection on oscilloscope to pin 9 of V6. Adjust alignment points A (T3 secondary) and B (T3 primary) until the signal on the oscilloscope is the same as that shown in figure 6.

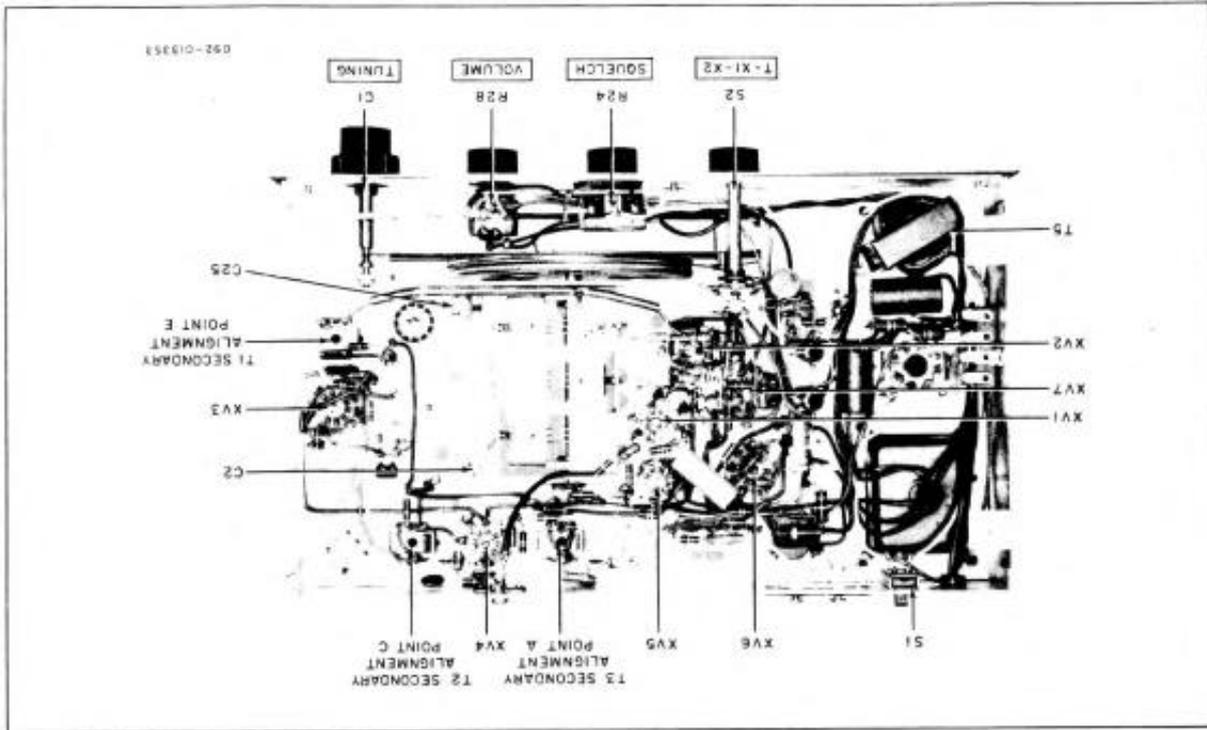


Figure 8. Bottom Chassis View of Receiver.

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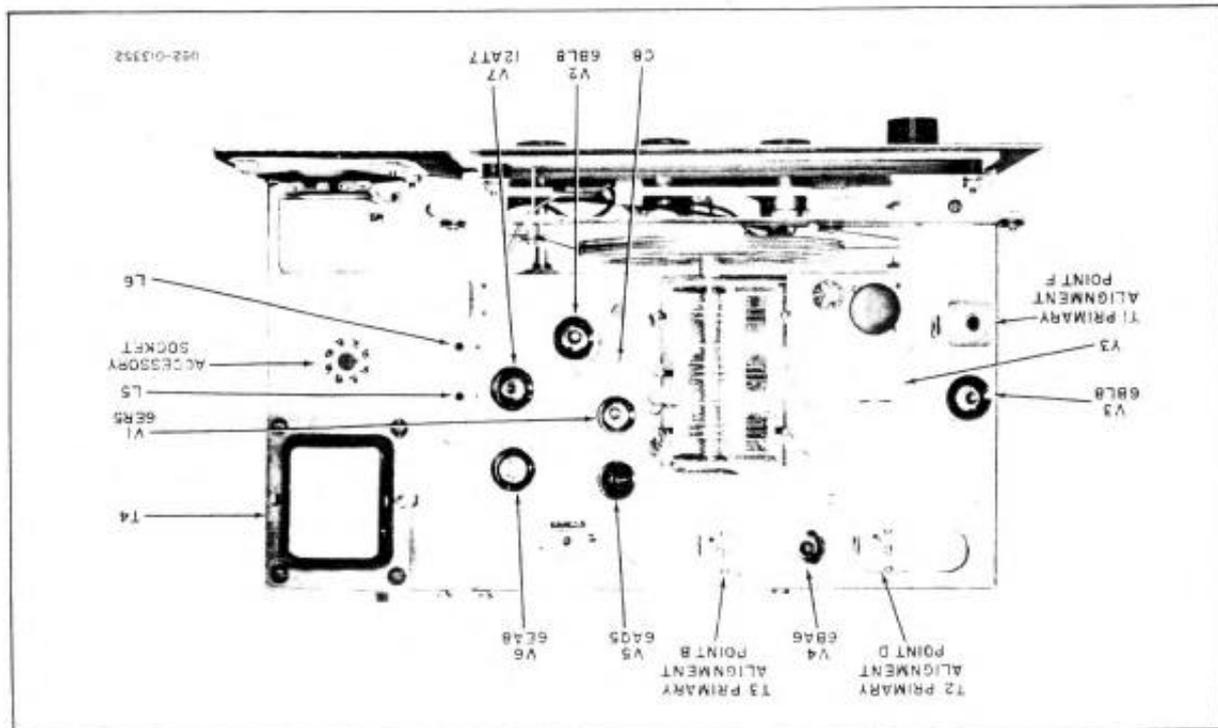


Figure 7. Top Chassis View of Receiver.

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#### 6-6. RF ALIGNMENT PROCEDURE.

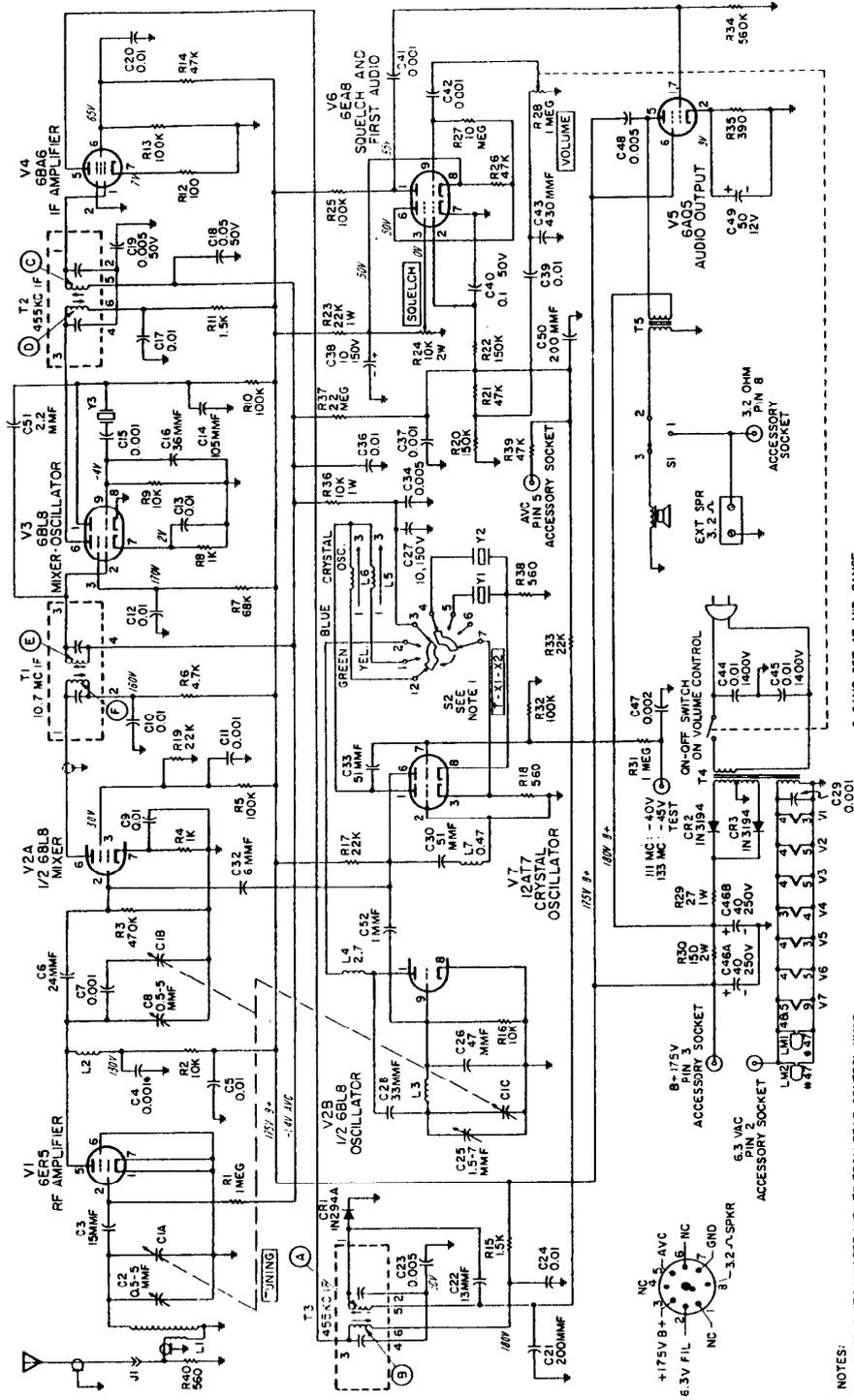
Connect the signal generator to the antenna jack (J1). Set the receiver dial to 135 MC. Set the generator output to approximately 10 or 20 microvolts. Rock the generator slowly above and below 135 MC until the generator signal is heard in the receiver. Adjust C25 (oscillator trimmer) until the dial calibration is correct. Adjust C2 and C8 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 115 MC. Reset the generator output to 10 or 20 microvolts. Rock the generator slowly above and below 115 MC until the generator signal is heard in the receiver. Adjust L3 until dial calibration is correct. Adjust L1 and L2 for maximum indication on the VTVM. Repeat this procedure a few times until a negligible increase in output is obtained by further alignment. Coils L1, L2, and L3 are adjustable by varying the spacing between the windings with an insulated tool.

SERVICE REPAIR PARTS LIST

Schematic Symbol	Description	Ballcrafter Part Number	Schematic Symbol	Description	Ballcrafter Part Number
<b>CAPACITORS</b>					
C1A,B,C	Variable, TUNING		R1,31	1 megohm	451-252105
C2,3	Variable, 0.5 mmf to 5 mmf, Tubular Trimmer	048-000428	R2,9,16	10K ohm	451-252103
C1	18 mmf, 10%, N750	044-000543	R3	475K ohm	451-252474
C4,7,11,15,29,37,41,42	Ceramic Tubular, 490V, 500V, Ceramic Disc	491-108150-35	R4,9	1000 ohm	451-252102
C5,9,10,12,13,17,20,24,36,38	0.01 mfd, -80%, -20%, 500V, Ceramic Disc	047-100217	R5,10,13	100K ohm	451-252104
C6	24 mmf, 10%, N750		R7	4700 ohm	451-252472
C14	105 mmf, 2%, 300V, Plastic Mica	491-108240-95	R8	68K ohm	451-252983
C16	36 mmf, 2%, 300V, Plastic Mica	493-121050-324	R11,15	1500 ohm	451-252132
C18	0.05 mfd, -80%, -20%, 50V, Ceramic Disc	481-151380	R12	100 ohm	451-252101
C19,23	0.02 mfd, 50V, -20%, 50V, Ceramic Disc	047-001144	R14,21	47K ohm	451-252473
C21,30	200 mmf, 10%, N750, Ceramic Tubular	047-001139	R18,39	33 22K ohm	451-252202
C22	13 mmf, 2%, 300V, Plastic Mica	491-158201-95	R19,38,40	56K ohm	451-252151
C25	Variable, 1.5 mmf to 7 mmf, Ceramic Disc	492-210130-321	R20,22	150K ohm	451-252154
C28	47 mmf, 5%, N250, Ceramic Tubular	044-000844	R23	22K ohm, 1 watt	451-332223
C27,38	10 mfd, 150V, Electrolytic	491-105470-63	R24	Variable, 10K ohm, 2 watt, SQUELCH	025-001974
C28	33 mmf, 2%, 300V, Plastic Mica	045-200307	R27	10 megohm	451-252106
C30	51 mmf, 2%, 300V, Plastic Mica	481-151330	R28	Variable, 1 megohm, 2 watt	025-001973
C32	8 Mica, 40.5 mmf, N750, Ceramic Tubular	481-151510	R29	27 ohm, 1 watt	451-332270
C33	51 mmf, 10%, N750, Ceramic Tubular	491-002060-93	R30	150 ohm, 2 watt	451-332131
C34,48	0.005 mfd, 20%, 500V, Ceramic Tubular	491-108510-36	R34	500K ohm	451-252584
C40	0.1 mfd, 50V, Ceramic Disc	047-100442	R35	390 ohm	451-252391
C43	430 mmf, 2%, 300V, Ceramic Disc	047-001146	R38	10K ohm, 1 watt	451-332103
C44,45	0.01 mfd, 1400V, Ceramic Disc	481-161401	R37	2.2 megohm	451-252223
C46A,B	2 x 40 mfd, 250V, Electrolytic	047-001309	<b>* ALL RESISTORS are carbon type, 10%, 1/2 watt unless otherwise stated.</b>		
C47	0.002 mfd, 20%, 500V, Ceramic Disc	045-000742	<b>COILS AND TRANSFORMERS</b>		
C49	30 mfd, 12V, Electrolytic	047-100395	L1	Coil, Antenna	061-003518
C51	2.4 mmf, 10%, 500V, Ceramic Disc	045-200278	L2	Coil, Mixer	051-003119
C52	1 mmf, 10%, Gammuck	047-200403-2	L3	Coil, Oscillator	051-003119
			L4	Coil, RF Choke, 2.7 uH	055-100470
			L5,6	Coil, RF Choke, 0.47 uH	051-003318
			L7	Coil, RF Choke, 0.47 uH	061-000684
			T1	Transformer, IF (13.7 MC)	050-000774
			T2,3	Transformer, Power	050-000764
			T4	Transformer, Output	052-000934
			T5	Transformer, Output	052-000457
			<b>TUBES AND DIODES</b>		
V1	Electron Tube, Type 6ER5, RF Amplifier	090-901461	V4	Electron Tube, Type 6EA6, IF Amplifier	090-901112
V2	Electron Tube, Type 6BL6, First Mixer-Oscillator	090-901431	V5	Electron Tube, Type 6AQ5, Audio Output	090-901331
V3	Electron Tube, Type 6X4, Second Mixer-Oscillator	090-901431	V6	Electron Tube, Type 6EA6, IF Amplifier	090-901330
			V7	Electron Tube, Type 12AT7, Crystal Oscillator	090-900034
			CR1	Diode, Type 1N294A, Detector	019-002736
			CR2,3	Diode, Silicon, Type 1N319A, Rectifier	019-002789
			<b>MISCELLANEOUS</b>		
			J1	Cabinet Assembly	150-001545
			Y3	Clip, IF Transformer Mounting	078-100385
				Connector, Antenna, Coaxial	038-100041
				Crystal (10.245 MC)	019-002795
				Dial Cord	038-100049
				Diode, Silicon	083-000944
				Dial Scale, Calibrated	083-000944
				Foot, Rubber	018-101469
				Front Panel	152-000095
				Knob, Selector and VOLUME	015-001572
				Knob, SQUELCH	015-001571
				Knob, TUNING (Coarse)	015-001570
				Knob, TUNING (Fine)	015-001570
				Lamp, Indicator	039-100094
				Lamp, Indicator, Type NO. 47	087-100078
				Line Cord	078-200397
				Look, Line Cord	008-200730
				Sockets, 7-Pin Miniature	008-200730
				Sockets, 9-Pin Miniature (Mica)	008-200493
				Sockets, 9-Pin Miniature (Rubber)	008-200907
				Sockets, Crystal (Y1 and 2)	006-200984
				Sockets, Crystal (Y3)	006-100320
				Sockets, Octal (Accessory)	008-200760
				Sockets, Pilot Lamp Assembly (L. R.)	086-000595
				Sockets, Pilot Lamp Assembly (R. R.)	086-004606
				Spring, Crystal Retaining	086-000211
				Spring, Dial Cord	075-000837
				Switch, Slide (SPDT)	075-100012
				Switch, Rotary, Selector (T-X1-X2)	060-200477
				Terminal Board	060-002398
				(3.2 Ohm, GND)	088-100090
				Trim Strip, Cabinet	007-000803



- NOTES:
1. S2 SWITCH WIPER VIEWED FROM REAR CONTROL KNOB
  2. ALL CAPACITORS ARE 50% TOLERANCE UNLESS OTHERWISE NOTED
  3. VOLTAGE READINGS TAKEN UNDER FOLLOWING CONDITIONS:
    - A. LINE VOLTAGES 117 VAC.
    - B. ALL VOLTAGES ARE DC AND POSITIVE UNLESS OTHERWISE NOTED.

C. GANG SET AT MID-RANGE.  
 D. SOLELCH CONTROL FULL CLOCKWISE POSITION.

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Figure 9. Schematic Diagram of the Model CRX-3 Receiver.