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Royce 1-601 Owner's Ser. 1 Manual  
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**Royce**   
ELECTRONICS CORPORATION

Model I-601

# OWNER'S MANUAL

23-Channel AM Mobile  
Citizensband  
Transceiver



## **GENERAL**

Your new Royce 1-601 is a professional quality 23 Channel AM Citizens Band transceiver. It has many innovative engineering and user functions. 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 circuit employing a RF amplifier stage is used. Sensitivity of less than 1/2 microvolt on AM provides long range reception.

Three ceramic filters provides a high degree of selectivity and rejection of unwanted adjacent channel signals. Additional receiver features include: variable squelch, noise eliminator, delta tuning, push-pull audio, metering, tone selector and integrated circuit predriver stage.

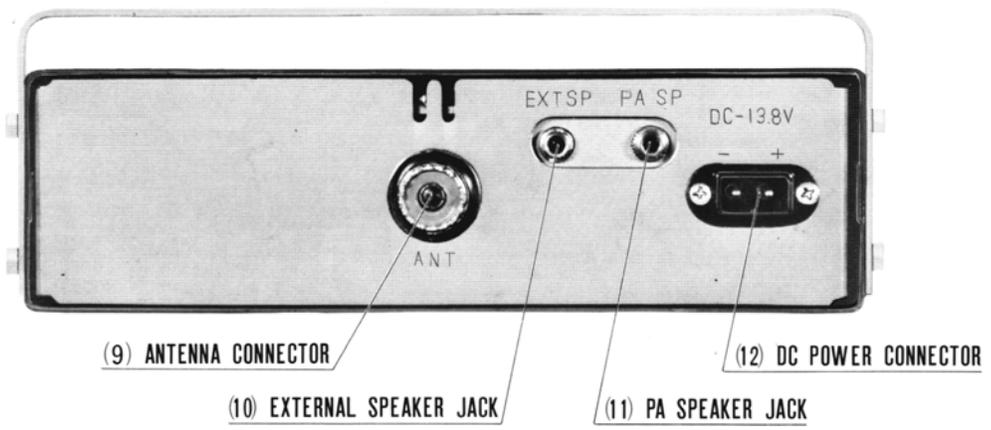
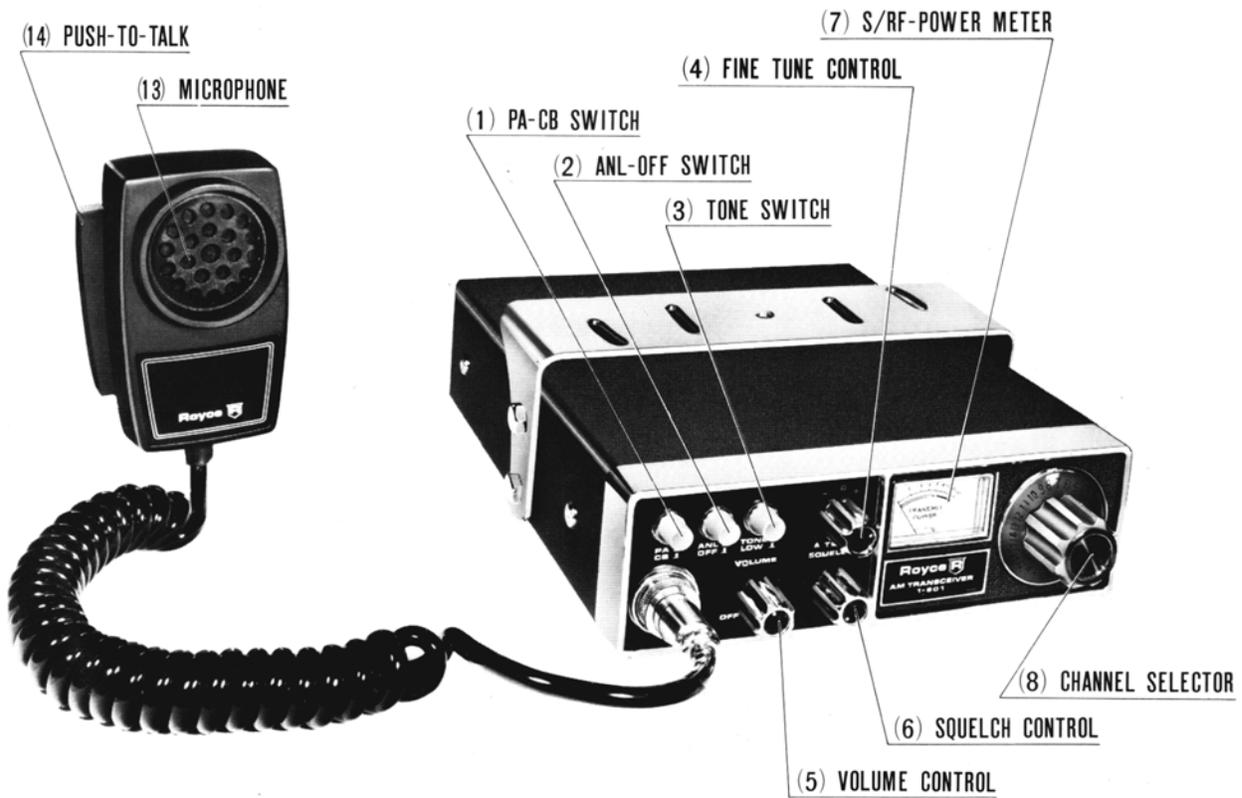
### **TRANSMITTER**

High efficiency is obtained through use of select components and sophisticated engineering design. An AMC circuit is employed to provide maximum "Talk Power" without distortion.

### **POWER SUPPLY**

Either Positive or Negative ground 12 Volts DC (13.8 VDC EIA) is built in.

# OPERATION OF CONTROLS



- Front View:
1. PA-CB SWITCH
  2. ANL-OFF SWITCH
  3. TONE SWITCH
  4. DELTA TUNE CONTROL
  5. VOLUME CONTROL
  6. SQUELCH CONTROL
  7. S/RF-POWER METER
  8. CHANNEL SELECTOR

- Rear View:
9. ANTENNA CONNECTOR
  10. EXTERNAL SPEAKER JACK
  11. PA SPEAKER JACK
  12. DC POWER CONNECTOR
- Microphone:
13. MICROPHONE
  14. PUSH-TO-TALK

# FEATURES AND CONTROLS

## 1. 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.

## 2. VOLUME/POWER ON-OFF

This combination control supplies power to your 1-601 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.

## 3. RECEIVER TUNE (FINE TUNING)

The Tune Control is an electronic tuning circuit which allows you to shift the frequency of your receiver plus or minus 1.5KHz (3.0 KHz total).

This allows you to compensate for an incoming signal which may be slightly off frequency. Adjust the Tune Control circuit for maximum "S" meter reading.

## 4. AUTOMATIC NOISE ELIMINATOR

Your 1-601 is equipped with a sophisticated electronic noise eliminator system to greatly reduce extraneous noise coming into the receiver. In effect, noise pulses are clipped from incoming signals before they reach the amplification stage of the receiver. This causes no loss in the signal receive level. The ANL circuit should normally be left on. A switch has been provided to eliminate this circuit if desired.

## 5. TONE

The pushbutton Tone switch varies the audio level response of the receiver. In noisy areas, a high cut (treble) audio response makes reception easier. For high cut response, push the button to the in position. For normal tone, the button should be in the out position.

## 6. PA-CB

In the "PA" position, your 1-601 is converted to a public address amplifier or hailer. The PA function should not be used unless an 8-16 ohm external speaker is connected to the "PA" Jack located on the back of the chassis. Once this optional speaker has been connected, simply put the PA-CB switch to the "PA" position and depress the microphone push-to-talk switch.

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

## **7. S/RF METER**

The 1-601 is equipped with a large, easy-to-read combination meter. In the receive position, the meter reads the level of the incoming signals. In the transmit position, it indicates relative power output. When switched to the transmit mode, the meter color will change from white to red (visually indicating transmit mode). The intensity of the red will vary with your voice to indicate modulation.

## **8. CHANNEL SELECTOR**

The channel selector switch is used to select the fixed center frequency. It automatically adjusts both the receive and transmit frequencies. Set the selector switch to the desired channel.

## **9. PA SPEAKER JACK**

For attaching optional 8-16 ohm PA speaker. Use 3.5mm Jack.

## **10. EXTERNAL SPEAKER JACK**

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

## **11. ANTENNA CONNECTOR**

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

## **12. DC POWER CORD**

To attach to power source.

## **13. MICROPHONE**

The receiver and transmitter are controlled by the press-to-talk switch on the microphone. To transmit, simply press in this switch. Release the switch to receive. When transmitting, hold the microphone 3 to 4 inches from your mouth and speak clearly at normal voice levels.

# SPECIFICATIONS

## GENERAL

- |                         |   |   |
|-------------------------|---|---|
| 1. Semiconductors       | : | 21 Transistors, 13 Diodes and 1 IC  |
| 2. Frequency Range      | : | 26.965 MHz - 27.255 MHz   |
| 3. Mode of Operation    | : | AM  |
| 4. Controls             | : | Volume Control with power on-off switch<br>Variable Squelch Control<br>Delta Tune Control<br>Channel Selector Switch<br>CB-PA Switch<br>ANL Switch<br>TONE Switch |
| 5. Connectors and Jacks | : | Microphone Connector<br>Coaxial type Antenna Connector<br>Public Address Speaker Jack 3.5 MM<br>External Speaker Jack 3.5 MM                                      |
| 6. Speaker              | : | 3-1/2 inches, 8 ohms  |
| 7. Microphone           | : | Dynamic Microphone (500 ohms)   |
| 8. Power Supply         | : | 13.8 VDC Positive or Negative Ground  |
| 9. Dimensions           | : | 7-1/16" (W) x 2-5/32" (H) x 8-1/32" (D)   |
| 10. Weight              | : | 3 LBS. 13 OZ.   |

## RECEIVER

- |                                 |   |  |
|---------------------------------|---|--|
| 1. Sensitivity at S/N 10 dB     | : | 0.5 uV Typical   |
| 2. Adjacent Channel Selectivity | : | More than 80dB   |
| 3. AGC Figure of Range          | : | 80 dB  |
| 4. Squelch Range                | : | 0.5 uV - 500 uV  |
| 5. Audio Output Power           | : | 4 Watts  |
| 6. Distortion at input 100 uV   | : | 6 %  |
| 7. Audio Frequency Response     | : | 400 - 2000 Hz  |
| 8. Supurious Response           | : | More than 45 dB supurious signal is required to produce the same amount of audio output as the desired receive signal. |
| 9. IF Frequency                 | : | 1st...10.595 - 10.635 MHz 2nd...455 KHz  |
| 10. Current Drain no audio      | : | 250 mA   |

## TRANSMITTER

- |                          |   |                 |
|--------------------------|---|-----------------|
| 1. RF Output Power       | : | 4 Watts         |
| 2. Modulation Capability | : | Up to 98 %      |
| 3. Harmonic Suppression  | : | More than 50 dB |
| 4. Current Drain         | : | 1200 mA         |

## 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 do operate on positive ground. Your Royce 1-601 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 convenient 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 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, 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 1-601 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 adverse condition. 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. (These regulations limit the antenna height to 60 feet above an existing structure for a non-directional antenna and 20 feet above an existing structure for a beam) Generally 26 feet of lead-in cable should be used to line losses. However, a desirable antenna location may justify the loss in extra lead-in length.

### **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-wavelength whip 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 INSTALLATIONS**

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 the 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 INSTALLATIONS**

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 1-601. Do not attempt to operate this transceiver by connecting directly to 110 Volts AC.

# MOUNTING INSTRUCTIONS

