IMPORTANT NOTICE

The transmitter section of this transceiver may only be serviced by, or under the direct supervision of a qualified technician having a valid First or Second Class FCC Radiotelephone license. This includes internal adjustments or replacement of crystals, transistors, or any other components which can affect the performance of the transmitter. Servicing should only be done by a licensed, capable technician using suitable equipment and having complete knowledge of proper CB servicing techniques.

14T302-5/
Printed in U.S.A.

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General Description

RCA CB Co-Pilot Citizen's Band Transceiver Model 14T302, is a fully transistorized, FCC type approved, 40 channel Single Sideband CB unit designed for two-way AM and SSB radio communication in the 26.965 to 27.405 MHz Class D citizen's band. It is a mobile unit and operates on 12-15 volts DC (13.8 V Nominal) with either positive or negative ground and is fused in the input power cable. Operation on all 40 CB channels is provided through use of three built-in crystals operating in a highly stable PLL (phase-lock-loop) design. All receiver and transmitter crystal controlled frequencies are synthesized in the PLL circuitry.

The unit features clarifier and squelch controls and built in RF gain control to optimize receiver sensitivity. External PA and speaker jacks are provided. Noise Blanker switch, and a LOCAL/DISTANT switch with an RF/CAL/SWR switch and meter for adjusting antenna SWR ratio. A front panel dimmer control and digital channel readout are also featured.

Typical Specifications

General

Channels	40
Mode of Operation	LSB, USB and AM
Frequency Range	26.965-27.405 MHz PLL (Phase Lock Loop) Synthesizer
Operating Temperature Range	−30°C to +50°C (−22°F to +112°F)
Power source	12 to 15v dc (13.8v nominal)
Current Drain	Transmit 2.3A max Receive 0.4A nom.
Dimensions	7.5"W x 2.5"H x 10-1/4"D (190mm W x 65mm H x 259mm D)
Weight	1 lb. 15 oz. (3.13 kg)

AM Transmitter

Emission	6A3
RF Power Output	4W
Modulation Type	AM
Modulation Level	100% max. AM (limited to FCC specs)
Harmonic and Spurious Suppression	60 dB or greater
Antenna Impedance	for 50-ohm Antenna Systems

SSB Transmitter

Generation Method	Double balanced modulator with crystal lattice filter
RF Output	12W PEP, FCC maximum, at 13.8V
Carrier Suppression	40 dB down
Unwanted sideband suppression	60 dB or greater
Harmonic and Spurious Suppression	More than 60 dB down

Receiver

System	SSB – Single conversion superheterodyne AM – Dual conversion superheterodyne
Sensitivity	SSB – 0.25 uV for 10 dB S/N AM – 0.7 uV for 10 dB S/N
Selectivity	SSB – 2.5 KHz at 6 dB down AM – 6 KHz at 6 dB down
Clarifier	±600 Hz Min
Audio Output	3 watts
Squelch Range	SSB – 0.7 uV to 20 uV AM – 1 uV to 500 uV
IF	SSB – 10.695 MHz AM – 1st: 10.695 MHz 2nd: 455 KHz

Circuit Description

General

Transceiver Model 14T302 is a 40 channel CB unit which use a Phase Locked Loop (PLL) system of frequency synthesization to produce the crystal controlled channel and IF signals used in operation of the transmitter and receiver sections of the transceiver. The basic PLL system is comprised of a free-running voltage controlled oscillator (Part of IC2), a phase detector, a reference crystal oscillator Q3 and a programmable divider 1C1, as seen in block diagram Figure 1.

The VCO operates in the frequency range of 17.555 to 17.995 MHz for AM and USB (17.5535 to 17.9935 for LSB) and is used to produce two output signals; one at 37.66 to 38.10 MHz for AM and USB (37.657 to 38.097 for LSB) a second at 2.11 to 2.55 MHz. Reference oscillator Q3, which is crystal controlled, operates at a frequency of 10.525 AM and USB (10.05175 LSB) MHz. Its output is fed through a BPF/doubler resulting in an output signal of 20.105 MHz for AM and USB (20.1035 MHz LSB). This signal beats with the VCO 17 MHz free running signal producing a 37.66 to 38.10 MHz or 37.657 to 38.097 MHz on LSB) output which is fed to the receiver RF amplifier and also to IC3, the transmitter Mixer/Buffer. The second VCO output signal, at 2.11 to 2.55 MHz is fed to the programmable divider in IC1. Simultaneously the 10.24 MHz output of Q2 (through buffer Q5) is applied to the programmable divider in IC1 and is divided down in 10 kHz steps producing signals in the 2.11 to 2.55 MHz range. As a channel is chosen by the channel selector, an "N" code signal (see Frequency table on page 14) is applied to the terminals of the programmable divider in IC1, to preset the divider. The two signals, the crystal signal from Osc 2 Q6, and the signal from the VCO via the LPF and buffer, are compared in the phase detector of IC1 and the phase detector produces a DC output voltage derived from the phase difference in the signals fed to it – i.e., the 2.11 to 2.55 MHz signal from the VCO and the divided down signal from reference OSC (Q6). This DC output is applied through an LPF and VCO OSC

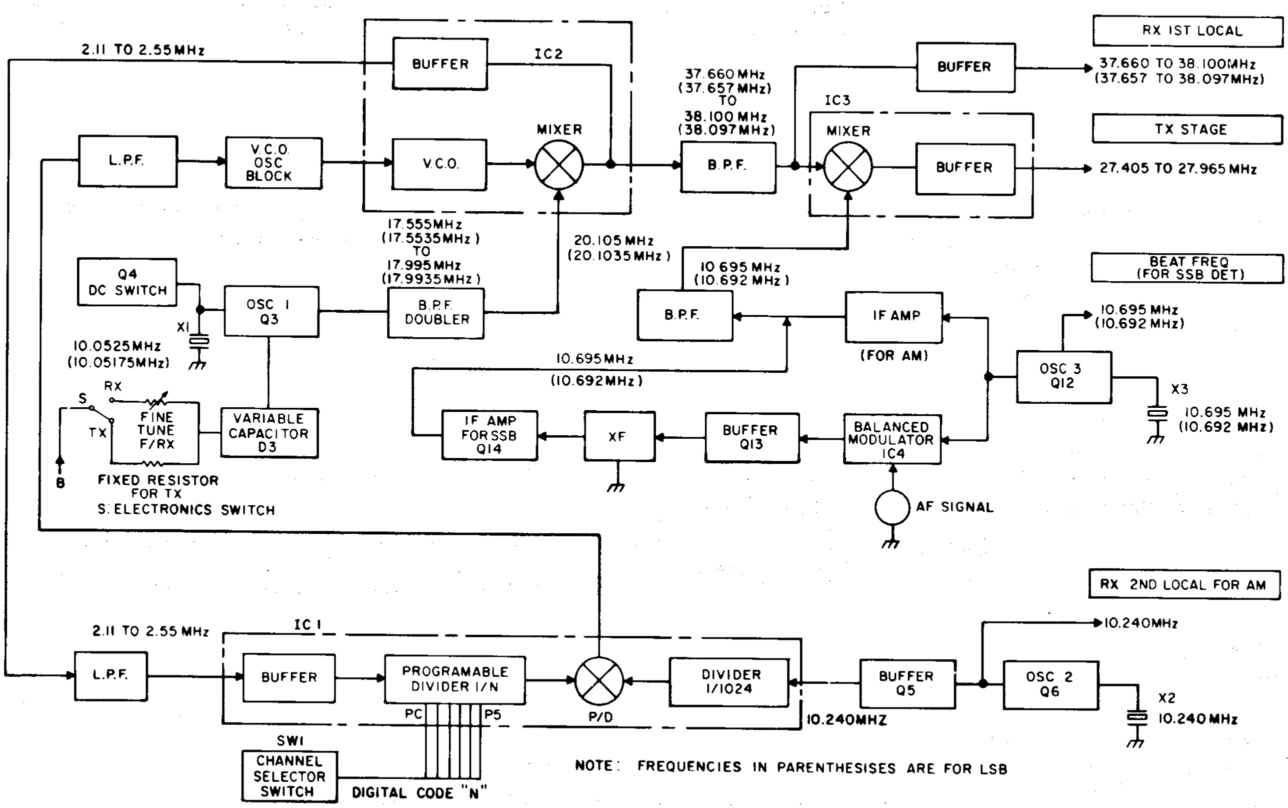

Figure 1 – PLL Block Diagram

block to the VCO, forming the phase loop. This DC voltage applied to the VCO causes it to shift frequency until its output signal locks up with the count-down frequency provided from reference oscillator Q2 (when the two signals are in phase) at which point no DC output is produced in the phase detector, and the VCO remains "locked" on frequency. When a new channel is selected a new "N" code is applied to the programmable divider. The VCO is no longer locked because of the resulting phase difference in the phase detector, and it again shifts frequency to a locked condition, in turn producing 37 MHz output signals corresponding to the new channel programmed by the new "N" code.

In summary, it will be seen that a range of stable VCO frequencies in the 17 MHz range will be produced, each specific frequency being determined by the "N" code selected by the channel selector. As previously outlined one of the VCO outputs, that at 37.66 to 38.10 MHz, for AM and USB (37.657 to 38.097 MHz for LSB) is fed to the receiver and transmitter sections. Its function is described in the separate sections which follow.

(Note – The preceeding paragraph referred primarily to AM and USB frequency information. In LSB, the frequency of Oscillator 1, Q3, is shifted by 1.5 kHz by switch Q4 circuit. This results in an output signal of 37.657 MHz to 38.097 MHz, 3 kHz below the USB signal).

Transmitter

AM (Refer to Figure 3).

The transmitter crystal oscillator, OSC3 Q12 is operating at 10.695 MHz, controlled by crystal X3. This signal amplified by Q15 is beat in the mixer section of IC3 with the 37 MHz signal output from the VCO IC2, the exact frequency of which was determined by channel selection and the PLL circuitry, as previously outlined. The resultant signal, therefore, that is fed to the RF preamplifier Q7/Q8, is the channel frequency of the channel selected (channel 1–40 between 26.965 and 27.405 MHz), see Frequency Chart on Page 14.

SSB (Refer to Figure 5).

Oscillator 3, Q12, operates at 10.695 MHz on AM or USB (or at 10.692 MHz on LSB controlled by DC Switch Q11) controlled by crystal X3. On SSB its output is fed to a balanced modulator circuit in IC4. The IC circuit produces suppressed-carrier double sideband output signals when an audio signal is also applied to the IC. The DSB output is applied to crystal filter XF (through buffer Q13) where the desired sideband is separated. The output of filter XF at either 10.695 MHz (USB) or 10.692 MHz (LSB) is amplified in Q14, fed through the bandpass filter BPF and then to the mixer in IC3. This signal mixes with the 37 MHz signal from IC2, resulting in a 27 MHz upper or lower SSB output from IC3 corresponding to the channel selected. This output is then fed to RF preamplifier Q7/Q8 through T4 and T5.

AM and SSB (Refer to Figures 3 and 5).

The 27 MHz RF pre-amplifier output is coupled to RF driver transistor Q through T and C49. The driver serves to isolate the oscillator and mixer stages from the output, and at the same time provide a certain amount of power gain. Q9 output is applied to the base input of Q10, the RF output stage of the transmitter. This stage amplifies the 27 MHz RF signal resulting in an output at L11 of 4 watts on AM (12 watts PEP on SSB).

In the AM transmit mode, (see Figure 3) the microphone fees audio through IC5 to the output transformer T15 and to the collectors of Q9 and Q10 thereby modulating the transmitter. This modulating audio is applied to both the driver and output stages to provide carrier modulation up to 100%. An ALC voltage derived from the audio signal at Q37 is fed to Q35 to control the output of T15 and prevent over-modulation. Factory adjustment of 90% modulation is achieved by adjustment of RV12 at Q37 input.

In the SSB transmit mode (see Figure 5), the microphone feeds audio through IC5, then through RV11 to pin 1 of the balanced modulator IC4. An ALC circuit composed of Q38 and Q35 controls the audio level to avoid modulation distortion. RF ALC is also provided by Q14 to reduce distortion in the RF stages. Transistors Q36 and Q39 operate as switching circuits to control IC5 for SSB operation.

The low pass filter between the antenna and receiver and transmitter inputs serves to pass the 27 MHz signals, attenuating higher frequency signals. It also serves to match the antenna impedance to the output impedance of the transmitter output transistor stage Q10.

Receiver

AM (see Figure 2).

The rf signal, at a frequency between 26.965 and 27.405 MHz, feeds from the antenna through L13, L12, L11 and T7 to the 27 MHz Neutralized RF Amp Q20. Then the amplified output signal from Q20 is coupled through T8 and T9 to Mixer Q22 where it is beat with an injection signal from the VCO in IC2 via Buffer Q2.

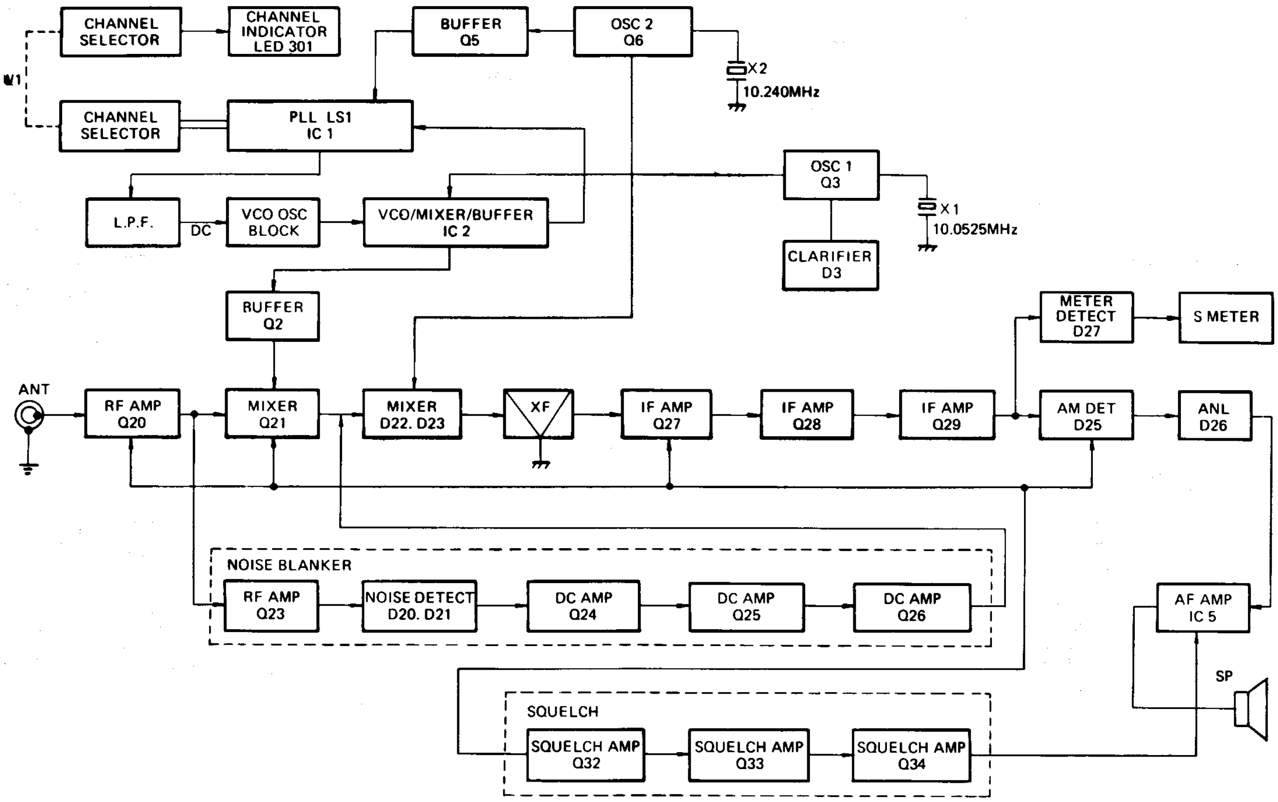

Figure 2 — Block Diagram — AM Receive

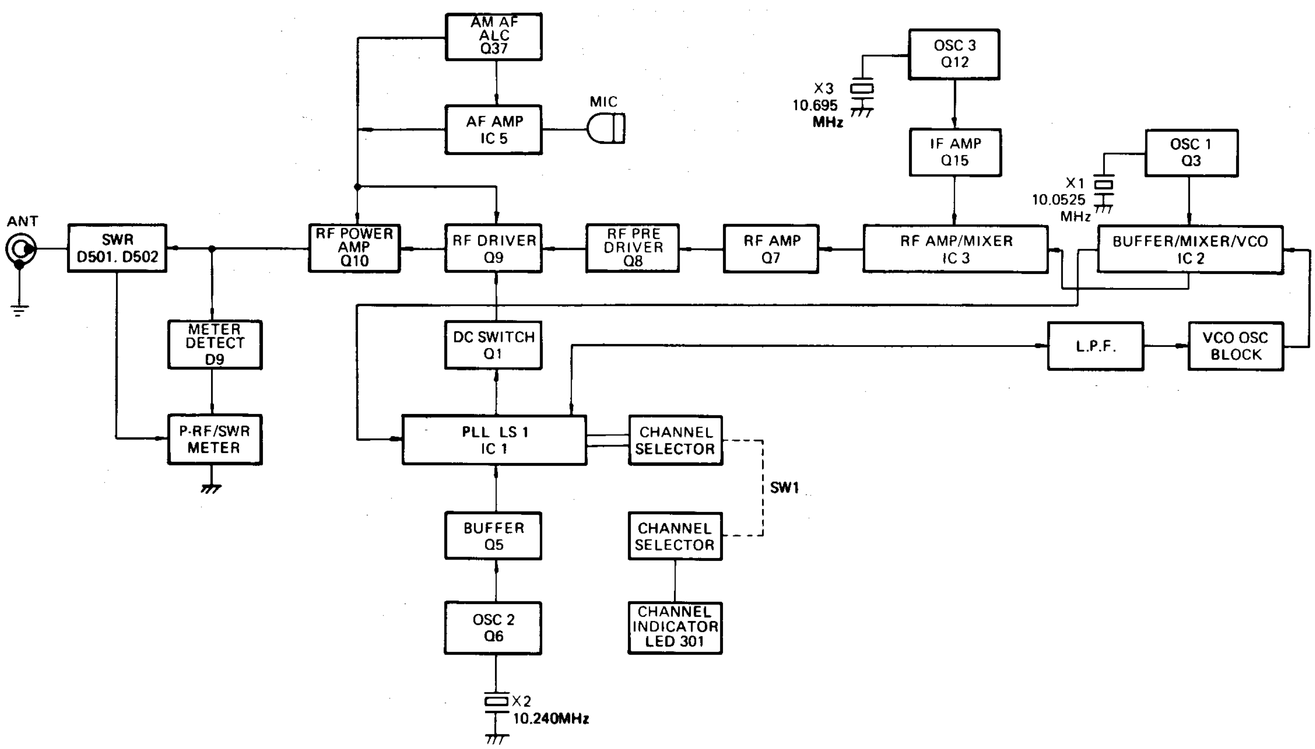

Figure 3 — Block Diagram — AM Transmit

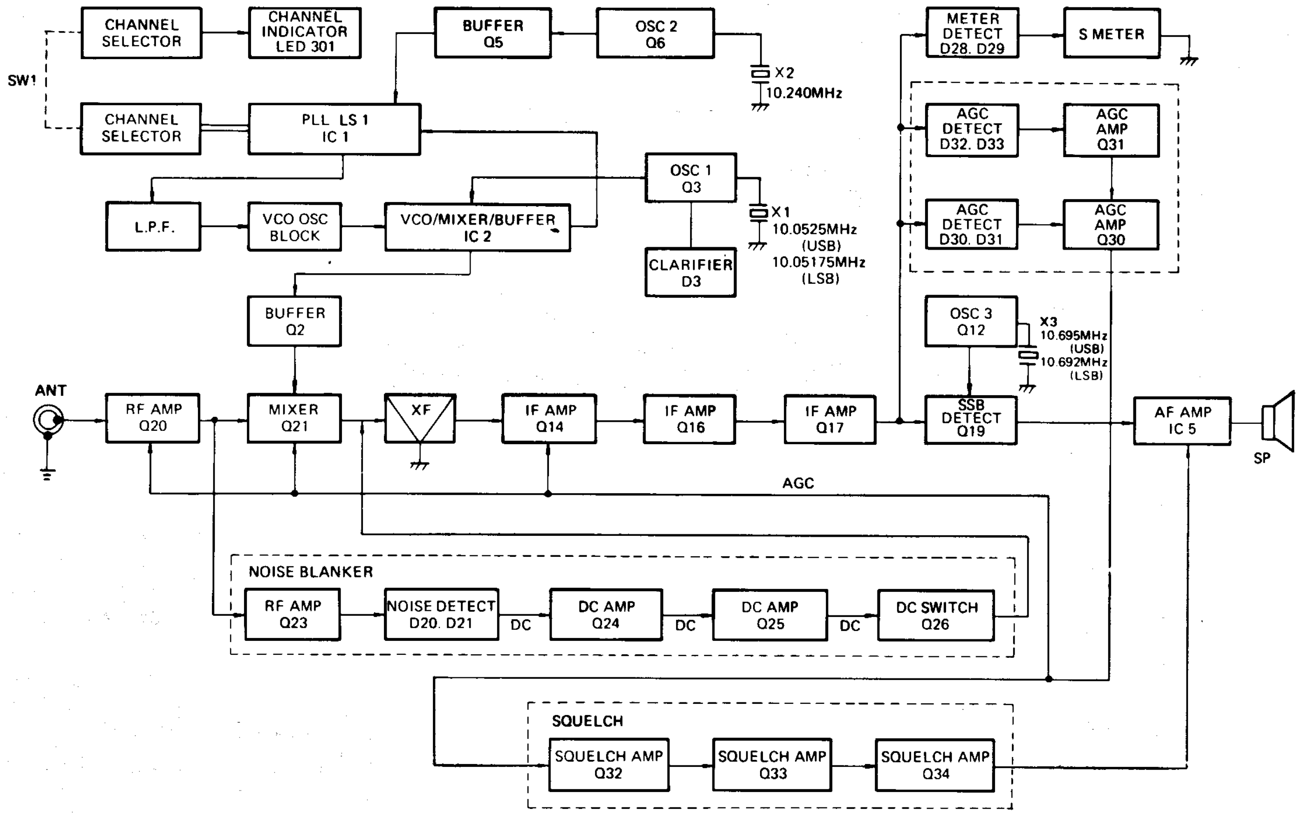

Figure 4 — Block Diagram — SSB Receive

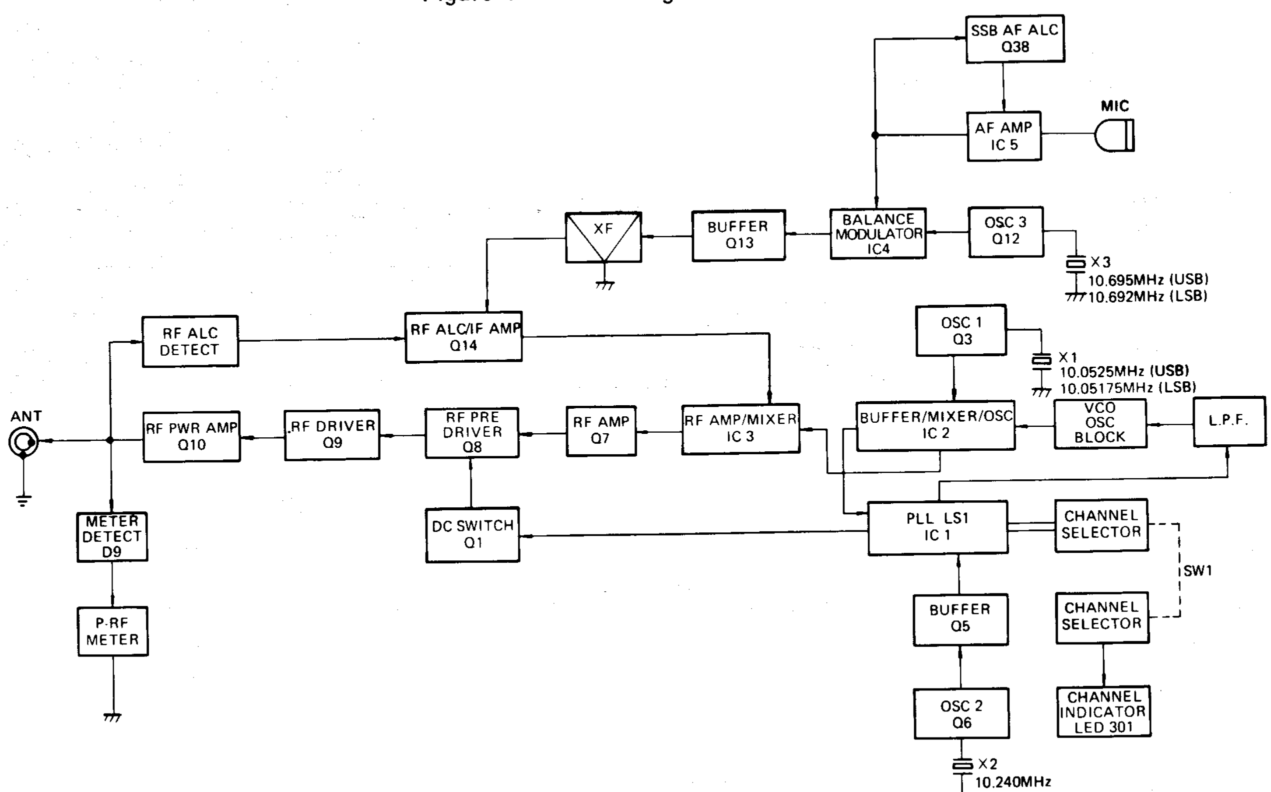

Figure 5 — Block Diagram — SSB Transmit

The frequency of the injection signal from IC2 depends on the channel being received, as a signal in the 37 MHz range is programmed by the channel selector. The output of Mixer Q22 is therefore 10.695 MHz, the first IF frequency, and is the result of the RF input and mixing of IC2 VCO signals. (see Frequency Chart on Page 14).

This 10.695 MHz 1st IF signal is then fed to the balanced mixer D22/D23. Also fed to the 2nd Mixer is a second signal from Q6, Oscillator No. 2. This oscillator signal is at 10.24 MHz. Mixing of these two signals results in a signal in the T14 output from the 2nd Mixer of 455 kHz, the second IF frequency.

The 455 kHz second IF signal passes through the ceramic bandpass filter CF, and feeds the 455 kHz signal to AM IF amplifiers Q27, Q28 and Q29 which includes IF transformer T15. The output of Q29 is applied to D25 the diode detector.

SSB (see Figure 4).

The rf signal, at a frequency between 26.965 and 27.405 MHz, feeds from the antenna through T7 to the 27 MHz RF Amp Q20. The amplified Q20 output feeds through T8 and T9 to Mixer Q22. In the mixer the 27 MHz signal beats with an injection signal from IC2. The frequency of this signal will depend on the channel being received and the mode of operation (upper or lower sideband) resulting in an IF signal of 10.695 MHz (USB) or 10.692 MHz (LSB).

The 10 MHz SSB IF signal is passed through crystal filter T10 to IF amplifiers Q14, Q16 and Q17 and detected in the product detector Q19.

The rectified audio signal from the AM or SSB detector is passed through the volume control VR1 to the input of the audio circuit IC5. The audio output is transformer coupled to the internal speaker, and to an external speaker if used. DC switch Q21 is used to short-circuit the primary circuit of T9 during transmit to disable the receiver.

Q32, Q33 and Q34 are the squelch amplifier transistors. At low or no signal levels Q32 and Q33 conduct and turn off Q34. This changes the bias on IC5 resulting in no signal output from the audio section. As the incoming RF signal increases it results in cutting off Q32 and Q33. This results in opening up the AF amplifier and output is achieved. The point at which Q32 and Q33 cut off is determined by setting the SQUELCH control VR2.

Noise Blanker

Placing the Noise Blanker switch to "ON" activates the noise blanker circuitry. The noise signals contained in the signal at Q23 output, feed through C113 to D21 base of Q24. The resulting rectified DC voltage turns on Q24 which in turn turns on Q25 and Q26. This causes the IF signal at T10 to be shorted to ground through Q26 during the presence of the noise impulses, blanking out the noise at the receiver output.

Public Address

Switching provision is made in the audio input circuit of the transceiver to provide a PA function by switching the microphone output. The audio output is also switched to an external PA speaker jack. This switching occurs when the CB/PA switch is set to the PA position.

In the PA mode, the transceiver serves as a public address amplifier providing 3 watts output to an external PA speaker. The other functions of the transceiver are deactivated in the PA mode per FCC Rules & Regulations.

Servicing

General

Model 14T302 RCA Co-Pilot Citizen's Band Transceiver performance depends upon the high quality of components employed and proper servicing techniques performed by licensed fully qualified technical personnel. Only use of the replacement parts given in the parts list on pages 21 through 25 should be employed.

Illustrations to aid in servicing and adjustment; such as top and bottom views, exploded views and superimposed printed board views, are provided to assist in proper and competent servicing. Block diagrams are shown in Figures 2 through 5. The schematic diagram is shown in Figure 17.

Figure 13 of the main printed circuit board shows map grid coordinates at the sides of the illustration. These co-ordinates are keyed to corresponding key numbers in the replacement parts list, for instant location of smaller parts. Major components, not shown in Figure 13 are shown in Figure 12. The exploded view identifies all mechanical parts by means of balloon callouts. These balloons key to corresponding balloons shown in the mechanical parts list section.

Simple removal of the four Phillips screws at each side of the transceiver case permits removal of both halves of the case.

Electronic switching is used in the unit making it inoperable when the microphone is disconnected from the front of the unit. In order to activate a unit only for receiver service, a dummy plug must be used in place of the microphone plug. Use of this plug is HIGHLY RECOMMENDED TO ACTIVATE THE RECEIVER WHEN PERFORMING SERVICE. IF THE MICROPHONE IS USED ACCIDENTAL DEPRESSION OF THE TRANSMIT BUTTON COULD RESULT IN DAMAGE TO VALUABLE TEST EQUIPMENT. See Figure 6 for view and information on dummy plug.

Note — Crystals appear to be plug-in units. What appear to be sockets are spacers for thermal isolation, crystals are soldered to board.

Test Equipment

The following test equipment is required and recommended for servicing the 14T302 Transceiver.

1. A 50 ohm resistive antenna load with a power capability of 15 watts or more, such as Bird Model 43 "thru line" wattmeter with a 15A Element and a Model 8053 RF Coaxial Load Resistor, or equivalent.
2. A frequency counter operable in the required CB range, such as Hewlett-Packard Model HP 5283A or suitable equivalent.
3. A HF Signal Generator which operates in the 50 kHz to 65 MHz frequency range with +1% accuracy, such as Hewlett-Packard HP-606B, Wavetek Model 3000 or equivalent.
4. A high input impedance oscilloscope capable of accurate monitoring of 27 MHz range AM and SSB signals.
5. Audio Output meter capable of reading 1mV.
6. Dummy plug to activate transmitter without using microphone, see Figure 6.
7. Dummy mike plug for receiver servicing, with jumper between pins 2 and 3 as seen in Figure 6.
8. An 8 ohm 5 watt resistive dummy speaker load.
9. An Audio Signal Generator with two outputs in the 10 Hz to 20 kHz range with mixer pad for dual output, or two separate Audio Generators in above range with appropriate matching pad. (For 2 tone SSB test).
10. An RF Voltmeter. (WV-500B with WG-301A Probe)
11. A regulated bench DC power supply capable of supplying 0 - 20 DC @ at least 3 amperes.
12. DC Ammeter with 0 – 3 amp scale.
13. DC Voltmeter with 20k ohms/V rating.

Tune Up and Alignment

Before performing any adjustments, check visually all jacks, plugs and solder joints for good connection. Shown in the schematic are nominal test voltage values for the transceiver transistors. In addition, certain other pertinent voltages are shown on the schematic.

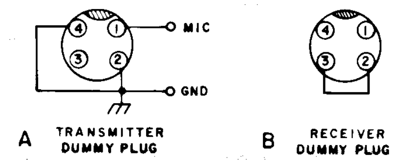

Figure 6 – Dummy Microphone Plugs

Transmitter Alignment

Connect test equipment to the transceiver as shown in the block diagram below, Figure 7. To activate the transmitter without using the microphone, use the dummy microphone plug wired as shown in Figure 6A. This plug is also used to introduce a modulating audio signal to the microphone input circuit as described in the following procedure.

A. PLL ALIGNMENT.

Before performing the VCO alignment make the following frequency adjustments:

a. Connect frequency counter to TP2 in series with a 1000 pf capacitor set transceiver to channel 19, mode switch to USB position. Adjust trimmer CT3 for reading of 10.240000 MHz ±50 Hz.

b. Connect both frequency counter and oscilloscope to TP3 (see Figure 12). With mode switch still in USB position, adjust T3 for maximum amplitude on the scope (10.0525 MHz X2), then adjust trimmer CT1 for reading of 20.105 MHz±40 Hz on counter. Switch mode to LSB and adjust CT2 for reading of 20.1035 MHz±40 Hz on counter.

c. Connect frequency counter to TP5 (see Figure 12) and adjust trimmer CT5 for reading of 10.695 MHz±50 Hz on the counter with mode switch in USB position. Then switch mode switch to LSB and adjust CT4 for reading of 10.692 MHz ±50 Hz.

VCO Alignment

To more readily follow the frequencies involved during the alignment, refer to block diagram, Figure 1.

a. Set channel selector to channel 1.

b. Connect DC Voltmeter, set to 12 V range, between ground and TP4, see Figure 12. (Meter input impedance should be 20k ohm/volt or higher).

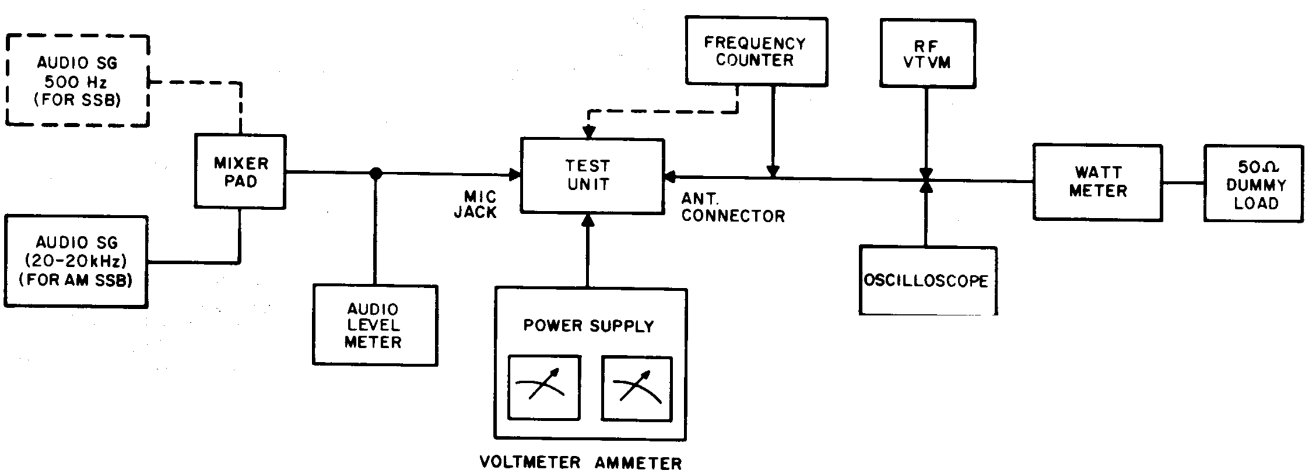

Figure 7 – Test Equipment Hook-Up – Transmitter

c. Adjust core in VCO block clockwise to obtain 3.6 volts +0.1 volt on meter. (Start with core at top of form).

d. Set channel selector to channel 40 position. A reading between 1.4 and 2.3 volts should be obtained.

B. ALIGNMENT OF DRIVER Q9.

a. Apply a 2.5 mV signal at 2.4 kHz to MIC input, see Figure 6A.

b. Set channel selector to channel 40 position, mode switch to USB position.

c. Connect oscilloscope and 50 ohm dummy load across ANT connector, see Figure 7.

d. Adjust T1 for maximum amplitude on scope.

e. Switch to channel 1 and adjust T2 for maximum amplitude.

f. Open the circuit and connect the ammeter between the emitter of Q9 and ground. Adjust RV1 for emitter current of 35mA $\pm$ 10mA.

g. Set channel selector to channel 40 and adjust T4 for maximum amplitude on scope.

h. Set channel selector to channel 1 and adjust T5 for maximum amplitude on scope.

C. SSB ALIGNMENT OF RF POWER AMPLIFIER.

a. Set channel selector to channel 19. Set mode switch to USB.

b. Feed 2.4 kHz, 25 mV signal to microphone input.

c. Connect oscilloscope to the emitter of Q7.

d. Adjust T11 for maximum amplitude on scope display.

e. Turn core of T6 to top of form, then adjust RV11 for reading of 150 mV P-P on the oscilloscope.

f. Connect oscilloscope to ANT in parallel with the Wattmeter.

g. Temporarily set RV2 fully counterclockwise and set the core of L13 so it is flush with top of coil form.

h. Adjust T6, T11, L7 and L11 for maximum power output on wattmeter and scope.

i. Decrease 2.4 kHz audio input signal to zero and adjust RV4 and RV5 for minimum amplitude of carrier leakage on the oscilloscope.

j. Feed two 25 mV signals, one at 500 Hz, the second at 2400 Hz (see Figure 7) into MIC input Adjust RV2 for PEP of 10 watts. Check on each channel that PEP is between 9 and 11 W. Also check that scope display conforms to "A" in Figure 8. (For additional reference see FCC Bulletin OCE43 of 4/77 and EIA Standard RS424).

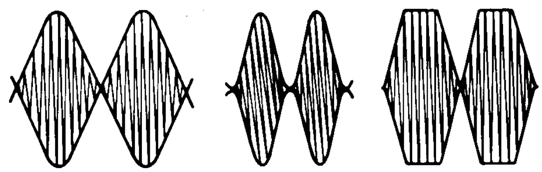

Figure 8 – Modulation Envelope

k. Change mode switch to LSB and check that similar results to those above are obtained.

D. AM RF POWER AMPLIFIER ADJUSTMENT

a. Set mode switch to AM and channel selector to channel 19.

b. Adjust VR4 for RF power output of 3.7 W on wattmeter.

E. AM MODULATION ADJUSTMENT

a. Feed a 25 mV 2.5 kHz audio signal to MIC input.

b. Adjust RV12 for modulation depth of 80–95%.

c. Decrease input to 2.5 mV and check that modulation depth is maintained at 30% or higher.

F. RF POWER METER ADJUSTMENT (AM)

a. Adjust RV3 so that P-RF meter reading is the same wattage as obtained in step D.(b)

G. TRANSMITTER FREQUENCY CHECK

a. Set mode switch to AM (no modulation).

b. Connect counter to antenna input and check frequency on each channel (see Table on

Page 14). Frequency should be within ±800 Hz on each channel.

H. SWR METER BRIDGE ADJUSTMENT

a. Connect a 100 ohm non-inductive resistor across antenna connector.

b. Activate transmitter and adjust SWR CAL control so meter pointer is exactly on "SET" mark on meter.

c. Move SWR/CAL to "SWR" and adjust RV501 so meter indicates exactly "2" on scale.

Receiver Alignment

Connect test equipment to the trasceiver as shown in Figure 9. Unless noted otherwise, keep Clarifier control at "12 o'clock" position and Noise Blanker switch to "OFF" position.

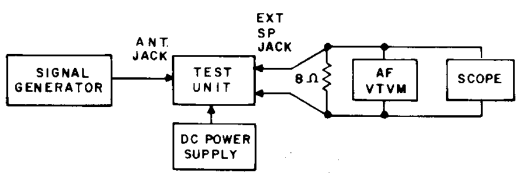

Figure 9 — Test Equipment Hook-Up — Receiver

To activate the receiver without using the microphone, connect the dummy microphone plug shown in Figure 6B in place of the microphone (jumper on plug between pins 2 and 3).

A. AGC ALIGNMENT

a. Connect the VOM to terminal 15 on the main printed circuit board (see Figure 13).

b. Set the mode switch to AM position with no input signal.

c. Adjust RV8 for a reading of 2V.

B. RECEIVER SENSITIVITY ALIGNMENT (AM Mode)

a. Set the signal generator output to 27.185 MHz with 1 kHz 30% modulation, use a minimum readable signal on meter.

b. Set the transceiver on channel 19.

c. Refer to Figure 13 and adjust T7, T8 and T15, in this order, for maximum audio output across the 8 ohm dummy speaker load. Keep reducing the generator input signal as adjustment is made to avoid inaccuracy due to AGC action. Make final adjustments at low input level. Repeat adjustment to achieve maximum alignment accuracy at low level, signal level at 1 uV or less.

d. After completion of step c., turn T7 core to decrease output by 2 dB.

C. SQUELCH CIRCUIT ADJUSTMENT

a. Set mode switch to AM position.

b. With signal generator and transceiver set to channel 19, 27.185 MHz, feed a 100 uV, 1 kHz signal modulated 30% into the RF input jack.

c. Rotate the SQUELCH control fully clockwise.

d. Adjust RV9, see Figure 13 so that audio output just appears on oscilloscope.

e. Set mode switch to USB position and adjust RV10 in same manner as RV9 in step c.

D. S-METER ADJUSTMENT

a. Set signal generator to produce a 100 uV signal to the RF input.

b. Adjust RV7, see Figure 13, so that "S" meter pointer reads "9" on the meter.

c. Change mode switch to AM position and readjust signal generator slightly for maximum output on scope.

d. Adjust RV6 so that "S" meter reads "9".

CHANNEL NO.	CHANNEL FREQ. (MHz)	"N" CODES	VCO FREQ. (MHz)		CHANNEL SW. OUTPUT						RX 1st LOCAL FREQ. (MHz)	
			AM/USB	LSB	P0	P1	P2	P3	P4	P5	AM/USB	LSB
1	26.965	255	17.555	17.5535	1	1	1	1	1	1	37.660	37.657
2	26.975	254	17.565	17.5635	0	1	1	1	1	1	37.670	37.667
3	26.985	253	17.575	17.5735	1	0	1	1	1	1	37.680	37.677
4	27.005	251	17.595	17.5935	1	1	0	1	1	1	37.700	37.697
5	27.015	250	17.605	17.6035	0	1	0	1	1	1	37.710	37.707
6	27.025	249	17.615	17.6135	1	0	0	1	1	1	37.720	37.717
7	27.035	248	17.625	17.6235	0	0	0	1	1	1	37.730	37.727
8	27.055	246	17.645	17.6435	0	1	1	0	1	1	37.750	37.747
9	27.065	245	17.655	17.6535	1	0	1	0	1	1	37.760	37.757
10	27.075	244	17.665	17.6635	0	0	1	0	1	1	37.770	37.767
11	27.085	243	17.675	17.6735	1	1	0	0	1	1	37.780	37.777
12	27.105	241	17.695	17.6935	1	0	0	0	1	1	37.800	37.797
13	27.115	240	17.705	17.7035	0	0	0	0	1	1	37.810	37.807
14	27.125	239	17.715	17.7135	1	1	1	1	0	1	37.820	37.817
15	27.135	238	17.725	17.7235	0	1	1	1	0	1	37.830	37.827
16	27.155	236	17.745	17.7435	0	0	1	1	0	1	37.850	37.847
17	27.165	235	17.755	17.7535	1	1	0	1	0	1	37.860	37.857
18	27.175	234	17.765	17.7635	0	1	0	1	0	1	37.870	37.867
19	27.185	233	17.775	17.7735	1	0	0	1	0	1	37.880	37.877
20	27.205	231	17.795	17.7935	1	1	1	0	0	1	37.900	37.897
21	27.215	230	17.805	17.8035	0	1	1	0	0	1	37.910	37.907
22	27.225	229	17.815	17.8135	1	0	1	0	0	1	37.920	37.917
23	27.255	226	17.845	17.8435	0	1	0	0	0	1	37.950	37.947
24	27.235	228	17.825	17.8235	0	0	1	0	0	1	37.930	37.927
25	27.245	227	17.835	17.8335	1	1	0	0	0	1	37.940	37.937
26	27.265	225	17.855	17.8535	1	0	0	0	0	1	37.960	37.957
27	27.275	224	17.865	17.8635	0	0	0	0	0	1	37.970	37.967
28	27.285	223	17.875	17.8735	1	1	1	1	1	0	37.980	37.977
29	27.295	222	17.885	17.8835	0	1	1	1	1	0	37.990	37.987
30	27.305	221	17.895	17.8935	1	0	1	1	1	0	38.000	37.997
31	27.315	220	17.905	17.9035	0	0	1	1	1	0	38.010	38.007
32	27.325	219	17.915	17.9135	1	1	0	1	1	0	38.020	38.017
33	27.335	218	17.925	17.9235	0	1	0	1	1	0	38.030	38.027
34	27.345	217	17.935	17.9335	1	0	0	1	1	0	38.040	38.037
35	27.355	216	17.945	17.9435	0	0	0	1	1	0	38.050	38.047
36	27.365	215	17.955	17.9535	1	1	1	0	1	0	38.060	38.057
37	27.375	214	17.965	17.9635	0	1	1	0	1	0	38.070	38.067
38	27.385	213	17.975	17.9735	1	0	1	0	1	0	38.080	38.077
39	27.395	212	17.985	17.9835	0	0	1	0	1	0	38.090	38.087
40	27.405	211	17.995	17.9935	1	1	0	0	1	0	38.100	38.097

1 = H Level (4.5 – 5.5 V)
0 = L Level (0.05 – 0.4 V)

Figure 10 — Channel Frequency Table

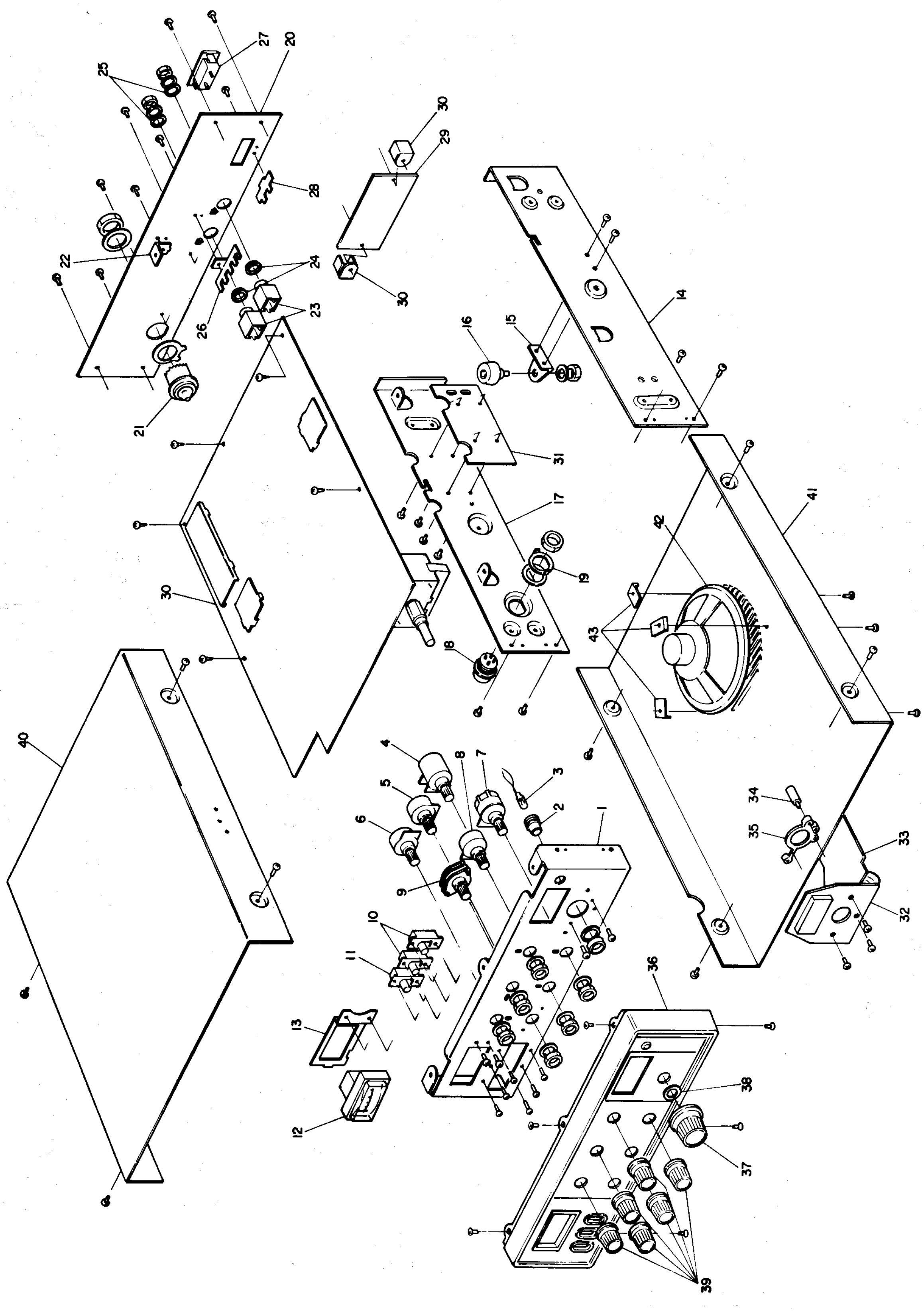

Figure 11 — Exploded View

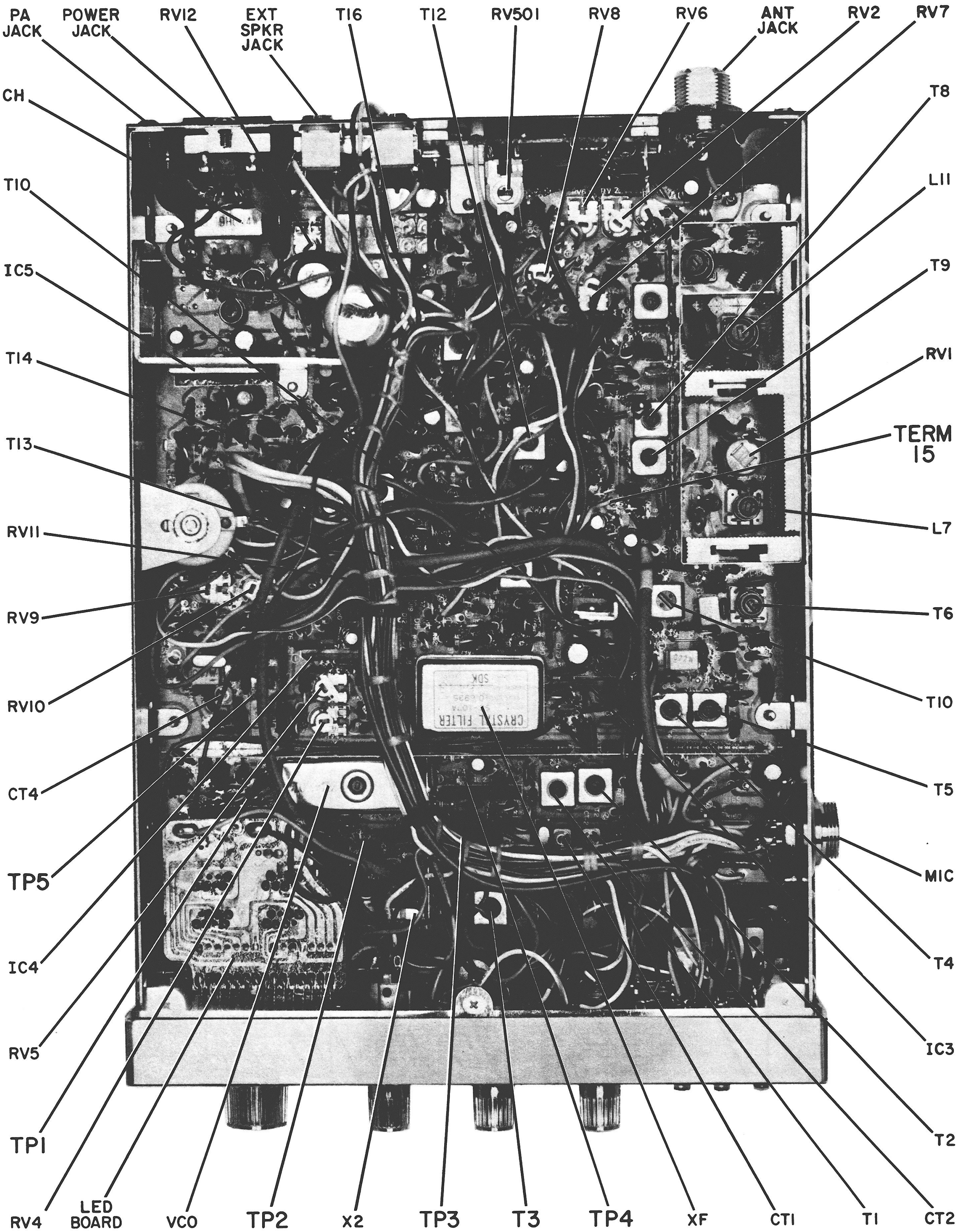

Figure 12 — Bottom (Component) View — 14T302