hallicrafters

OPERATING AND SERVICE INSTRUCTIONS

COMMUNICATION
RECEIVER
MODEL CRX-2
MARK I

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.

092-014557

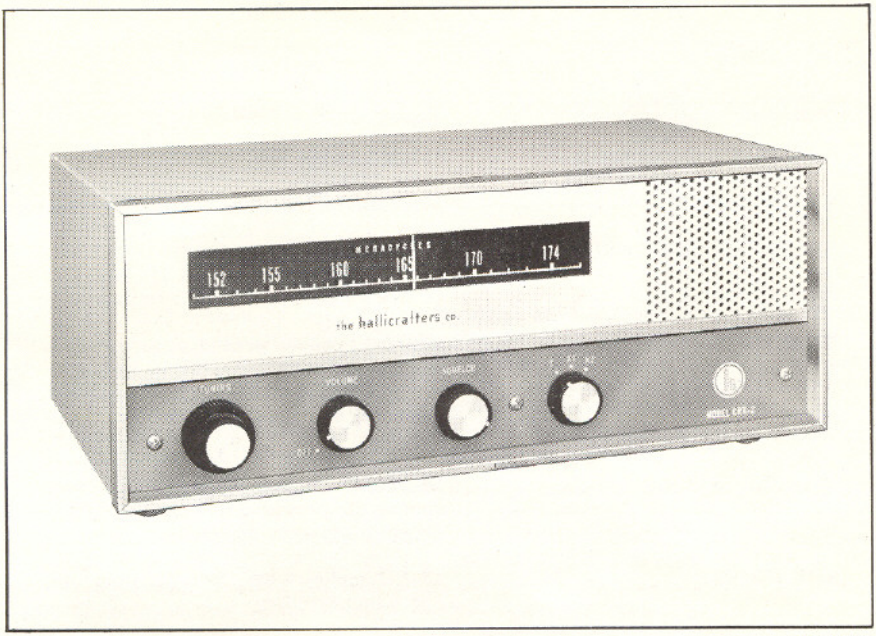

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Figure 1. Hallicrafters Model CRX-2 Mark I Receiver.

SECTION I

GENERAL DESCRIPTION

1-1. INTRODUCTION.

Your new Hallicrafters Model CRX-2 Mark I is a precision built, sensitive, reliable FM communications receiver providing complete coverage in the frequency range from 151 megacycles to 174 megacycles. Ten 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 151-MC to 174-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 this receiver include . . . . . narrow selectivity . . . . . and an external-internal speaker connector and switch.

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, ±5KC deviation.
INTERMEDIATE FREQUENCIES	10.7 MC and 455 KC.
FREQUENCY COVERAGE	151 MC to 174 MC.
POWER SOURCE	105 volts to 125 volts AC, 50/60 cycles.
POWER CONSUMPTION	55 watts.
NUMBER OF TUBES	10 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 four 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-2 Mark I is designed to operate from a 105-volt to 125-volt, 50/60 cycle AC power source. Power consumption is 55 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.

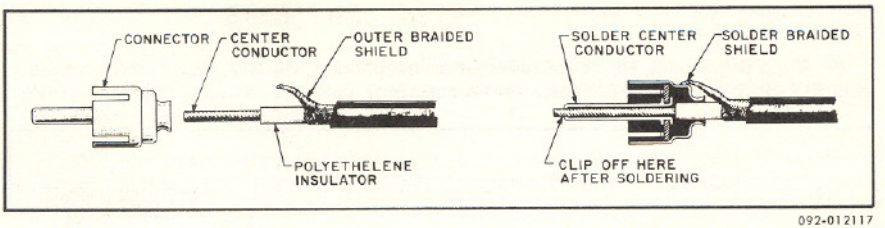


Figure 2. Fabricating the Antenna Input Cable.

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 162 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 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, 1- watt

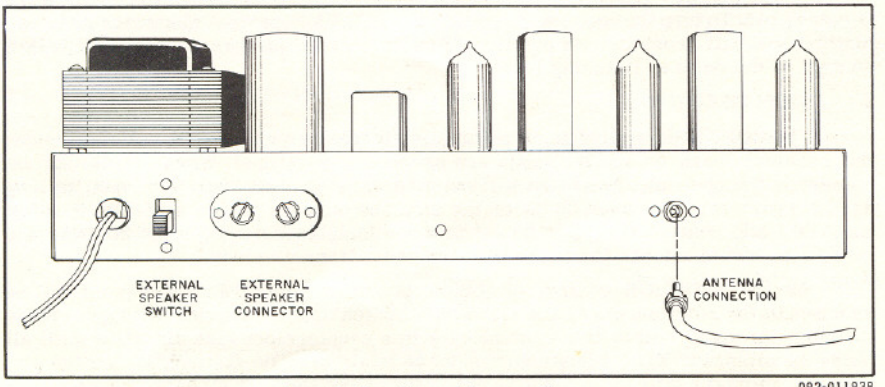
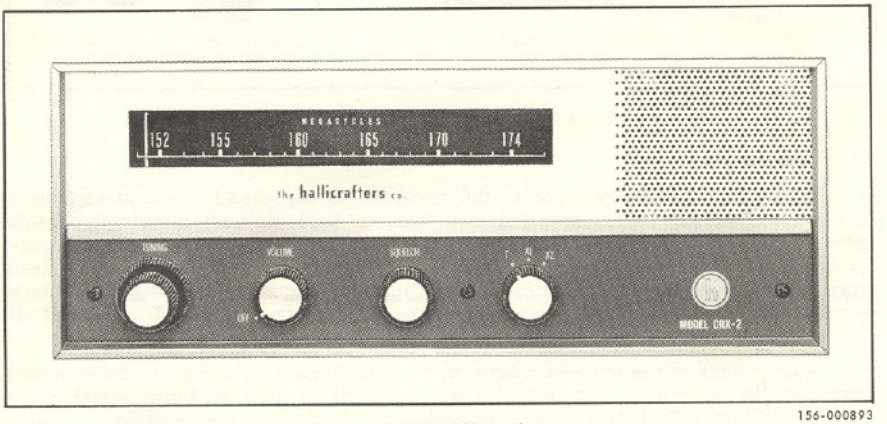


Figure 3. Rear View of Receiver Chassis.

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.



156-000893

Figure 4. Front Panel View of Receiver.

SECTION III
OPERATION

3-1. GENERAL.

There are only four controls on the front panel of the Model CRX-2 Mark I 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, 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 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.

Assume that a crystal is available for a specific desired channel for this receiver. Insert the crystal into socket X1 (see figure 7) 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. Connect a probe on a DC VTVM to the test point on the top deck of the receiver chassis near L9 (see figure 7). Set the range on the VTVM to the minus voltage, 0 to 30 scale. Adjust oscillator coil L9 until a maximum reading is obtained on the meter. If a second crystal-controlled frequency is needed, insert the proper crystal into socket X2, set the selector knob to the X2 position after tuning-in the frequency, and adjust oscillator coil L10 for maximum. With an antenna connected, stations on the desired channel should be heard. Note the pointer position which gives the best reception. You can then switch from crystal control to manual tuning and back, merely by resetting the pointer at the noted position and switching from T to the X1 or X2 positions. Some frequency pulling is possible by slightly detuning the receiver, preferably toward the low end of the dial.

Where a good quality crystal is used, the receiver will be 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. Where a correction is required, the crystal can be pulled onto the frequency of the transmitter 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.

3-6. CRYSTAL ORDERING INFORMATION.

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

A. Specify receiver model (CRX-2 Mark I) and the serial number.

B. Specify crystal type as follows:

One each type CR-23/U crystal, or equivalent, The Hallicrafters Company part number 019-002841.

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 155.25 megacycles.

$$\text{CRX-2 Crystal Frequency (in megacycles)} = \frac{\text{Trans. Freq. (in megacycles)} - 10.7 \text{ MC}}{4}$$

$$\text{Crystal Frequency} = \frac{155.25 - 10.7}{4}$$

$$= \frac{144.55}{4}$$

$$= 36.1375 \text{ MC}$$

D. Carry out the calculation to four decimal places.

Example: 36.1375 megacycles, 37.0500 megacycles, 40.2150 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 this receiver 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 plastic 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, CHASSIS REMOVAL.

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.

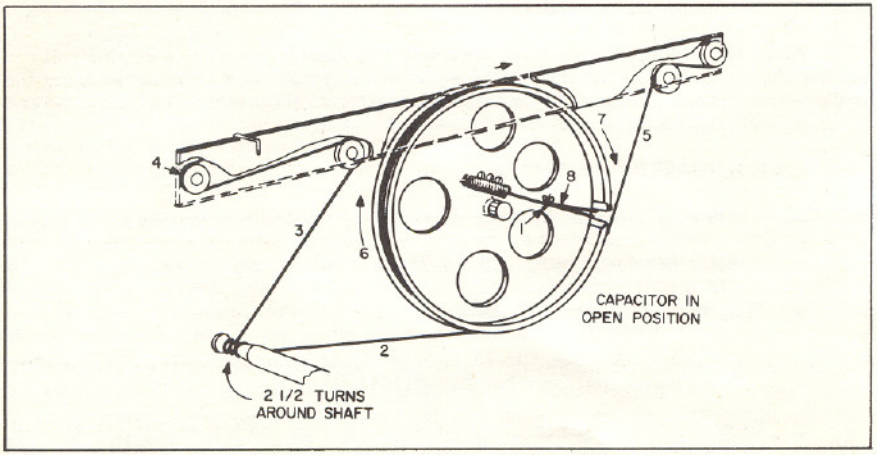


Figure 5. Dial Stringing Diagram. 092-011937B

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 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-2 Mark I 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:

$$\text{OSCILLATOR FREQUENCY} = \frac{\text{RF} - 10.7}{2}$$

$$\text{IF FREQUENCY (tunable)} = \frac{\text{RF} + 10.7}{2}$$

Example:

RF	151	174
OSC	70.15	81.65
IF	80.85	92.35
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-2 Mark I 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 . . . . . 151 MC (low end of dial) except as specified in RF alignment.

5-4. IF ALIGNMENT PROCEDURE.

1. 455-KC IF Alignment. - Connect sweep generator horizontal output to horizontal connection on oscilloscope. Connect RF output from sweep generator to pin 1 of V6. Set sweep generator to 455 KC. Connect probe from the vertical connection on the oscilloscope to pin 5 of V9. Adjust alignment point A (quadrature coil, L11). The signal, as seen on the oscilloscope, should closely resemble the signal shown in figure 6A. Adjust alignment points B (T5 secondary) and C (T5 primary) for a signal, as seen on the oscilloscope, that resembles that shown in figure 6A.

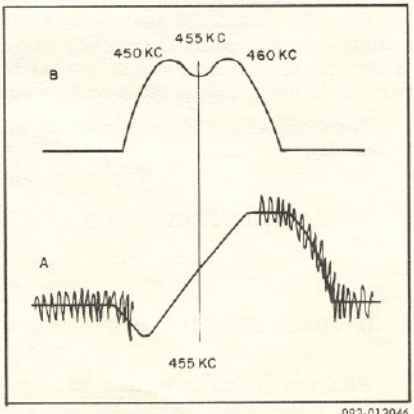


Figure 6. Alignment Waveforms. 092-012046

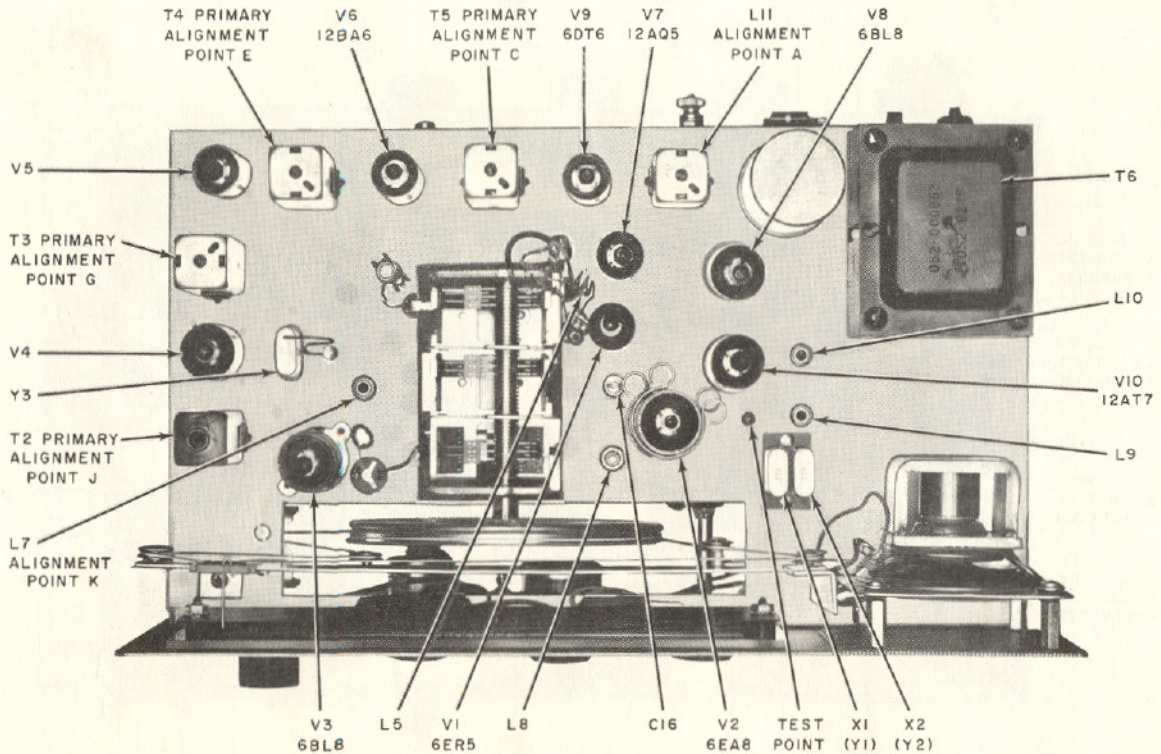


Figure 7. Top Chassis View of Receiver

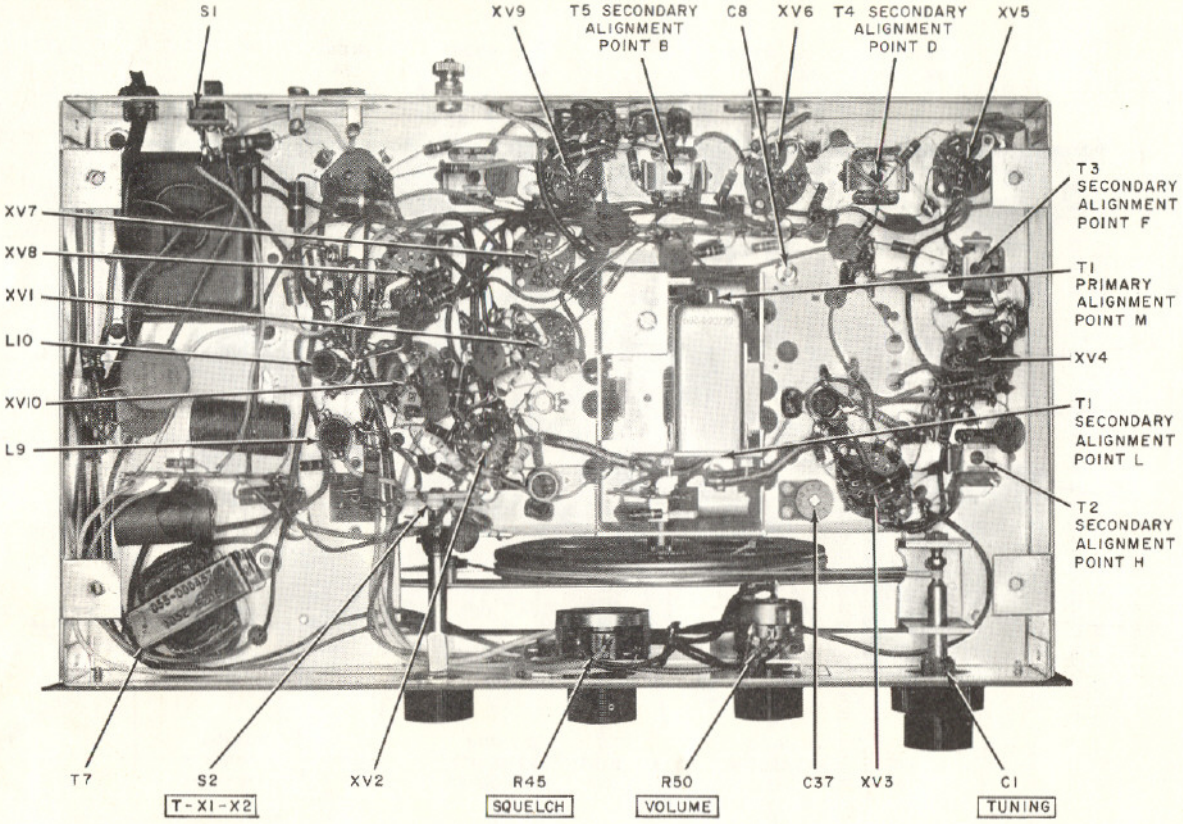


Figure 8. Bottom Chassis View of Receiver.

Move the sweep generator output to pin 2 of V4 and connect the oscilloscope probe to pin 1 of V6 through a one-megohm resistor. Adjust alignment points D (T4 secondary), E (T4 primary), F (T3 secondary), and G (T3 primary) for a symmetrical signal the same as shown in figure 6B.

NOTE

The oscilloscope trace should be so positioned that it is symmetrical around 455 KC. The IF frequency must be centered around 455 KC or the 10.7-MC alignment will be inaccurate and, most important, the crystal-control correlation will be wrong.

2. 10.7-MC IF Alignment. - Connect sweep generator input to pin 9 of V3. Set sweep generator to 10.7 MC and adjust alignment points H (T2 secondary), J (T2 primary), and K (L7 single coil) for a symmetrical presentation similar to that shown in figure 6B. The 10.7-MC marker should be exactly centered.

3. 80 to 90 MC IF Alignment. - Connect the oscilloscope probe to the junction of R9 and R10. Connect output from Jerrold Model 601 Sweep Generator or equivalent to pin 2 of V2. Set the sweep generator to provide a swept output of 80 MC to 92 MC. Adjust alignment points L (T1 secondary) and M (T1 primary). The output, as seen on the oscilloscope, should resemble that shown in figure 9.

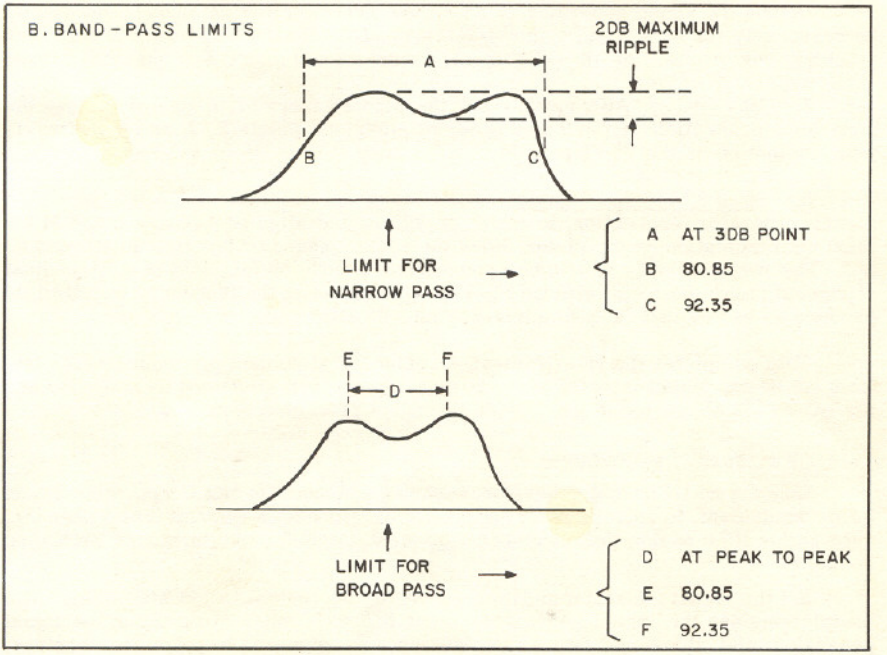


Figure 9. 80-MC to 90-MC IF Alignment Waveforms. 092-012730B

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 the final amplifier (V6).

   b) With a short jumper lead, short pin 7 of V9 to chassis ground.

   c) Connect a high-impedance probe of a DC VTVM to the plate, pin 5, of V9. With no signal input, note the plate voltage of V9.

d) Tune signal generator to 455 KC and increase signal input until a 6 to 8 volt increase in the plate voltage of V9 is noticed on the VTVM.

e) Adjust alignment points B and C for maximum V9 plate voltage, re-adjusting signal input to maintain a 6-volt 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 V9 has been increased to 20 volts above zero-signal plate voltage.

g) Remove jumper from pin 7 of V9. Adjust alignment point A until the plate voltage of V9 is the same as noted for zero signal input. A check for the correct setting of alignment point A is to vary the signal generator frequency 5 KC above and below 455 KC. The plate voltage of V9 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 220K ohm 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 around the 455-KC center frequency. Retouching one or two of the alignment points should give a symmetrical output.

2. 10.7-MC IF Alignment. - Set the signal generator to 10.7 MC. Move the generator connection to pin 9 of V3. Adjust alignment points H, J, and K for maximum indication on the VTVM.

3. 80 to 90 MC IF Alignment. - Set the signal generator to 85 MC. Move the signal generator connection to pin 2 of V2. Adjust alignment points L and M for maximum indication on the meter. Rock the signal generator between 80 MC and 90 MC. The meter reading should be symmetrical around 85 MC. If it is not, readjust alignment points L and M, with the signal generator set at the frequency required, to produce a reading that is symmetrical around 85 MC.

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 220K ohm resistor.

5-6. RF ALIGNMENT PROCEDURE.

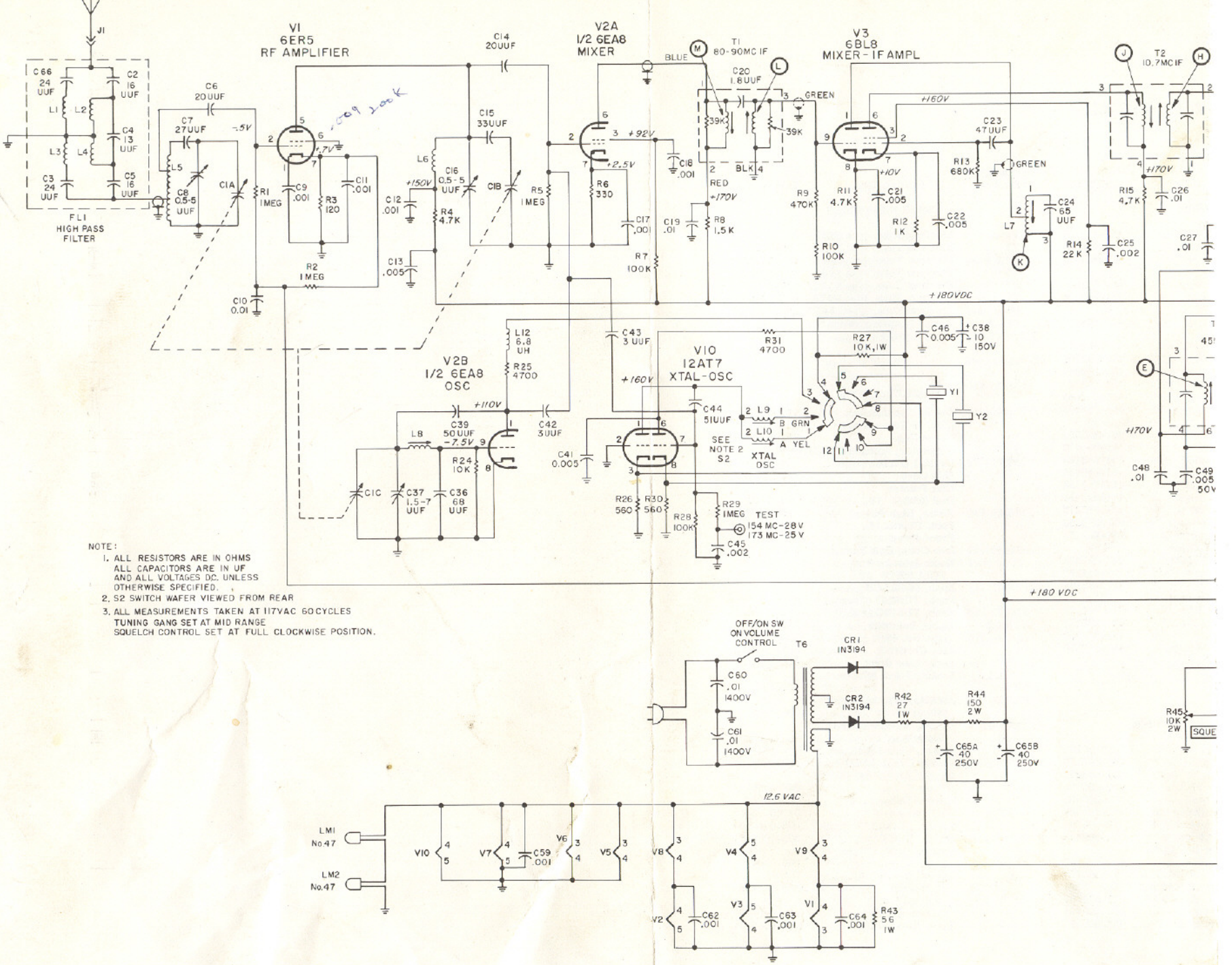
Connect an RF signal generator, such as the Measurements Corporation Model 80 or equivalent, to antenna input receptacle J1. Connect a vacuum tube voltmeter, such as the RCA Senior Voltohmyst or equivalent, to pin 1 of V6 through a 220K ohm resistor.

Set the signal generator and the receiver tuning control to 174 MC. Using little modulation, set the signal generator output below 10 microvolts. Rock the signal generator dial above and below 174 MC until the signal is heard in the receiver. Adjust oscillator trimmer C37 until the dial setting is correct. Adjust C8 and C16 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 signal generator output to 151 MC, 10 to 20 microvolts. Set the receiver to 151 MC. Rock the signal generator dial above and below 151 MC until the signal is heard in the receiver. Adjust the oscillator coil (L8) until the dial is correct. Repeat the alignment procedures for the high and low ends of the band until further alignment results in a negligible increase in output.



NOTE:

1. ALL RESISTORS ARE IN OHMS
   ALL CAPACITORS ARE IN UF
   AND ALL VOLTAGES DC. UNLESS
   OTHERWISE SPECIFIED.
2. S2 SWITCH WAFER VIEWED FROM REAR
3. ALL MEASUREMENTS TAKEN AT 117VAC 60CYCLES
   TUNING GANG SET AT MID RANGE
   SQUELCH CONTROL SET AT FULL CLOCKWISE POSITION.

Figure 10. Schematic Diagram of the Model CRX-2 Receiver.

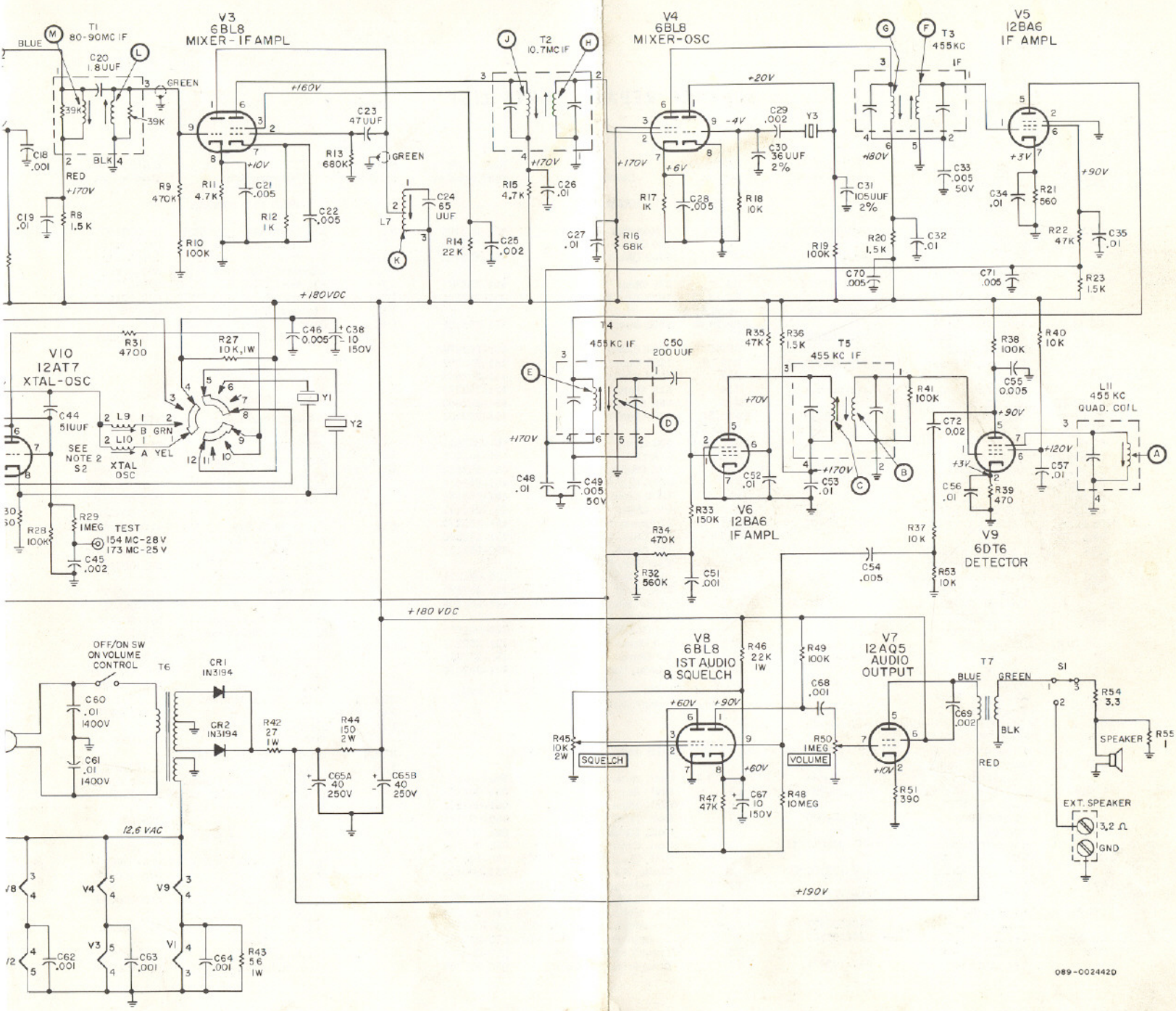


Figure 10. Schematic Diagram of the Model CRX-2 Receiver.

SERVICE REPAIR PARTS LIST

CAPACITORS

Schematic Symbol	Description	Hallicrafters Part Number
C1A,B,C	Variable, TUNING	048-000511
C2,5	16 uuf, 2%, 300V, Plastic Mica	Part of FL1
C3,66	24 uuf, 2%, 300V, Plastic Mica	Part of FL1
C4	13 uuf, 2%, 300V, Plastic Mica	Part of FL1
C6,14	20 uuf, 10%, N750, Ceramic Tubular	491-106200-95
C7	27 uuf, 5%, N30, Ceramic Tubular	491-005270-32
C8,16	Variable, Trimmer, 0.5 uuf to 5 uuf	044-000543
C9,11,12, 17,18,51, 59,62,63, 64,68	0.001 μf, 500V, Ceramic Disc	047-200230
C10,19,26, 27,32,34, 35,48,52, 53,56,57	0.01 uf, 500V, Ceramic Disc	047-100217
C13,21,22, 28,41,46, 54,55,70,71	0.005 uf, 20%, 500V, Ceramic Disc	047-100442
C15	33 uuf, 5%, NPO, Ceramic Tubular	491-005330-22
C20	1.8 uuf, 10%, Composition	Part of T1
C23	47 uuf, 10%, N750, Ceramic Tubular	491-106470-95
C24	65 uuf, 2%, 300V, Plastic Mica	481-161650
C25,29,45, 69	0.002 uuf, 500V, Ceramic Disc	047-100395
C30	36 uuf, 2%, 300V, Plastic Mica	481-151360
C31	105 uuf, 2%, 300V, Plastic Mica	493-121050-324
C33,49	0.005μf, 50V, Ceramic Disc	047-001139
C36	68 uuf, 5%, N470, Ceramic Tubular	491-045680-83
C37	Variable, Trimmer, 1.5 uuf to 7 uuf	044-000544
C38,67	10 uf, 150V, Electrolytic	045-200307
C39	50 uuf, 2%, 300V, Plastic Mica	481-151500
C42,43	3 uuf, ±0.25 uuf, N750, Ceramic Tubular	491-021030-94
C44	51 uuf, 10%, N750, Ceramic Tubular	491-106510-95
C50	200 uuf, 2%, 300V, Plastic Mica	481-161201
C60,61	0.01 uf, 1400V, Ceramic Disc	047-200752
C65A&B	2 x 40 uf, 250V, Electrolytic	045-000742
C72	0.02 uf, 20%, 600V, Ceramic Disc	047-100471

RESISTORS*

Schematic Symbol	Description	Hallicrafters Part Number
R1,2,5,29	1 Megohm	451-252105
R3	120 Ohms	451-252121
R4,11,15 25,31	4700 Ohms	451-252472
R6	330 Ohms	451-252331
R7,10,19, 28,38,41,49	100K Ohms	451-252104
R8,20,23, 36	1500 Ohms	451-252152
R9,34	470K Ohms	451-252474
R12,17	1000 Ohms	451-252102
R13	680K Ohms	451-252684
R14	22K Ohms	451-252223
R16	68K Ohms	451-252683
R18,24, 37,40,53	10K Ohms	451-252103
R21,26,30	560 Ohms	451-252561
R22,35,47	47K Ohms	451-252473
R27	10K Ohms, 1 watt	451-352103
R32	560K Ohms	451-252564
R33	150K Ohms	451-252154
R39	470 Ohms	451-252471
R42	27 Ohms, 1 watt	451-352270
R43	56 Ohms, 1 watt	451-352560
R44	150 Ohms, 2 watts	451-652151
R45	Variable, 10K Ohms, 2 watts (SQUELCH)	025-001974
R46	22K Ohms, 1 watt	451-352223
R48	10 Megohms	451-252106
R50	Variable, 1 Megohm (VOLUME)	025-001973
R51	390 Ohms	451-252391
R54	3.3 Ohms	451-252033
R55	1 Ohm, Wire Wound	453-012010

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

COILS AND TRANSFORMERS

Schematic Symbol	Description	Hallicrafters Part Number
L1,2,3,4	Coil, Antenna	Part of FL1
L5	Coil, Antenna	051-003270
L6	Coil, Mixer	051-003273
L7	Coil, IF (10.7 MC)	050-000773
L8	Coil, Oscillator	051-003594
L9,10	Coil, Crystal Oscillator	051-003268
L11	Coil, Quadrature (455 KC)	050-000763
L12	Choke, RF (6.8 uh)	053-000673
T1	Transformer, IF (80 MC to 90 MC)	050-000772
T2	Transformer, IF (10.7 MC)	050-000774
T3,4	Transformer, IF (455 KC)	050-000764
T5	Transformer, IF (455 KC)	050-000765
T6	Transformer, Power	052-000863
T7	Transformer, Output	055-000457

TUBES AND DIODES

Schematic Symbol	Description	Hallicrafters Part Number
V1	Electron Tube, type 6ER5	090-001461
V2	Electron Tube, type 6EA8	090-901350
V3,4,8	Electron Tube, type 6BL8	090-001431
V5,6	Electron Tube, type 12BA6	090-000039
V7	Electron Tube, type 12AQ5	090-001432
V9	Electron Tube, type 6DT6	090-001430
V10	Electron Tube, type 12AT7	090-000034
CR1,2	Diode, Rectifier, Silicon type 1N3194	019-002769

MISCELLANEOUS

Schematic Symbol	Description	Hallicrafters Part Number
	Cabinet Assembly	150-001545
	Clip, IF Transformer Mounting	076-100385
J1	Connector, Antenna, Coaxial	036-100041
Y3	Crystal (10.245 MC)	019-002795
	Dial Cord	038-100049
	Dial Pointer	082-000498
	Dial Scale	083-001020
FL1	Filter, High Pass	150-003067
	Foot, Plastic (4)	016-101469
	Front Panel	068-001149
	Iron Core, Coil Tuning	003-003388
	Knob, Selector and VOLUME	015-001572
	Knob, SQUELCH	015-001571
	Knob, TUNING (Coarse)	015-001570
	Knob, TUNING (Fine)	015-001569
LM1,2	Lamp, Indicator, type No. 47	039-100004
	Line Cord	087-100078
	Lock, Line Cord	076-200397
XV1,5,6, 7,9	Socket, 7-Pin Miniature	006-200730
XV2	Socket, 9-Pin Miniature (Mica)	006-200493
XV3,4, 8,10	Socket, 9-Pin Miniature (Wafer)	006-000907
	Socket, Crystal (Y1 and 2)	006-000984
	Socket, Crystal (Y3)	006-100320
	Socket Assembly, Pilot Lamp	086-000564
	Speaker, 3 inch PM, 3.2 Ohms	085-000211
	Spring, Crystal Retaining	075-000837
	Spring, Dial Cord	075-100012
S1	Switch, Slide, SPDT, External Speaker	060-200477
S2	Switch, Rotary, Selector (T-X1-X2)	060-002398
	Terminal Board (3.2-ohm, GND)	088-100020
	Trim Strip, Cabinet	007-000797

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563

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