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Royce 1-619 Owner's Manual

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Royce 
ELECTRONICS CORPORATION

Model 619

OWNER'S MANUAL

40-Channel AM Base Station
Citizensband
Transceiver



GENERAL

Your new Royce 619 is a professional quality 40 Channel AM Citizensband transceiver. It incorporates Royce's unique PLL oscillator system for accurate on-channel operation. It also incorporates several additional 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

A. GENERAL

Your new 619 combines features and innovations for all-around versatility. The 619 will operate from 115 Volts AC (house current) or 12 Volts DC (positive or negative ground). The front mounted speaker projects sound forward for better clarity. A public address circuit allows you to convert the 619 into a paging system. Jacks are provided for external speakers and PA speakers.

B. RECEIVER

A tuned RF stage is employed to pull in even weak signals. The I.F. system is dual conversion and a ceramic filter is employed to reduce interference from adjacent channels. A RF Gain Control is provided to let you adjust the sensitivity level of the receiver. A Mic Gain Control lets you adjust modulation levels to maximize performance. A large meter monitors the incoming signal level. Other features include ANL, AGC, Volume, Squelch, and Transmit Indicator Light.

C. TRANSMITTER

The heart of your 619 is the all new PLL oscillator. It provides full 40 channel operation from only two crystals. Integrated circuits plus other components replace the balance of crystals. PLL is the most accurate frequency system available for CB.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

NOTE: The Model Number and Serial Number of your 619 are located on the metal plate riveted to the rear panel of the unit. Record and retain these numbers for your future reference. Model No. _____ Serial No. _____

OPERATION OF CONTROLS



- FRONT VIEW:**
1. POWER ON/OFF SWITCH
 2. PA/CB SWITCH
 3. VOLUME CONTROL
 4. MIC GAIN CONTROL
 5. SQUELCH CONTROL
 6. RF GAIN CONTROL
 7. CHANNEL SELECTOR
 8. NOISE LIMITER SWITCH
 9. LED CHANNEL INDICATOR
 10. TRANSMIT LIGHT
 11. SIGNAL TRANSMIT POWER METER
 12. MICROPHONE CONNECTOR

- REAR VIEW:**
13. ANTENNA CONNECTOR
 14. FCC PLATE
 15. EXTERNAL SPEAKER
 16. P. A. SPEAKER
 17. FUSE
 18. DC POWER CORD
 19. AC POWER CORD
 20. AC-DC SWITCH

- MICROPHONE:**
21. MICROPHONE
 22. PUSH-TO-TALK SWITCH

FEATURES AND CONTROLS

POWER ON/OFF SWITCH

The switch simply turns your 619 on and off.

VOLUME CONTROL

This control adjusts the receiver volume. The control should be turned clockwise to increase the volume.

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.

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 L. E. D. (Light Emitting Diodes) numerals.

MIC GAIN CONTROL

This control allows you to adjust microphone sensitivity or power to compensate for different operating situations. Maximum microphone sensitivity or power is obtained at the full clockwise position and the control should be set to this point for normal operation and maximum range. Examples of how this control can help to maximize communications effectiveness are as follows: When you are operating at extremely close proximity (within 100 yards or meters) of the other station, reducing the microphone gain may help to eliminate overload and distortion at the other station. When you are operating in an extremely noisy environment such as may be found in the cab of certain large trucks, open sports cars, or around noisy machinery, in order to avoid or reduce the amount of noise that goes out with your signal, you can reduce the microphone gain and by speaking more closely and loudly into the microphone, reduce the ratio of noise to voice.

RF GAIN CONTROL

This control allows you to adjust the basic sensitivity of the receiver section of the transceiver. It is somewhat like the microphone gain control in that it allows you to compensate for different or varying operation conditions. Maximum RF Gain or receiver sensitivity is obtained at the maximum clockwise position of this control, and the control should be set to this point for normal operating and maximum range. For example, when operating at close proximities to other strong signals, it may be helpful to reduce the RF Gain to avoid overload or distortion or interference from adjacent channels.

PA-CB SWITCH

When the PA/CB switch is placed in the PA position, it converts your 619 into a powerful Public Address System. The "PA" function requires 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 switch in the "PA" position

and depress the microphone Push-To-Talk switch to activate the set.

S/RF METER

The 619 is equipped with a combination S-RF Meter. In the receive position, the meter reads the level of the incoming signals. In the transmit position, the meter indicates relative power output.

AUTOMATIC NOISE LIMITER (ANL)

Your 619 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.

TRANSMIT LIGHT

This light gives you a visual indication of the transmit mode.

AC-DC SWITCH

This switch selects the power input source. Turn to AC for 115 Volts-60 Hertz (house current). Put on DC for 12 Volts operation.

PA SPEAKER JACK

For attaching optional 8-16 ohm PA speaker. Use 3.5 MM jack.

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.

DC POWER CORD

To attach unit to positive or negative ground 12 Volts source, a convenient quick disconnect is provided.

AC POWER CORD

To operate unit from 115 Volts AC-60 Hz (ordinary house current).

ANTENNA CONNECTOR

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

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 three to four inches from your mouth and speak clearly at normal voice levels.

SPECIFICATIONS

GENERAL

- | | |
|--|--|
| 1. Semiconductors | : 22 transistors, 1 FET, 22 diodes, 3 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
: Variable Mike Gain Control
: Variable Squelch Control
: Variable RF Gain Control
: Power on-off Push Switch
: Channel Selector
: LED channel indicator
: TX Light (RED)
: Illuminated S/RF power meter
: AC-DC Slide Switch
: PA-CB Slide Switch
: ANL ON-OFF Slide Switch
: Coaxial type antenna connector
: Microphone connector
: DC Cord with connector
: External Speaker Jack
: Public Address Speaker Jack |
| 5. Power Supply | : 13.8 Volts DC (positive or negative ground)
: AC 117V 50/60Hz |
| 6. Cabinet Description | : Vinyl Clad Steel |
| 7. Dimensions | : 7-7/16"(D) × 11-7/16"(W) × 4"(H) |

RECEIVER

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

TRANSMITTER

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

POWER SUPPLY

AC OPERATION:

Your Royce 619 is designed to operate from any 117 Volts AC, 60 Hertz (ordinary house current) outlet. Simply connect the AC power cord to any convenient house outlet.

DC OPERATION:

While it is highly unlikely that you will use your 619 in an automobile, you may desire to run it off a 12 Volt battery in case of emergencies. You can do this by attaching the DC cord to the set. Attach the red (fused) wire to the battery plus (+) terminal. Attach the black lead to the battery minus (-) terminal.

SHOULD YOU DESIRE TO OPERATE THE 619 IN YOUR VEHICLE, IT IS EQUIPPED TO OPERATE EITHER POSITIVE OR NEGATIVE GROUND. CAREFULLY FOLLOW THE INSTRUCTIONS BELOW.

NO MOBILE MOUNTING BRACKET IS SUPPLIED OR AVAILABLE.

NEGATIVE - POSITIVE GROUNDING:

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 619 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 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 619 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 limits are printed in the Part 95 F. C. C. regulations enclosed 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 communications. 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 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.

OPERATING PROCEDURES

A. AC OPERATION

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

CHECK AND MAKE SURE THE PROPER CONNECTIONS HAVE BEEN MADE ON THE POWER CABLE, ANTENNA, AND MICROPHONE.

B. RECEIVER

- a. Plug in microphone.
- b. Turn the volume and squelch controls fully counter clockwise.
- c. Turn the RF Gain and the MIC Gain fully clockwise.
- d. Set Channel selector to desired channel.
- e. Put AC-DC switch to the AC position.
- f. Put ANL pushbutton switch to A.N.L. position.
- g. Plug AC cord into any convenient house outlet.
- h. Place On/Off pushbutton in "On" position and increase volume to desired level.
- i. With no signal present, rotate Squelch control clockwise until the rushing noise disappears.

C. 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 YOUR 619 WITHOUT AN ADEQUATE ANTENNA SYSTEM OR LOAD. ANTENNA SWR SHOULD NOT EXCEED 3:1. FAILURE TO FOLLOW THESE RECOMMENDATIONS COULD RESULT IN UNIT DAMAGE.

- a. Rotate the Channel selector to desired channel.
- b. Depress the Push-To-Talk switch on the microphone. Hold the microphone 3 to 5 inches from your mouth and talk in a normal voice level.

D. DC OPERATION

Follow all of the above except—put switch to DC position and attach DC cord to a 12 Volt source.

BLOCK DIAGRAM

