

# RCI — 2950

**AM/FM/SSB/CW/ AMATEUR MOBILE TRANSCEIVER**

## **OWNER'S MANUAL**

This Manual Provided By Eric @ Eric's Radio  
For CBTricks.com

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## INTRODUCTION

Congratulations on your purchase of RCI-2950 10-meter amateur radio. Your RCI-2950 is designed around the state-of-the-art electronics and incorporated with many fine features. Please read this manual thoroughly to get the most from this fine piece of equipment.

**IMPORTANT:** To operate this radio, you must have an amateur radio operator's license issued by FCC. Operating this radio without having a license is **ILLEGAL** and results in penalties.

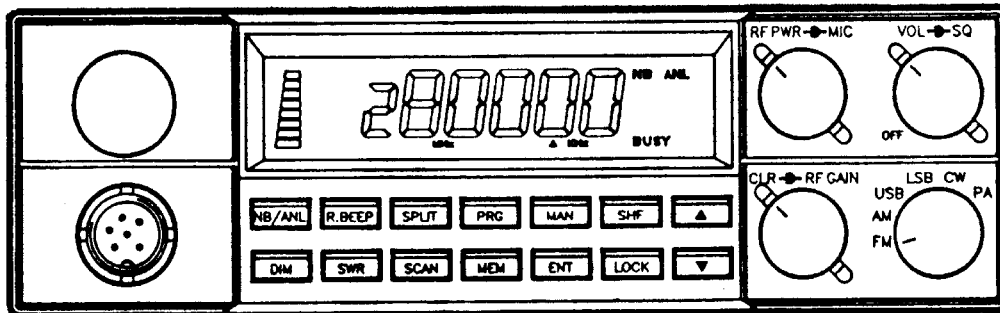
## UNPACKING

The following items are included with your RCI-2950. Carefully remove them from the packing carton and examine them. If any items are missing or appear damaged, please contact the dealer you bought the radio from.

1. RCI-2950 Transceiver.
1. Dynamic Microphone with frequency up/down buttons.
1. Power cord.
1. Mounting Bracket & Hardware.
1. Installation Hardware.
1. Operating Manual.
1. Warranty Registration Card.

It is recommended that you save the box and packing materials for future storage or shipping.

## CONTROL FUNCTIONS

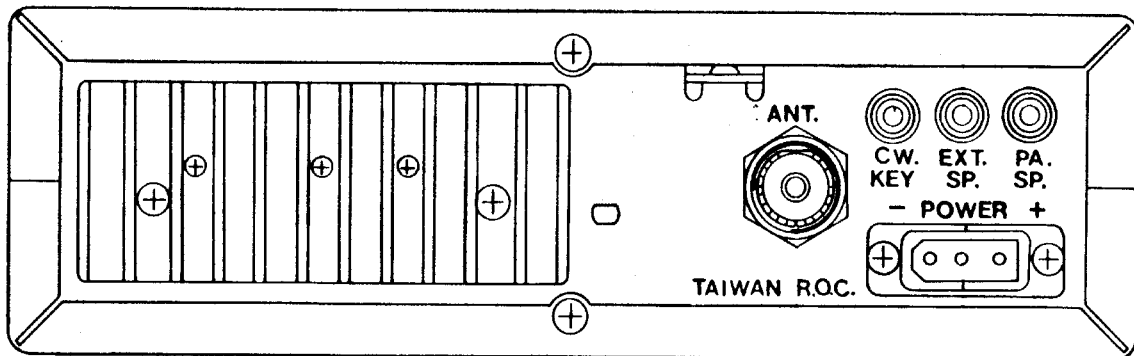


1. **FREQUENCY SELECTOR.** This control is used to select a desired transmit and receive frequency. It enables you to make a continuous tuning over the entire range of the transceiver.

2. **RF POWER CONTROL** (inner dual concentric). This control enables you to adjust RF power continuously over the range of 1 watt through 25 watts.
3. **MIC GAIN CONTROL** (outer dual concentric). This control adjusts the microphone gain in the transmit and PA modes. This feature is designed for use in a high ambient noise environment or to maximize talk power.
4. **ON-OFF/VOLUME CONTROL** (inner dual concentric). Turn clockwise to apply power to the radio and to set the desired listening level.
5. **SQUELCH CONTROL** (outer dual concentric). This control is used to cut off or eliminate receiver background noise in the absence of an incoming signal. For maximum receiver sensitivity, it is desired that the control be adjusted only to the point where the receiver background noise is eliminated. Turn fully counterclockwise, then slowly clockwise until the receiver noise disappears. Any signal to be received must now be slightly stronger than the average received noise. Further clockwise rotation will increase the threshold level which a signal must overcome in order to be heard. Only strong signals will be heard at a maximum clockwise setting.
6. **CLARIFIER CONTROL** (inner dual concentric). This control is used to fine tune the received signal for the maximum clarity in SSB or CW mode. It can adjust the receive frequency about  $\pm 500\text{Hz}$ , but does not affect the transmit frequency or the frequency display.
7. **RF GAIN CONTROL** (outer dual concentric). This control is used to reduce the RF amplifier gain under strong signal conditions.
8. **MODE SWITCH**. This switch allows you to select one of the following operating modes: FM, AM, USB, LSB, CW and PA.
9. **NB/ANL SWITCH**. The Noise Blanker is very effective in eliminating repetitive impulse noise such as ignition interference. In the ANL position, the automatic noise limiter in the audio circuits is activated.
10. **ROGER BEEP SWITCH**. This switch activates the ROGER BEEP circuit when its function is selected.
11. **SPLIT SWITCH**. This switch enables you to split an operating frequency for FM repeater operation.
12. **PROGRAM SWITCH**. This switch is used to program operating or scanning frequencies into memory. See the OPERATION section of the manual for details.
13. **MANUAL SWITCH**. This is used to return to the manual mode.
14. **SHIFT SWITCH**. This is used to select 100Hz, 1KHz, 10KHz, 100KHz or 1MHz frequency steps.
15. **DIM SWITCH**. This switch adjusts the display backlighting in four different steps to best match the environment.
16. **SWR**. This switch is used to check SWR.
17. **SCAN**. This switch is used to scan frequencies in each band segment. The OPERATION section of this manual provides detailed information on using this scan control.
18. **MEMORY SWITCH**. This is used to program memory channels. Detailed information on how to use this control is provided in the OPERATION section of the manual.

19. **ENTER SWITCH.** This is used to program frequencies in memory. See the OPERATION section of the manual for more information on using this control.
20. **LOCK SWITCH.** This switch is used to lock a selected frequency. Press it to activate the switch. In that position, it disables Frequency Selector Control, up/down buttons on the front control panel, or remote up/down buttons on the microphone. Reprising the switch will unlock the frequency.
21. **▲ UP/ ▼ DOWN SELECTOR.** These buttons are used to move frequency upward or downward to select a desired frequency.

## REAR PANEL CONNECTORS



1. **ANTENNA.** This jack accepts 50-ohm coaxial cable with a PL259 type plug.
2. **CW KEY.** This jack is used for Morse Code operation. To operate this mode, connect a CW key to this jack and place the MODE SWITCH in the CW position.
3. **EXTERNAL SPEAKER.** This jack accepts 4- to 8-ohm 5-watt external speaker. When the external speaker is connected to this jack, the built-in speaker is automatically disconnected.
4. **PA SPEAKER.** An 8-ohm 4-watt PA speaker may be connected to this jack for PA operation. Place MODE SELECTOR in PA position for this operation.
5. **POWER.** This accepts 13.8V DC power cable with a built-in fuse. The power cord provided with the radio has a black and red wire. The black wire goes to negative and the red wire goes to positive.

## MICROPHONE

1. **PTT SWITCH.** Use the Push to Talk switch to control the transmit and receive of the radio. Push to transmit and release to receive.
2. **REMOTE UP AND DOWN SWITCH.** You can step up or down an operating frequency by simply pushing either of these buttons.

## INSTALLATION

RCI-2950 is easy to install. All the necessary parts have been included with the radio.

### Mounting of Transceiver

Choose a location for the transceiver where there is easy access to the front panel and free air circulation at the back of the unit. If you are installing the radio in a vehicle, attach the mounting bracket first, then attach the transceiver to the mounting bracket using the hardware provided. Before making any electrical connection, make sure the transceiver is turned off.

### Making Power Connection

The transceiver works on any regulated 13.5V DC negative ground source. An automobile 12-volt negative ground system is usually more than adequate.

The condition of a vehicle's electrical system can affect operation.

Low battery, worn generator/alternator, or poor voltage regulator will impair the performance of the radio as well as the vehicle. For example, high noise generation or low voltage delivery can result from these conditions.

If an AC power supply is used with your radio, make sure it is regulated and rated for at least 7 amps. Low voltage while under load will reduce receiver gain and transmitter output.

**CAUTION:** Voltage above 15V DC will damage your radio. Be sure to check the source voltage before connecting the power cord.

## OPERATION

### Frequency Selection

A frequency selection on your RCI-2950 is simple. You can select a desired operating frequency by rotating the Frequency Selector, or using up and down buttons on the front panel or the microphone. Press the LOCK button to lock the selected frequency. It will disable the Frequency Selector, or the up and down button on the front panel or the microphone. Press it again to unlock the frequency.

Use the SHF button to step frequency in either 100Hz, 1KHz, 10KHz, 100KHz or 1MHz increment when you select a band segment. The frequency step is

indicated by a dot directly under the corresponding digit on the frequency display.

### **Mode Selection**

To select an operating mode on your RCI-2950, simply rotate the Mode Selector and place it in the desired operating mode position. The PTT Switch on the microphone controls the transmit and receive of your radio.

FM/AM/USB or LSB mode is for your voice communications. At CW position, you can transmit CW if you have connected an external key to the accessory plug provided on the back of the radio. At PA position, you can use the radio as a PA amplifier. Before operating on PA mode, you must first connect a PA speaker (8ohm 4-watt) to the jack provided on the back of the radio.

### **RF Power Control**

This new feature incorporated in your RCI-2950 enables you to adjust the RF output power continuously over the range of 1 watt through 25 watts.

### **Receive Scanning**

The receive scanning enables you to find active frequencies in the entire band segment. To begin scanning, slowly turn the Squelch control clockwise until the receiver noise disappears. Press the Scan button. It starts scanning from lower to higher frequencies. Pressing the Scan button again will change the direction of scanning. Each time you press the Scan button, "SCAN +" or "SCAN -" will be displayed on the LCD display. The scan will stop at an active frequency for an entire duration of the transmission. When the transmission stops, the RCI-2950 will wait approximately 2 seconds before it resumes scanning. If you want to deactivate Scan mode while it's scanning, press the MAN (manual) button or turn the Squelch control counter-clockwise until you hear the receiver noise. The Manual button will disable the Scan function.

### **Split Function**

This function enables you to split the transmit and receive frequencies for FM repeater operation. To split frequencies, press the MAN button and the Split button to select + split frequency. If you want - split frequency, press the Split button again. If + split is selected, the transmit frequency will be higher than the receiver frequency. If - split is selected, it will be lower than the receive frequency.

## OFFSET FREQUENCY PROGRAMMING

The following steps will allow you to program an offset frequency into your transceiver. An offset of 100 KHz will be used as an example. Before you begin the programming sequence, ensure that the transceiver is operating in the Manual mode by pressing the Manual (MAN) push button on the front panel.

1. Press the Program (PRG) key.
2. Press the SPLIT key.
3. Using the SHF button to move the cursor arrow, adjust the display to read **01000**.
4. Press the Enter (ENT) key.
5. Press the Manual (MAN) key.
6. Select the desired receive frequency.
7. Press the SPLIT key. On the lower right hand corner of the display, **SPLIT —** will now be displayed. When keyed, the radio will now transmit 100 KHz below the the receive frequency. The actual transmit frequency will be displayed when the radio is keyed. If a positive offset is desired, press the SPLIT key again. The display should now **SPLIT +**. The unit will now transmit 100 KHz above the selected receive frequency.
8. To return to simplex operation (i.e., transmit and receive on the same frequency) simply return the unit to the manual mode of operation by pressing the MAN key.



## Memory Function

Your RCI-2950 can store in its memory up to 10 most frequently used channels (from 0 to 9). To program the frequency into memory, follow the procedure described below:

- 1) Press the MAN button.
- 2) Press the PRG button.
- 3) Press the MEM button, and **MEMORY** and "0" will appear on the left-hand side of the LCD display. Pressing the MEM button will advance the channel number from "0" to "9"
- 4) Select the frequency that you want to store in memory.
- 5) Press the ENT button.
- 6) Repeat the same procedure to program other memory channels.

## Memory Channel Scanning

You can scan and select any of these 10 pre-set frequencies by following the procedure described below:

- 1) Press the MAN button.
- 2) Press the MEM button.
- 3) Slowly turn the Squelch control clockwise until the receiver noise disappears.
- 4) Press the Scan button. It will scan from lower to higher frequencies. When you press the button again, it will scan from higher to lower frequencies.
- 5) To stop scanning at a certain channel, press the MAN button, or turn the Squelch counterclockwise until you hear the receiver noise.

## Meter

The meter built in to your RCI-2950 on the lefthand side of the LCD display provides the following functions:

- 1) S/RF Meter. On the transmit mode, it provides a visual indication of transmit output power, and received signal strength on the receive mode.
- 2) SWR Meter. It enables you to check SWR. To use this mode, push the SWR button on the front panel, and the PTT switch on the microphone. A bar on the meter is an indication of the antenna matching. If there is no bar, it indicates that your antenna system is perfectly matched. The less bar, the better matched. If several bars appear, your antenna needs to be adjusted.

## CTCSS – Optional

Your RCI-2950 has capabilities of operating in CTCSS frequency for accessing repeaters. A CTCSS (Continuous Tone Coded Squelch System) encoding device is available as an optional from Ranger Communications, Inc. For more information, contact your dealer or Ranger Communications, Inc. Customer Service.

## SPECIFICATIONS

### GENERAL

Frequency Range	28.0000 – 29.6999MHz
Tuning Steps	100Hz, 1KHz, 10KHz, 100KHz, 1MHz
Emission Types	USB, LSB(A3J), CW(A1), AM(A3), FM(F3)
Frequency Control	Phase-Locked Loop Synthesizer
Frequency Tolerance	0.005%
Frequency Stability	0.001%
Operating Temperature Range	0°C to 40°C
Antenna Impedance	50 ohms
Speakes Impedance	8 ohms, 2 watts
Microphone	400 ohms, Dynamic PTT
Display	Digital Frequency LCD
Power Requirements	13.8V DC Negative Ground

### TRANSMITTER

RF Output Power	USB/LSB 25W CW 25W AM/FM 8W
Spurious Emissions	– 50dB
Carrier Suppression (SSB Modes)	– 50dB
Antenna Connector	UHF 50 – 23P (M Type)
RF Transmit Modes	USB, LSB, CW, AM, FM

### RECEIVER

Sensitivity for 10dB S/N	AM 1.0uV USB/LSB/CW 0.3uV
Sensitivity for 20dB S/N	FM 1uV
Image Rejection Ratio	65dB
AGC Figure of Merit	SSB/CW/AM 80dB for 50mV for 10dB Change in audio output
Audio Ouput Power @10% THD	2.5W

## **ONE-YEAR LIMITED WARRANTY**

**RANGER COMMUNICATIONS, INC. ("RANGER") warrants to the original purchaser only this product against defects in material or workmanship, as follows:**

- 1. RANGER warrants the product to be free of defects in material and workmanship for a period of one (1) years from the original date of purchase as shown on the original purchaser's bill of sale, receipted invoice, or other proof of purchase; provided, however, the warranty period for the following accessories is one (1) year from the date of purchase: coiled cords, tone reeds, and rechargeable batteries. Labor to perform warranty services will be provided without charge for the first ninety (90) days of the warranty period. After this ninety (90) day period, the original purchaser must pay for any labor at the prevailing rates at a RANGER Authorized Warranty Repair Facility or RANGER. In addition, RANGER will supply, at no charge, new or rebuilt replacements for defective parts during the warranty period.**
- 2. In the event of a defect during the warranty period, RANGER shall as its option, repair or replace the defective product or refund the purchase price of the product; such action shall constitute the purchaser's exclusive remedy under this warranty.**
- 3. To obtain warranty service, the purchaser must take or deliver the product prepaid to a RANGER Authorized Service Facility.**
- 4. Any part that is repaired or replaced under this warranty shall be warranted only for the remainder of the warranty period of the original product under warranty.**
- 5. This warranty does not cover cosmetic damage, and damage due to acts of God, accident, misuse, abuse, negligence, improper installation, unauthorized modification, or use in violation of RANGER'S instructions. This warranty is only valid in the United States of America.**
- 6. This warranty is valid only if the serial number appears on the product.**
- 7. Proof of purchase in the form of bill of sale or receipted invoice which is evidence that the product is within the warranty period must be presented to obtain warranty service.**
- 8. Equipment and accessory items which are not listed in paragraph 1 above or not manufactured by RANGER are excluded from this warranty.**

9. This written warranty constitutes the sole and exclusive statement of warranty terms; no person is authorized to make any other warranties or representations on behalf of RANGER.

**PRODUCT MODIFICATION:** RANGER reserves the right at any time prior to delivery to modify or change the product, in whole or in part, to include refinements which RANGER deems appropriate, but without incurring any liability or obligation to modify or change any product previously delivered, or to supply new equipment in accordance with earlier specifications.

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