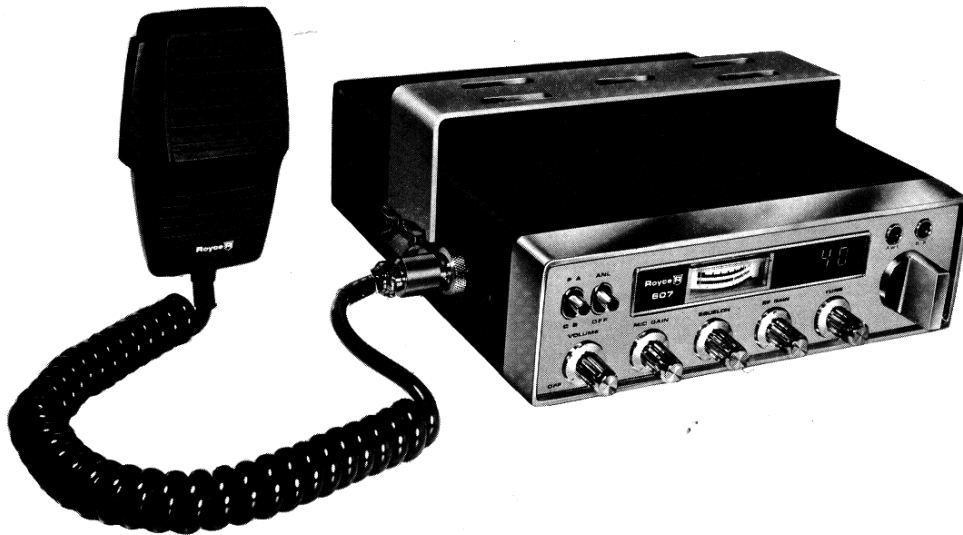


**Royce**   
ELECTRONICS CORPORATION

Model 607

# OWNER'S MANUAL

40 Channel Mobile  
Citizensband Transceiver  
With DIGITAL READOUT



## **GENERAL**

Your new Royce 607 is a high quality 40 Channel AM Citizensband transceiver. It has many features in engineering design. Careful reading of the instruction manual before operation is essential for proper operation and prevention of damage.

## **PACKING**

This unit has been especially protected for shipment. Open the carton carefully to avoid damage. Examine the unit for any visible damage. If the transceiver has been damaged in shipment, save the box, and packing material and notify the transportation company.

## **DESCRIPTION**

### **RECEIVER**

A sensitive dual conversion superheterodyne circuit is employed with a tuned RF stage. This delivers top range performance.

Two ceramic filters provide a high degree of selectivity and rejection on unwanted adjacent channel interference.

Royce's automatic amplified A.G.C. circuit greatly improves the range of signal power the receiver can accept without distortion. It's fully electronic. Whether the station is extremely close or far away, you will hear him.

Royce's Vari-Tune circuit gives you continuously adjustable receiver fine tuning. Additional receiver features include variable squelch, noise eliminator, and Royce's exclusive receiver section LSI (large scale integrated circuit).

### **TRANSMITTER**

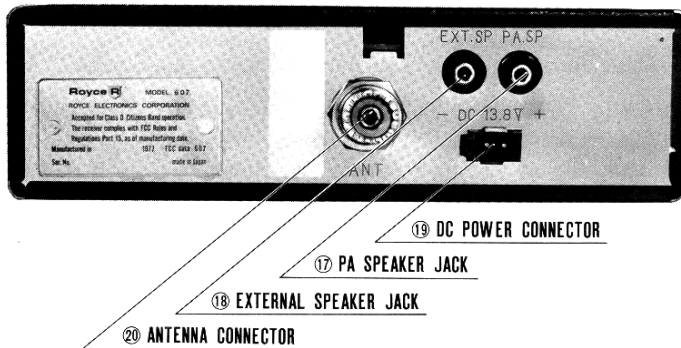
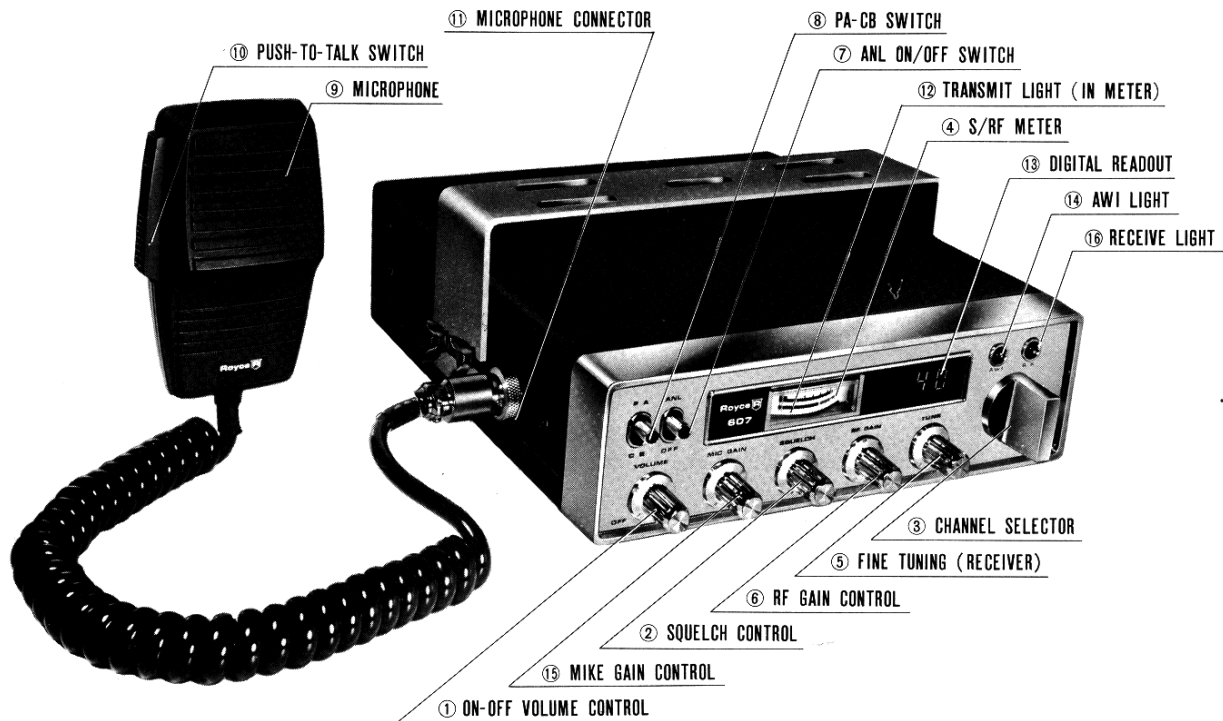
The heart of your 607 is the all new PLL oscillator. It provides full 40 Channel operation from only one crystal. Integrated circuits plus other components replace the balance of crystals. PLL is the most accurate frequency system available for CB.

### **GENERAL**

Your 607 is equipped with a powerful Public Address paging circuitry. It also is equipped to operate from 12 Volts DC positive or negative ground.

**NOTE:** The Model Number and Serial Number of your 607 are located on the metal plate riveted to the rear panel of the unit. Record and retain these numbers.

# OPERATION OF CONTROLS



- Front Panel:
1. ON-OFF VOLUME CONTROL
  2. SQUELCH CONTROL
  3. CHANNEL SELECTOR
  4. S/RF METER
  5. FINE TUNING (RECEIVER)
  6. RF GAIN CONTROL
  7. ANL ON/OFF SWITCH
  8. PA-CB SWITCH
  9. MICROPHONE
  10. PUSH-TO-TALK SWITCH

- Rear Panel:
11. MICROPHONE CONNECTOR
  12. TRANSMIT LIGHT (IN METER)
  13. DIGITAL READOUT
  14. AWI LIGHT
  15. MIKE GAIN CONTROL
  16. RECEIVE LIGHT
  17. PA SPEAKER JACK
  18. EXTERNAL SPEAKER JACK
  19. DC POWER CONNECTOR
  20. ANTENNA CONNECTOR

# FEATURES AND CONTROLS

## 1. VOLUME/POWER ON-OFF

This combination control supplies power to your 607 and adjusts the receiver volume. The switch should be turned clockwise from the "off" position. You will hear an audible "click". The channel dial and meter will light. To adjust the volume continue advancing the control in a clockwise position.

## 2. CHANNEL SELECTOR

The channel selector switch is used to select the channel frequency. It automatically, adjusts both the transmitter and receiver frequencies, and displays your selection in bold 1/4" high numerals by use of L.E.D.'s (light emitting diodes).

## 3. SQUELCH CONTROL

The squelch control is used to eliminate background noise when there are no signals present strong enough to overcome the noise. To adjust the squelch control, select a channel where there is no signal. Turn the volume up to normal listening levels. Rotate the squelch control clockwise until the background noise disappears.

## 4. S/RF METER

The 607 is equipped with a large, easy-to-read combination meter with a built-in transmit indicator light.

In the receive position, the meter reads the level of the incoming signals. In the transmit position, it indicates relative power output, and glows red to show transmit operation.

## 5. AUTOMATIC NOISE ELIMINATOR

Your 607 is equipped with an automatic noise eliminator. This greatly reduces extraneous noise coming into the receiver via the antenna. In effect, the noise pulses are clipped from the incoming signals before they reach the audio amplifier. This causes little or no loss in the signal receive level. A slide switch has been provided for elimination and control of this circuit.

## 6. PA-CB SWITCH

A slide switch converts your 607 into a powerful Public Address system. The "PA" function requires use of an optional 8-16 ohm paging speaker (Royce 2-060). This speaker must be connected to the "PA" jack on the back of the set. Once this speaker has been connected, simply put the PA-CB switch to the "PA" position. Depress the microphone push-to-talk switch to activate the circuit.

**NOTE: THE VOLUME CONTROL ADJUSTS PA OUTPUT LEVEL.**

## 7. VARIABLE RF GAIN CONTROL

The RF gain control lets you control the sensitivity (receiving range) of your 607. For

maximum range reception the control must be turned fully clockwise (to the right). In some instances, you may be extremely close to another station that is emitting very strong signals. This can overload your receiver and distort the signal. Should this condition occur, simply turn the RF gain control counter clockwise (to the left) to reduce the receiver sensitivity.

**REMEMBER:** For maximum range of reception, always return the RF gain control all the way to the right (clockwise).

## **8. VARIABLE FINE TUNING CONTROL**

The fine tuning control is an electronic tuning circuit which allows you to shift the frequency of your receiver plus or minus 1.5 KHz (3.0 KHz total). This allows you to compensate for an incoming signal which may be slightly off frequency. Adjust the tuning control for maximum "S" meter reading.

## **9. MICROPHONE GAIN CONTROL**

This control increases or decreases the pickup sensitivity of the microphone. Starting in the full counter-clockwise position, turning the control clockwise increases the microphone sensitivity. A special circuit in your 607 prevents overmodulation. Adjust this control while talking to another station to give best gain for your individual voice. Hold the microphone at your normal operation distance from your mouth.

## **10. PA SPEAKER JACK**

For attaching optional 8-16 ohm PA speaker, use 3.5 mm jack.

## **11. EXTERNAL SPEAKER JACK**

You may add any 8-16 ohm external speaker. Simply plug your accessory speaker into the jack. Inserting the 3.5 mm plug will automatically disconnect the internal speaker.

## **12. RECEIVE LIGHT**

Your 607 is equipped with a modern light emitting diode (LED) receive indicator light. This light will be lighted green when the transceiver is in the receive mode.

## **13. ANTENNA CONNECTOR**

A standard SO-239 type connector is supplied for attaching either mobile or base antennas.

## **14. DC CONNECTOR**

This connector is used to supply power to your 607. The plug-in feature allows easy removal for switching vehicles.

# SPECIFICATIONS

## GENERAL

1. Semiconductors : 13 transistors, 20 diodes, 4 integrated circuits
2. Self-Contained Speaker : 3 inch, 8 ohms voice coil
3. Microphone : Dynamic microphone with push-to-talk switch, 500 ohms
4. Controls, Indicators and Connectors : Volume control with power on-off switch  
: Variable Mike Gain Control  
: Variable Squelch Control  
: Variable RF Gain Control  
: Fine Tune Control  
: Channel Selector  
: LED channel indicator  
: RX Light (Green)  
: AWI Light  
: Illuminated S/RF power meter  
: PA-CB Slide Switch  
: ANL ON-OFF Slide Switch  
: Coaxial type antenna connector  
: Microphone connector  
: DC power connector  
: External Speaker Jack  
: Public Address Speaker Jack
5. Power Supply : 13.8 Volts DC (positive or negative ground)
6. Cabinet Description : Plastic front with chrome plating
7. Dimensions : 7-5/16" (D) × 7-1/4" (W) × 2-1/8" (H)

## RECEIVER

1. Frequency Range (MHz) : 26.965-27.405
2. Sensitivity : 0.5 $\mu$ V for 10dB S+N/N
3. Selectivity : 5KHz minimum at 6dB down
4. Adj. channel rejection : More than 60dB
5. Audio power output  
at 8 ohms : More than 2.5W at 10% distortion  
at 4 ohms : More than 4W at 10% distortion
6. Audio fidelity : 400Hz-2000Hz  
(1KHz=0dB, 6dB down)
7. AGC figure of merit : More than 80dB
8. Squelch Sensitivity : Less than 0.5 $\mu$ V  
(Threshold)
9. Spurious Rejection : More than 45dB

## TRANSMITTER

1. Frequency Range (MHz) : 26.965-27.405
2. RF Power Output : 4W
3. Modulation Capability : More than 80%
4. Spurious Suppression : More than 60dB
5. Frequency Tolerance :  $\pm$  0.005%

## **POWER SUPPLY**

Almost all cars and most trucks currently operating in the U.S. are negative ground. There are some large trucks and construction equipment which operate on positive ground. Your Royce 607 will operate on either. In the negative ground systems the minus (—) pole of the battery is attached to the car body, engine block, etc.

### **NEGATIVE GROUND HOOKUP:**

Attach the red (fused) wire to the fuse block terminal or any convenience plus (+) lead. Devices operated by the ignition key such as the radio, light, etc. are best since when you turn the ignition off, the unit will be turned off. Attach the black lead to the car body via any convenient method.

**NOTE:** Many newer cars use plastic dash pieces. Make sure the screw or contact you choose is attached to the metal framework of the car.

### **POSITIVE GROUND HOOKUP:**

In the event that you do have a positive ground vehicle, the following hookup must be made. Attach the red (fused) lead to the car body via any convenient screw, bolt, etc. Attach the black lead to the terminal block or any convenient wire which goes to the minus (—) pole of the battery.

**FAILURE TO MAKE THE PROPER CONNECTION COULD RESULT IN UNIT DAMAGE.**

## **ANTENNA REQUIREMENT**

This transceiver will operate with any standard 52 ohm ground-plane, vertical, mobile whip, long wire or other CB antenna. A standard SO-239 type connector is provided on the back panel for use with popular PL-259 antenna plug.

## **ANTENNA INSTALLATION**

### **BASE STATION:**

When the 607 is used as a base station, any Citizens Band beam, dipole, ground-plane or vertical antenna may be used. A ground-plane type will provide greater coverage, and, since it is essentially non-directional, it is ideal in base station to mobile operation. From base station to base station, or point to point operation, a directional beam will give greater distance even under the adverse conditions. The range of the transceiver depends basically on the height of the antenna, and whenever possible, select the highest location within F.C.C. limits.

Antenna height limits are explained in Part 95 of the F.C.C. Rules and Regulations furnished you with this transceiver.

## **MOBILE ANTENNAS:**

A vertical whip antenna is best suited for mobile use. A non-directional antenna must be used for best results in any case. The base loaded whip antenna will normally provide effective communication. For greater range and more reliable operation, a full quarter wavewhip should be used. Either of these antennas use the metal car body as a ground-plane and the shield of the base lead as well as the metal case of the transceiver should be grounded. A standard antenna connector (type SO-239) is provided on the transceiver for easy connection to a standard PL-259 cable termination.

## **MOBILE INSTALLATION**

A location in the car or truck should be chosen carefully for convenience of operation and non-interference with normal driving functions. Mounting may be under the dash or instrument panel or any place a secure installation can be made. The carrying handle again serves as a mounting bracket or additional perforated straps or brackets may be used as desired. The 12 Volt cable may be connected to any convenient terminal but preferably to the ignition switch to prevent unauthorized persons from operation of your unit. With this method the unit will only operate when your key is turned on. Engine ignition interference should not be a problem and vehicles equipped with standard broadcast radios will have enough suppression to eliminate ignition interference. If interference is present, any skilled auto radio repairman should be able to eliminate it for you.

## **BASE STATION INSTALLATION**

For base station use the Royce Model 2-050 Power Supply is recommended. When this power supply is used, simply connect the red (+) and black (-) terminals on the power supply to the (+) and (-) leads on your 607. Do not attempt to operate the transceiver by connecting directly to 110 Volts A.C.

## **GENERAL OPERATING PROCEDURE**

**CAUTION: BEFORE OPERATING THIS TRANSCEIVER, YOU ARE REQUIRED BY LAW TO READ AND UNDERSTAND PART 95 OF THE FCC REGULATIONS AND RULES.**

**CHECK TO SEE IF THE PROPER CONNECTIONS HAVE BEEN MADE ON THE POWER CABLE, ANTENNA SYSTEM, AND MICROPHONE.**



## **RECEIVER**

- a. Put PA-CB switch to the CB position.
- b. Put ANL switch to the "on" position.
- c. Plug in Microphone.
- d. Set Channel Selector to the desired channel.
- e. Turn the volume and squelch control fully counter clockwise.
- f. Rotate the volume control clockwise. You will hear an audible "click" and the meter and channel dial lights will come on. Continue rotating clockwise to desired listening level.
- g. With no signal present, rotate the squelch control clockwise until the rushing noise disappears.

## **TRANSMITTER**

**WARNING: IT IS ILLEGAL TO OPERATE THE TRANSMITTER SECTION OF THIS TRANSCEIVER PRIOR TO RECEIVING A VALID STATION LICENSE AND CALL SIGN FROM THE FEDERAL COMMUNICATIONS COMMISSION.**

**CAUTION: NEVER OPERATE THIS UNIT WITHOUT AN ADEQUATE ANTENNA SYSTEM OR LOAD. ANTENNA SWR SHOULD NOT EXCEED 3:1. FAILURE TO FOLLOW THESE RECOMMENDATIONS COULD RESULT IN DAMAGE TO THE RF OUTPUT TRANSISTOR.**

- a. To transmit, depress the push-to-talk switch on the microphone. Hold the microphone 3 to 5 inches from your mouth and talk in a normal level.

## **PUBLIC ADDRESS**

Attach an optional paging speaker (Royce Model 2-060) or equivalent to the P.A. jack on the back of the unit.

Put the PA-CB switch to the "PA" position. To activate circuit, simply depress the Push-To-Talk switch on the microphone.

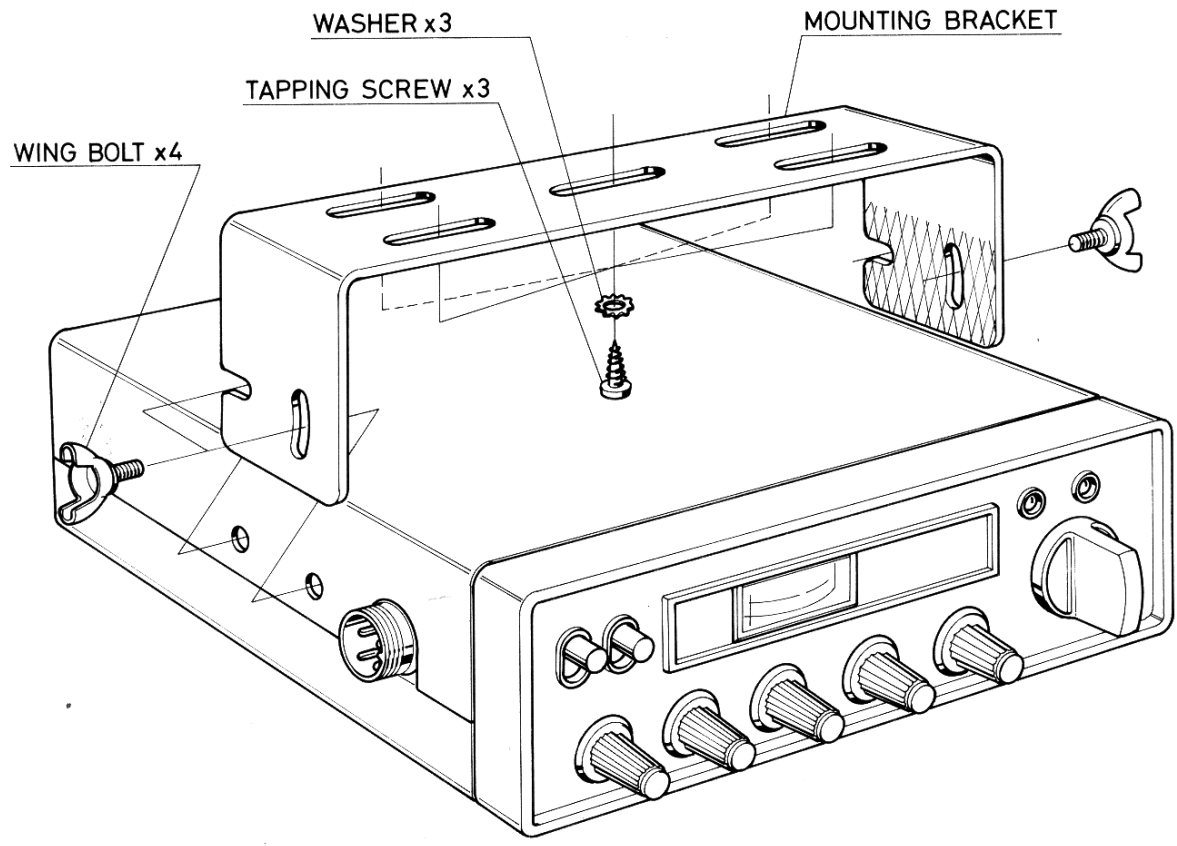
In some cases, feedback may occur if there is not enough separation between the microphone and paging speaker. Orient microphone so it is 180 degrees from speaker. If this does not solve the problem, you may have to move the speaker farther away.

## **SERVICING YOUR TRANSCEIVER**

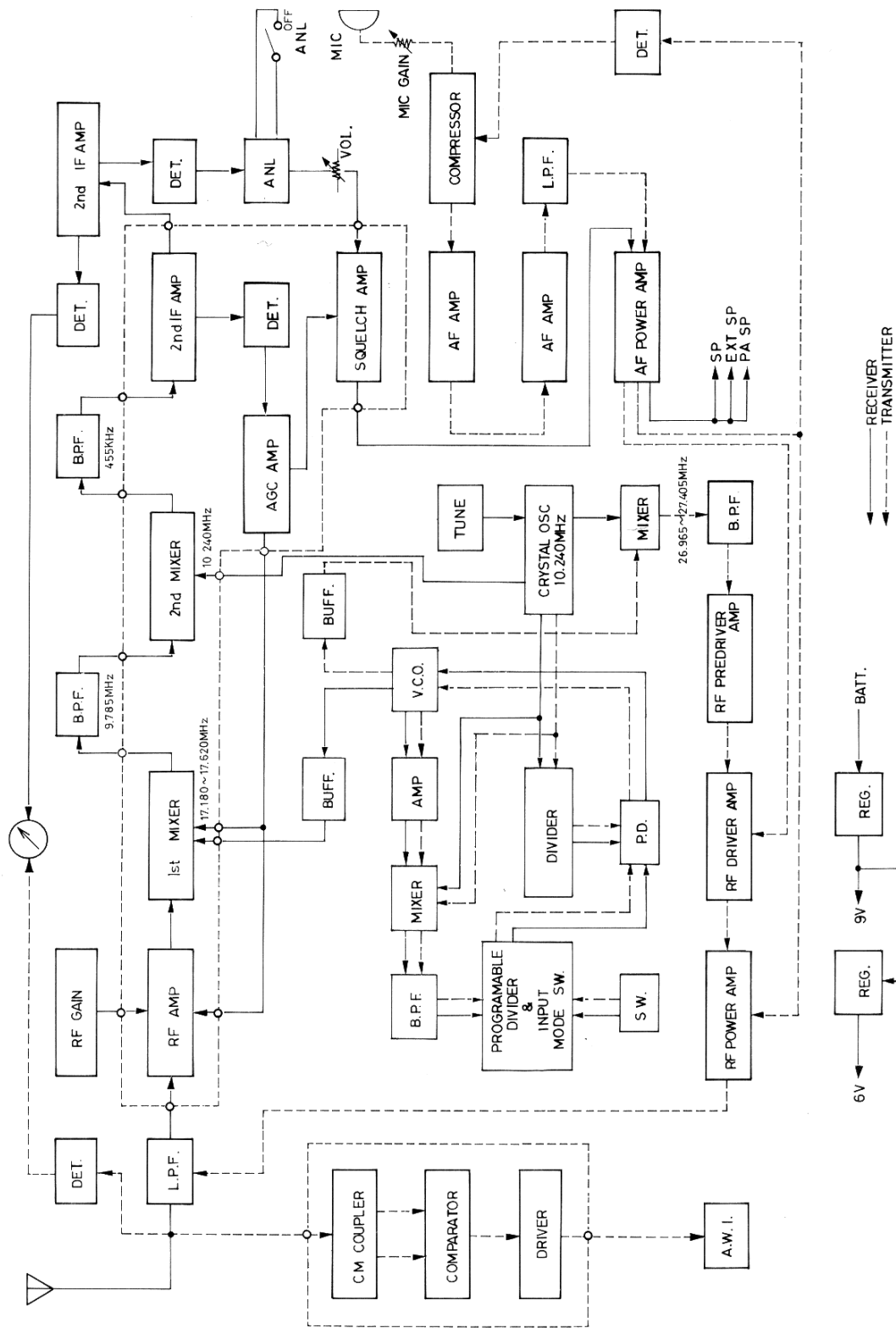
The technical information, diagrams, and charts provided in this manual are supplied for the use of a qualified holder of a first or second class radiotelephone license in servicing this transceiver. It is the user's responsibility to see that this unit is operating at all times in accordance with the F.C.C. citizens radio service regulations.

If you install your own transceiver, do not attempt to make any transmitter tuning. Adjustments are prohibited by the F.C.C. unless you hold or are in the presence and under the supervision of a first or second class radiotelephone licensed person. A Citizens Band or Amateur license is not sufficient.

# MOUNTING INSTRUCTIONS

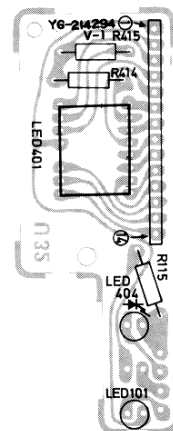
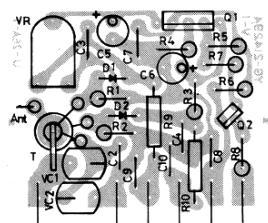
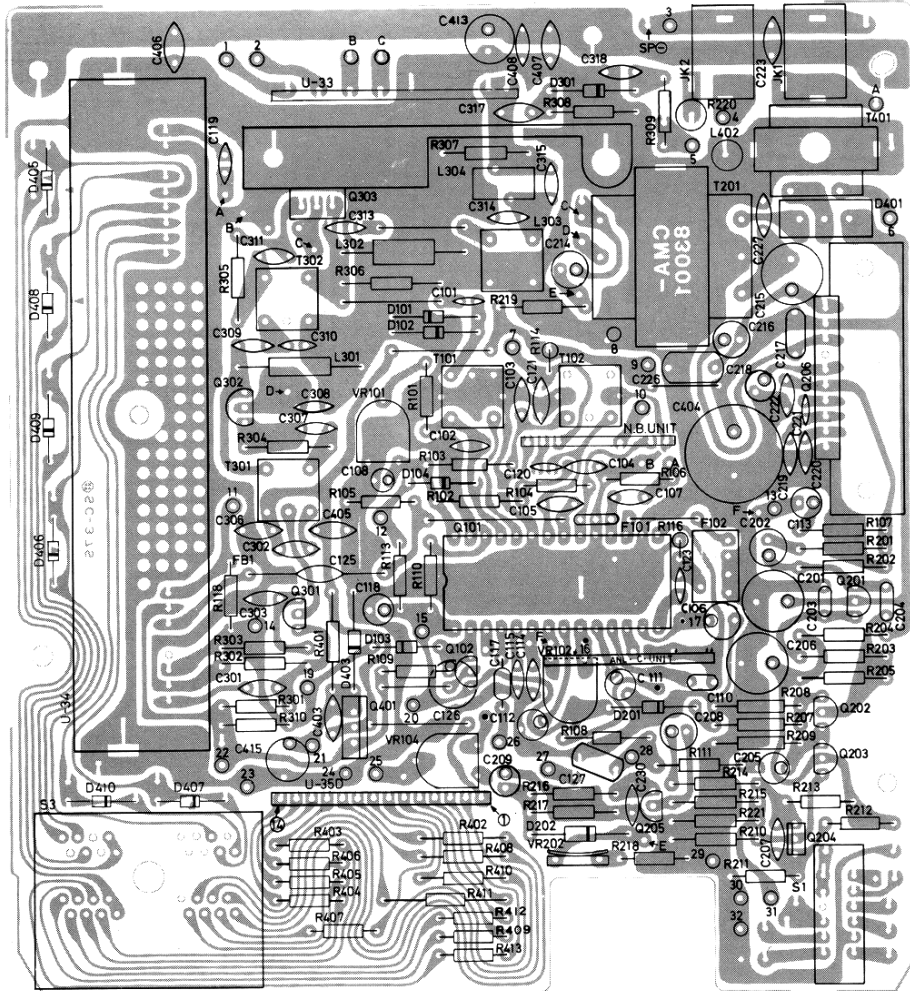


# BLOCK DIAGRAM

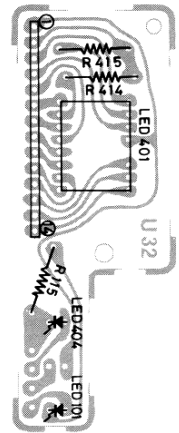
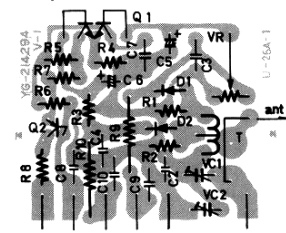
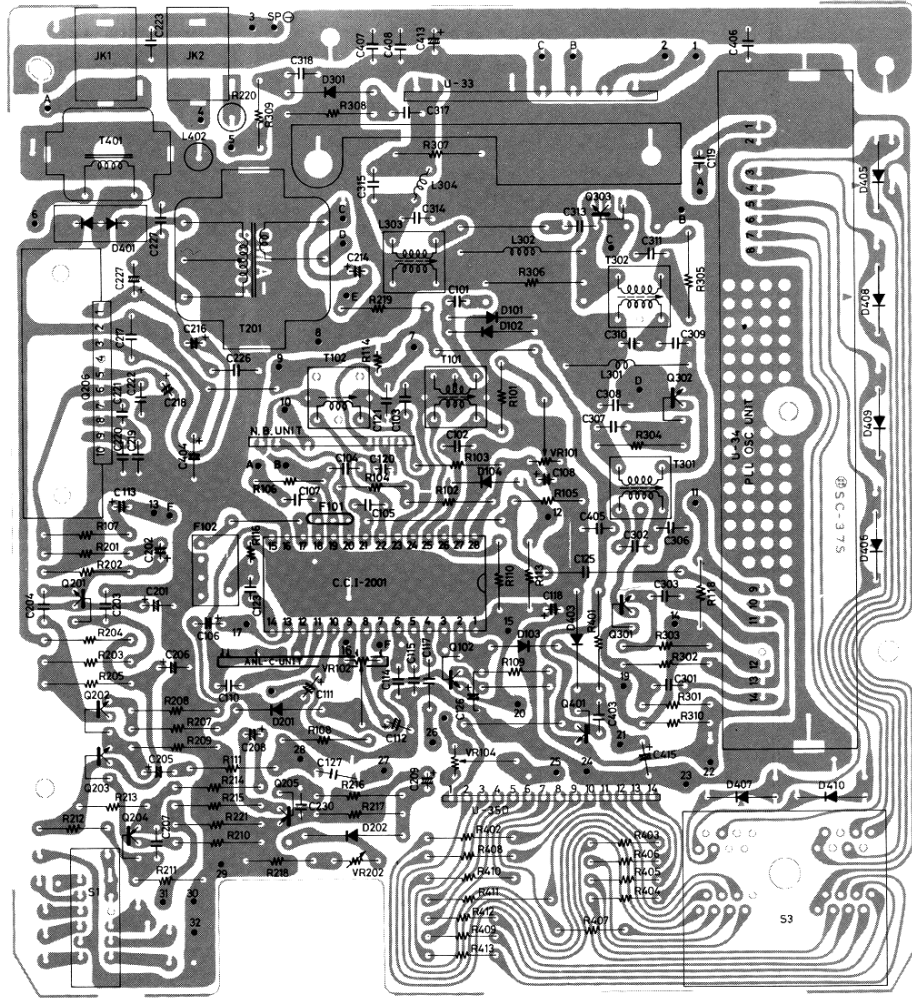


# PARTS LAYOUT

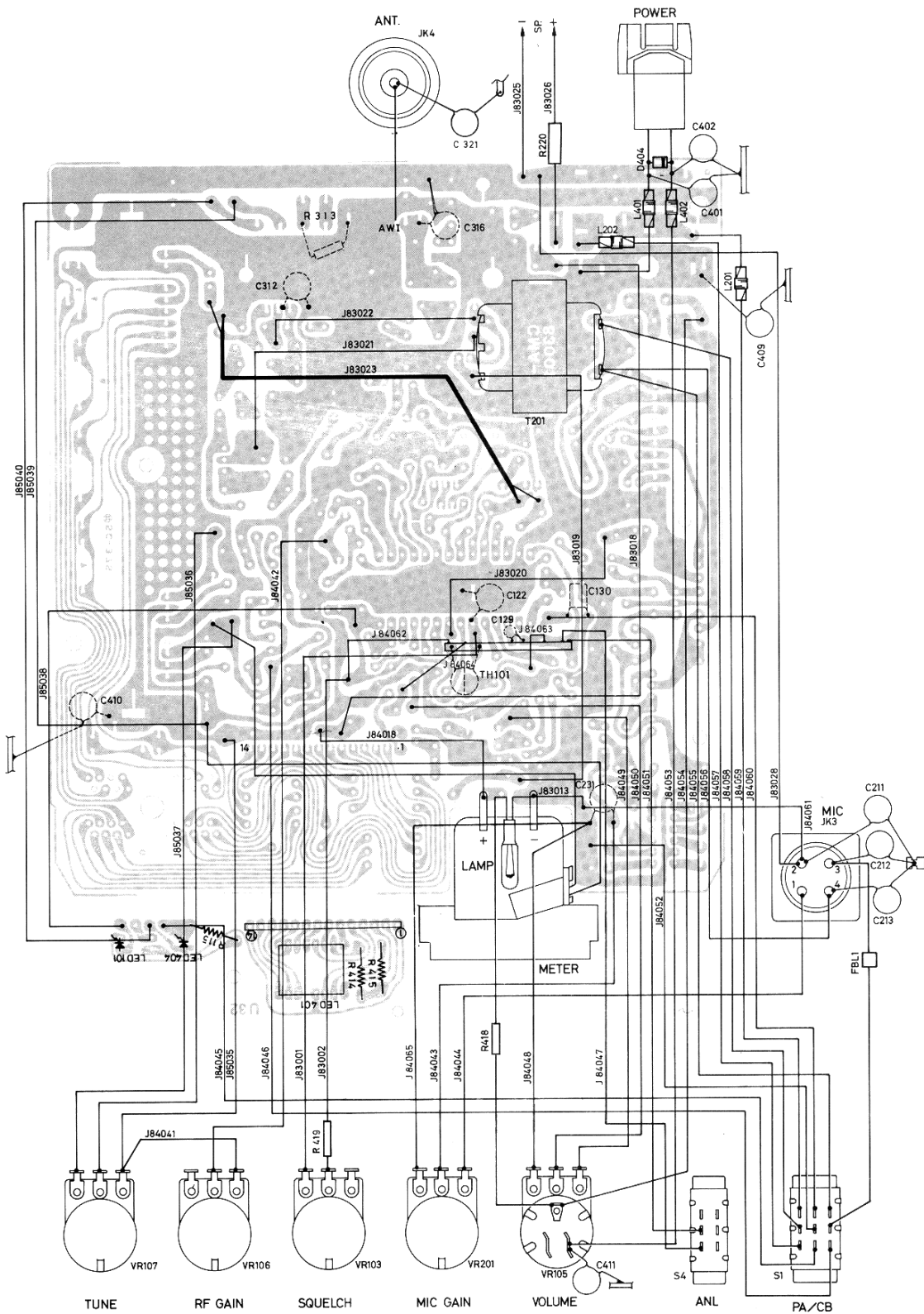
## TOP VIEW



**BACK VIEW**



# WIRING DIAGRAM



## **YOU AND YOUR ANTENNA**

Three main components comprise a typical Citizensband installation. They are: your transceiver, an antenna, and the coaxial cable which connects the antenna to the transceiver. It is important that all three pieces are installed correctly to give the best possible range and reliable performance. We hope this information will be helpful for you to realize the maximum performance of your installation.

### **ANTENNA**

For several reasons, it is impossible to exactly PRE-TUNE an antenna at the factory. A general range of tuning is done which may suffice, but for best performance, an antenna should be tuned after it is installed.

Most antennas have some form of tuning capability. Usually, this involves the whip section sliding into a coil, spring, or metal section. This allows the antenna to be adjusted to the exact frequency desired. All Royce antennas are the "broad band" type. When adjusted for Channel 20, they will perform well from Channels 1-40. An untuned antenna robs you of range and could cause, after a period of time, substantial deterioration of the performance of an RF output transistor. We cannot stress enough the importance of tuning your antenna. The measure of an antenna's performance is its "SWR" (standing wave ratio).

### **COAXIAL CABLE**

Coaxial cable is used in all Citizensband installations. This cable transfers the power from your transceiver to the antenna. The output of your transceiver is 50-52 ohms. Your antenna is designed to be 50-52 ohms. For this reason, RG58/U or RG8/U cable is used because it also is 52 ohms and matches the antenna to the unit. The frequency of the antenna is very important in this area because a mis-tuned antenna can disrupt the system balance. If this balance is disrupted, standing waves are generated on the coaxial cable, which results in a loss of power in your transceiver.

### **UNDERSTANDING SWR** (Standing Wave Ratio)

In theory, your transceiver has a 50 ohm output and your antenna is 50 ohms. If a 50 ohm cable (such as RG58/U or RG8/U) is used, all the power from your transceiver will be transmitted via the coaxial cable and radiated by the antenna. Under these conditions, the SWR (standing wave ratio) of your antenna system would be 1 : 1. In practice, the antenna must be 50 ohms and tuned to the exact channel. This condition seldom exists and standing waves are set up on the cable. This SWR robs you of power and likewise range. While 1 : 1 is not always possible to attain, you should tune your antenna system so the SWR does not exceed 1.5 to 1 or at maximum 2 to 1. Here are some examples of the power losses for various SWR ratios:

<u>SWR</u>		<u>Power Losses</u>
1 : 1	=	0 %
1.3 : 1	=	2 %
1.5 : 1	=	3 %
1.7 : 1	=	6 %
2 : 1	=	11 %
3 : 1	=	25 %
4 : 1	=	38 %
5 : 1	=	48 %
6 : 1	=	55 %
10 : 1	=	70 %

## TUNING YOUR ANTENNA

For optimum performance, an SWR meter should be used to tune the antenna. However, since this meter may cost from \$15.00 to \$30.00, not everyone may want to invest in its purchase. If possible, borrow one. If you are unable to borrow one, the RF output meter on your transceiver can be used as a GUIDE to antenna tuning. While it is not 100% accurate, it is generally better than no tuning at all. Always tune your antenna in an open area. Wires, metal and copper tubing if nearby can effect the tuning. Never tune an antenna inside a garage, under a metal car port, next to a metal truck, etc.

### **A. USING YOUR TRANSCEIVER OUTPUT METER AS A TUNING GUIDE**

After installing your antenna system, place the whip halfway into its receptacle and turn your transceiver to Channel 20. Depress the switch on your transceiver microphone, and make note of the reading on your RF output meter. Loosen the adjustable whip section and move it 1/8 to 1/4 inch down. Again depress the transmit switch, if the reading is the same or lower continue moving the whip down 1/4 inch at a time until the LOWEST reading is obtained on your transceiver RF meter. If the reading was higher, move the whip up 1/4 to 1/2 inch the first time and 1/8 to 1/4 inch thereafter until the LOWEST reading is obtained on the RF meter. That's right.....

THE LOWEST READING. Your RF output meter is a voltage sensing device. It is installed in the RF output circuit and senses the voltage near the antenna terminal. In a perfectly tuned system all of the voltage is transferred from the output transistor and passed to the antenna. As an example, let's use the figure 10. If there is SWR on the line, the forward voltage is 10 and a reverse voltage appears (let's say it's 2). The meter circuit now sees 20 and shows a higher reading. You can see that because of the way most RF output meters work, the LOWER your RF output meter reads the better your antenna is tuned. Of course, if the meter reads less than 1/2 scale, it may indicate a problem in your set and should be checked. Similarly, an extremely high reading may indicate a problem in your antenna. An RF output meter can tell you much.....especially if you know how to use it.



## B. TUNING YOUR ANTENNA WITH AN SWR METER

Using an SWR meter is the most accurate way to tune an antenna.

Connect the SWR meter as close as possible to the back of the transceiver. Use a double male connector or a very short piece of RG58/U with connectors on each end.

Place the adjustable whip halfway into its receptacle. Set your transceiver to Channel 20. Measure the SWR following instructions supplied with the meter. After the first measurement, move the whip down 1/8 to 1/4 inch and repeat ALL the steps again. If the SWR is lower, continue the process moving the whip down 1/8 to 1/4 inch at a time until the lowest reading is obtained. If the SWR is higher, raise the whip 1/4 to 1/2 inch the first time and 1/8 to 1/4 inch thereafter until the lowest SWR is obtained. Note, if the reading continues falling but you have reached farthest point down that you can go with the whip, the whip may be too long. To verify this, put the Channel Dial to Channel 1 and measure the SWR. Next, put the channel dial to Channel 40 and measure the SWR. **IF THE SWR WAS LOWEST ON CHANNEL 1 AND HIGHEST ON 40 THE WHIP SECTION IS TOO LONG.** Carefully cut 1/4 to 3/8 inch from the whip section and re-measure Channels 1, 20, and 40. If the SWR is still lowest on Channel 1 continue trimming the whip by removing 1/8 to 1/4 inch at a time until the lowest SWR is obtained on Channel 20. **DO NOT GET OVERANXIOUS. YOU CANNOT REPLACE A SECTION ONCE IT IS CUT OFF.** If you exceed slightly the best tuning for Channel 20, the whip may be raised 1/8 to 1/4 inch at a time to obtain the best SWR on Channel 20.

**WARNING: DO NOT CUT THE WHIP USING THE "POWER OUTPUT METER TUNING METHOD". YOU MUST USE AN SWR METER TO ACCURATELY DETERMINE THE SWR.**

Every six months or so, re-check the SWR. Car washes, road grime, and chemicals can effect the mechanical connections of an antenna and corrode them. This corrosion can cause poor electrical connections and lead to high SWR. The correction of this problem is usually accomplished by cleaning of the metal connection parts with a wire brush.

## **HELPFUL HINTS**

1. High SWR robs you of range and puts a strain on your output transistor.  
**ALWAYS TUNE A NEW ANTENNA.**
2. Never tune your antenna in a closed area (garage, under a metal car port, etc.) incorrect tuning may result.
3. **MAKE SURE ALL MECHANICAL CONNECTIONS ARE TIGHT.**
4. **DON'T SMASH OR SHARPLY BEND THE COAXIAL CABLE**—it should remain generally round to do its job properly.
5. **TIGHTEN YOUR PL-259 CONNECTOR OCCASIONALLY**—road vibration has a tendency to loosen it which can cause output transistor problems.
6. **PERIODICALLY** (every 6 months) re-check your SWR. Corrosion and road grime may rob you of performance.
7. **PERIODICALLY** check your coaxial cable for wear. A broken or loose wire could cause RF output transistor failure.

This information was produced to help you understand the installation and maintenance of your antenna and cable feed system. Many field problems have been traced to problems such as the above. They can lead to eventual failure of the RF output transistor in your transceiver. Careful installation and maintenance can prevent these problems.

# ALIGNMENT INSTRUCTION

## RECEIVER

- A. Inject at the ant. jack a 27.185MHz signal ( $\pm .001\%$ ; 30% modulation at 1KHz).
- B. Connect an audio voltmeter and oscilloscope across on 8 ohm load and plug into external speaker jack.

Test Equipment	Test Point	Adjust	Remarks
1. RF signal generator (low range to avoid audio saturation)	Inject at ant. jack	Channel set to 19 T-101, T-102, VR-101,	Max. output with vol. control at max, squelch control at min. output should be more than 500mW (2.0V/8 ohm) with gen. voltage at $1\mu\text{V}$ ; S+N/N more than 10dB on all channels
2. RF signal generator	Inject at ant. jack	VR-104	Set the ant. input to $100\mu\text{V}$ and the meter indication to 9 by VR-104
3. RF signal generator	Inject at ant. jack	VR-102	Set the volume control and the squelch control at maximum. and set the tight squelch by VR-102 so that the output from speaker is heard when the ant. input is increased up to $1,000\mu\text{V}$ .

## AGC RESPONSE

Set the output voltage of a signal generator at  $50000\mu\text{V}$  and adjust the volume control so that the voltmeter output is 500mW (2.0V/8 ohm). Then, lower the output voltage of the generator so that the voltmeter output is 10dB down. The output voltage of the signal generator should be under  $5\mu\text{V}$  at this time.

## AUDIO POWER CHECK

With a generator output of 1mV and squelch control at minimum, audio output should be more than 3.5W (5.7V/8 ohm) at maximum position of volume control.

## TRANSMITTER

- A. Power Supply — 13.8VDC.
- B. Use a suitable power meter, non-inductive dummy load and oscilloscope connected to antenna jack.

Test Equipment	Test Point	Adjust	Remarks
1. Power Meter	Antenna jack	T-301, T-302, L-303,	Adjust for maximum output power
2. Freq. Counter	Across dummy load	—————	Check all channels $\pm 800\text{Hz}$
3. A.F. Oscillator with AF voltmeter in shunt (1KHz 30mV)	Inject at mic input	VR-202	— 90% modulation oscilloscope
		—————	Reduce AF oscillator output to 5mV; modulation $\geq 50\%$

# VOLTAGE CHART

Q101 CCI 2001				Q101 CCI 2001				
PIN NO	Tx	Rx		PIN NO	Tx	Rx		
1	0.3	6.4	NO SQUELCH	20	0	4.5		
2	0.8	7.1		21	0	0.6		
3	0	0		22	0	4.2		
4	0.3	0.8		23	0	0		
5	0.3	3.6		24	0.2	0.7		
6	0	2.4		25	0.1	0.7		
7	0	1.7		26	0.3	1.8		
8	0	0		27	0	0		
	0.3	1.0		SQUELCH	28	0		5.6
9	0	6.4		NO SQUELCH	<b>Q206 M51513L</b>			
	0	2.9		SQUELCH	PIN NO	Tx		Rx
10	0	3.1			1	6.4		6.5
11	0.3	2.9			2	12.4		12.7
12	0	3.0			3	10.6		10.9
13	0	3.5			4	3.8		3.9
14	0	0.7			5	3.0		3.0
15	0	0			6	3.1		3.2
16	0	0			7	1.9		1.9
17	0	3.5			8	7.6		7.7
18	0	0.7		9	1.3	1.3		
19	0	0		10	0	0		

		Vb(V)		Vc(V)		Ve(V)	
		Tx	Rx	Tx	Rx	Tx	Rx
<b>Q102</b>	<b>2SD467</b>	0.8	7.1	9.0	9.0	0.3	6.5
<b>Q201</b>	<b>2SC458</b>	3.9	10.6	12.6	12.7	3.3	10.4
<b>Q202</b>	<b>2SC458</b>	1.9	2.6	3.9	10.9	1.3	3.7
<b>Q203</b>	<b>2SC458</b>	2.5	3.2	9.0	10.9	2.0	2.6
<b>Q204</b>	<b>2SA844</b>	5.7	6.9	2.5	3.1	6.3	7.6
<b>Q205</b>	<b>2SB561</b>	0	0	0	0	0	0
<b>Q301</b>	<b>2SC1908</b>	2.9	3.3	12.7	12.7	2.2	8.9
<b>Q302</b>	<b>2SC2086</b>	0.2	0	12.3	13.4	0	0
<b>Q303</b>	<b>2SC2166</b>	0.2	0	12.3	13.4	0.1	0
<b>Q401</b>	<b>2SC1173</b>	9.6	9.5	12.6	12.8	8.9	8.9
<b>Q601</b>	<b>2SC458</b>	0	2.0	0	6.6	0	1.65

		Vb(V)		Vc(V)		Ve(V)	
		Tx	Rx	Tx	Rx	Tx	Rx
<b>Q1</b>	<b>2SC1583</b>	0.1	0	8.8	9.0	0.9	0
		1.5	0	8.8	9.0	0.9	0
<b>Q2</b>	<b>2SA673</b>	8.8	9.0	0	0	9.0	9.0

## **TECHNICAL INFORMATION**

### **FEDERAL COMMUNICATIONS COMMISSION REQUIREMENTS**

The technical information, diagrams, and charts provided in this manual are supplied for the use of a qualified holder of a first or second class radiotelephone license in servicing this transceiver. It is the user's responsibility to see that this unit is operating at all times in accordance with the F. C. C. citizens radio service regulations.

If you install your own transceiver, do not attempt to make any transmitter tuning. Adjustments are prohibited by the F. C. C. unless you hold or are in the presence and under the supervision of a first or second class radiotelephone licensed person. A Citizens Band or Amateur license is not sufficient.

## **LIMITED WARRANTY**

We warrant each new Royce product to the original consumer purchaser to be free from defects in material and workmanship for a period of ninety (90) days from date of purchase as shown on purchaser's receipt.

Royce will repair or replace, AT ITS OPTION AND FREE OF CHARGE, during the warranty period, any part which proves defective in material and/or workmanship under normal installation, use, and service. To obtain the name and address of a warranty service center in your area, just contact your local dealer listed in the telephone directory or return the unit to our factory, TRANSPORTATION CHARGES PREPAID, at the address below. THIS WARRANTY IS LIMITED TO DEFECTIVE PARTS REPAIR AND/OR REPLACEMENT ONLY AND DOES NOT COVER ANY ACCESSORY USED IN CONNECTION WITH THIS PRODUCT. LABOR CHARGES AND/OR DAMAGE INCURRED IN INSTALLATION, REPAIR, OR REPLACEMENT AS WELL AS INCIDENTAL AND CONSEQUENTIAL DAMAGES CONNECTED THEREWITH ARE EXCLUDED.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

Any damage to this product as a result of misuse, abuse, neglect, accident, incorrect wiring (not our own), improper installation, repair or alteration outside our factory or authorized service centers, or any use violative of instructions furnished by us, WILL VOID THIS WARRANTY.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. In the event of a problem with warranty service or performance, you may be able to go to a small claims court, a state court, or a federal district court.

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