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Royce 1-630 Ser. 2 Owner's Manual
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Royce 
ELECTRONICS CORPORATION

Model 1-630

OWNER'S MANUAL

SSB/AM
23-Channel Mobile
Citizensband
Transceiver



GENERAL

Your new Royce 1-630 is a professional quality Citizens Band transceiver designed to operate on either AM, Lower Single Sideband (LSB), or Upper Single Sideband (USB). 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

Super sensitive dual conversion circuit employing a new MOS FET (Field Effect Transistor) RF amplifier stage. Sensitivity less than 2/10 of a microvolt on SSB and 1/2 microvolt on AM. This newly developed MOS-FET RF stage virtually eliminates cross modulation and provides unexcelled receiver sensitivity.

And 8-pole crystal lattice filter on SSB provides a high degree of selectivity and rejection of unwanted adjacent channel signals. Additional receiver features include: tone control, variable squelch, noise blanker, clarifier control, push-pull audio, metering and noise limiter.

TRANSMITTER

High efficiency is obtained through use of select components and sophisticated engineering design. An ALC circuit is employed in the SSB mode to provide maximum "Talk Power" without distortion. The SSB signal is generated by use of a balanced modulator.

POWER SUPPLY

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

OPERATION OF CONTROLS



- Front View:
1. VOLUME CONTROL/VOL-U-MATIC
 2. TONE CONTROL
 3. SQUELCH CONTROL
 4. MODE SWITCH FOR LSB-USB-AM
 5. CLARIFIER
 6. NOISE BLANKER ON-OFF
 7. CB-PA SWITCH
 8. S/RF-POWER METER
 9. CHANNEL SELECTOR

- Rear View:
10. PA SPEAKER
 11. EXTERNAL SPEAKER
 12. ANTENNA CONNECTOR
 13. DC POWER CONNECTOR
- Microphone
14. MICROPHONE
 15. REMOTE VOLUME CONTROL
 16. PUSH-TO-TALK

FEATURES AND CONTROLS

1. VOL-U-MATIC/POWER ON-OFF

Your Royce 1-630 is equipped with a NEW versatility feature. VOL-U-MATIC allows you to control the receiver volume from either the front panel or remotely from a control located on the microphone.

To adjust receiver volume from the front panel control, turn the volume control located on the microphone to its minimum. This is accomplished by moving the control in a downward position to its minimum. The front panel volume control will now function in a normal manner. Adjust it for desired listening level.

To use the remote volume control located on the microphone, (1) adjust the volume control on the microphone to its minimum level. This is accomplished by moving the control downward. (2) Turn the volume control (located on the front panel) to minimum by rotating it counter-clockwise (3) Now, simply adjust the volume to desired listening levels by moving the control on the microphone in an upward position.

The front panel control also functions as a Power On-Off Switch. To turn the set on, simply advance this control until the channel lights and meter are illuminated.

2. TONE CONTROL

This control varies the audio level response of the receiver. In noisy areas, a high treble audio response makes reception easier. This control can be varied through a range of audio response from bass to treble. Adjustment should be made to suit receiving conditions or individual preference.

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. MODE SWITCH FOR LSB-USB-AM

AM transmission is amplitude modulation of the radio frequency carrier with an audio signal (voice). The components of the transmitted signal include the carrier and its two sidebands, upper and lower. For 100% modulation, each sideband contains one-fourth as much power as the carrier. The information transmitted is in the sidebands.

USB transmission is the transmission of the upper sideband only of a single sideband signal. In single sideband transmission, the carrier and one sideband are removed from the transmitted signal. Thus, only one sideband is transmitted.

LSB transmission is the transmission of the lower sideband, only.

5. CLARIFIER

The clarifier is an electronic tuning circuit which allows you to shift the frequency of your receiver and transmitter plus or minus 750 Hertz (1.5 KHz total). In SSB operation, even small differences in frequencies between stations can cause poor reception. In effect, the clarifier

electrically fine tunes the station being received. In AM operation, this acts as a DELTA TUNE circuit.

6. NOISE BLANKER

Your 1-630 is equipped with a sophisticated electronic noise blanker system to virtually eliminate extraneous noise coming into the receiver. In effect, noise pulses are blanked (or eliminated) from incoming signals before they reach the amplification stage of the receiver. This causes no loss in the signal receive level. Noise blankers are much more effective than noise limiters in eliminating noise from power lines, auto ignitions, etc. Generally, the noise blanker should be left on at all times. A switch has been provided to eliminate this circuit if desired.

7. PA-CB

In the "PA" position, your 1-630 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.

8. S/RF METER

The 1-630 is equipped with a large, easy-to-read combination meter with a built-in transmit and modulation light.

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.

NOTE: (1) In the AM mode, the meter will read power at all times when the transmit button is depressed. On SSB, however, it will only indicate RF output power when you modulate the signal.

(2) In the SSB mode, no meter can follow the rapid voice peak power attained. Therefore, while the transmitter is developing much more power than on AM, this additional power will not be fully reflected on the meter.

9. 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.

10. PA SPEAKER JACK

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

11. EXTERNAL SPEAKER JACK

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

12. ANTENNA CONNECTOR

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

13. DC POWER CONNECTOR

To attach to power source.

14. 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 | : 36 Transistors, 2 FET, 1 MOS-FET and 51 Diodes |
| 2. Frequency Range | : 26.965MHZ – 27.255 MHZ |
| 3. Modes of Operation | : AM, Lower Sideband and Upper Sideband |
| 4. Controls | : Volume Control with power on-off switch
: Variable Tone Control
: Variable Squelch Control
: Mode Selector Switch
: Clarifier Control
: Channel Selector Switch
: CB-PA Switch
: Noise Blanker Switch |
| 5. Connectors and Jacks | : Microphone Connector
: Coaxial type Antenna Connector
: Public Address Speaker Jack
: External Speaker Jack
: DC Power Jack |
| 6. Speaker | : 3-1/2 inches, 8 ohms |
| 7. Microphone | : Dynamic Microphone(500 Ohms) with Remote Volume Control |
| 8. Power Supply | : 13.8VDC |
| 9. Dimensions | : 8-7/16"(W) x 2-3/16"(H) x 8-1/2"(D) |
| 10. Weight | : 5 LBS 8 OZS |

RECEIVER

- | | | |
|------------------------------|---|------------------------|
| 1. Sensitivity at S/N 10db | : AM 0.7uV | SSB 0.2uV |
| 2. Selectivity | : AM 5KHZ | SSB 2.2KHZ |
| 3. AGC Figure of Range | : 80dB | |
| 4. Squelch Range | : 0.5uV – 500uV | |
| 5. Audio Output Power | : 4 Watts | |
| 6. Distortion at input 100uV | : 6% | |
| 7. Audio Frequency Response | : 300 – 2200HZ | |
| 8. Supurious Response | : More than 45dB supurious signal is required to produce the same amount of audio output as the desired receive signal. | |
| 9. IF Frequency | : AM 1st 11.275MHZ, | SSB 11.2735MHZ |
| 10. Current Drain no audio | : 250mA | |

SSB TRANSMITTER

1. RF Input Power : 25 Watts PEP
2. RF Output Power : 12 Watts PEP
3. Carrier Suppression : More than 40dB
4. Unwanted Sideband Suppression : More than 50dB
5. Harmonic Suppression : More than 50dB
6. Current Drain : 500mA

AM TRANSMITTER

1. RF Output Power : 4 Watts
2. Modulation Capability : More than 75%
3. Harmonic Suppression : More than 50dB
4. Current Drain : 1200mA

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 1-630 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. An adjustable loading network is provided to match antenna impedance exactly.

ANTENNA INSTALLATION

BASE STATION:

When the 1-630 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 20 feet above an existing structure). Generally a maximum of 26 feet of lead-in cable should be used due 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-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 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. A 1.0 mfd condenser connected between the generator armature post and ground will help greatly.

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 1-630. Do not attempt to operate this transceiver by connecting directly to 110 Volts AC.