



## INSTRUCTION MANUAL

UHF TRANSCEIVER

**IC-F610**  
**IC-F620**  
**IC-F621**

(For the LTR®/PassPort version)



Icom Inc.

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## IMPORTANT

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**READ ALL INSTRUCTIONS** carefully and completely before using the transceiver.


**SAVE THIS INSTRUCTION MANUAL** — This instruction manual contains important operating instructions for the **IC-F610/IC-F620/IC-F621 UHF TRANSCEIVER**.

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## EXPLICIT DEFINITIONS

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WORD	DEFINITION
<b>⚠ WARNING</b>	Personal injury, fire hazard or electric shock may occur.
<b>CAUTION</b>	Equipment damage may occur.
<b>NOTE</b>	If disregarded, inconvenience only. No risk of personal injury, fire or electric shock.

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LTR is a registered trademark of the E.F.Johnson Company.

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## PRECAUTION

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**⚠ WARNING! NEVER** connect the transceiver to an AC outlet. This may pose a fire hazard or result in an electric shock.

**NEVER** connect the transceiver to a power source of more than 16 V DC such as a 24 V battery. This connection will ruin the transceiver.

**NEVER** cut the DC power cable between the DC plug and fuse holder. If an incorrect connection is made after cutting, the transceiver might be damaged.

**NEVER** place the transceiver where normal operation of the vehicle may be hindered or where it could cause bodily injury.

**NEVER** allow children to touch the transceiver.

**NEVER** expose the transceiver to rain, snow or any liquids.

**USE** supplied microphone only. Other microphones have different pin assignments and may damage the transceiver.

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**DO NOT** use or place the transceiver in areas with temperatures below  $-22^{\circ}\text{F}$  ( $-30^{\circ}\text{C}$ ) or above  $+140^{\circ}\text{F}$  ( $+60^{\circ}\text{C}$ ) or, in areas subject to direct sunlight, such as the dashboard.

**AVOID** operating the transceiver without running the vehicle's engine. The vehicle's battery will quickly run out if the transceiver transmits while the vehicle's engine OFF.

**AVOID** placing the transceiver in excessively dusty environments.

**AVOID** placing the transceiver against walls. This will obstruct heat dissipation.

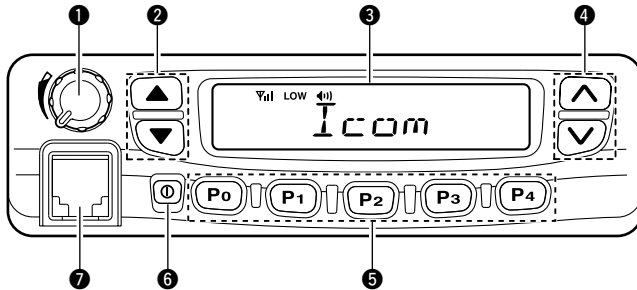
**AVOID** the use of chemical agents such as benzine or alcohol when cleaning, as they damage the transceiver surfaces.

**BE CAREFUL!** The transceiver will become hot when operating continuously for long periods.

***For U.S.A. only***

**CAUTION:** Changes or modifications to this transceiver, not expressly approved by Icom Inc., could void your authority to operate this transceiver under FCC regulations.

## ■ Front panel



### 1 AF VOLUME CONTROL KNOB

- Rotate the knob to adjust the audio output level.
- Minimum audio level is pre-programmed.

### 2 LEFT UP/DOWN [▲]/[▼] KEYS

- Push to select the talk group on the LTR or PassPort system.

### 3 FUNCTION DISPLAY

- Displays a variety of information, such as an operating channel text, talk group text.

**NOTE:** The above functions depend on pre-programming.

### 4 RIGHT UP/DOWN [▲]/[▼] KEYS

- ➔ Push to select the operating system.
- ➔ Push [▲] key to send the most recently transmitted DTMF code number during transmitting.

### 5 DEALER-PROGRAMMABLE KEYS [P0] to [P4]

- Desired functions can be programmed independently by your dealer.

### 6 POWER SWITCH [POWER]

- Push to turn the power ON and OFF.
- At power ON, a power-up alert tone sounds for about 1 sec. and an opening message may appear. And the transceiver automatically starts scanning if the scan function had been activated before the power was turned OFF.

### 7 MICROPHONE CONNECTOR

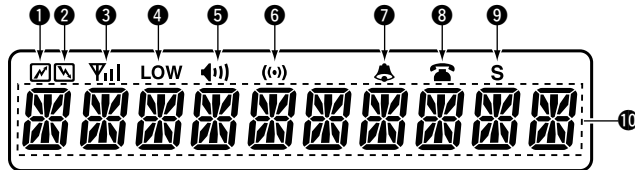
- Connect the supplied microphone or optional DTMF microphone.

⚡ **NEVER** connect non-specified microphones. The pin assignments may be different and the transceiver may be damaged.

### ◇ MICROPHONE

- The supplied microphone has a PTT switch and a hanger hook.

## ■ Function display



### ❶ TRANSMIT INDICATOR

Appears while transmitting.

### ❷ BUSY INDICATOR

Appears while the channel is busy.

### ❸ SIGNAL STRENGTH INDICATOR

- ➔ Indicates relative signal strength level.
- ➔ Does not appear when the transceiver is out of the service area when operating on the PassPort system.

### ❹ LOW POWER INDICATOR

Appears when low output power is selected.

### ❺ MONITOR SWITCH INDICATOR

Appears when the monitor switch is pushed.

### ❻ COMPANDER INDICATOR

Appears when the compander function is activated.

### ❼ BELL INDICATOR

Blinks when the individual call is received.

### ❽ PHONE INDICATOR

Appears when the phone channel is selected.

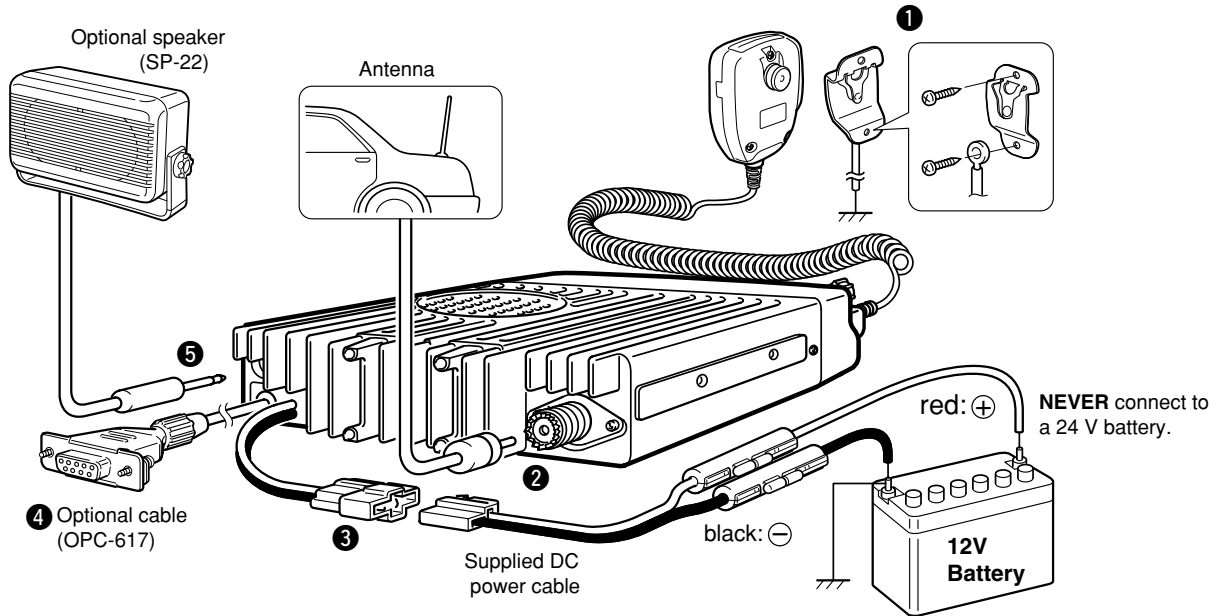
### ❾ SCAN INDICATOR

Appears when the scan function is set in the channel, and blinks while scanning.

### ❿ ALPHANUMERIC DISPLAY

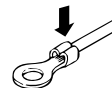
Displays an operating channel text, talk group text, etc.

## ■ Rear panel and connection

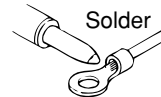


**Note:** Use the terminals for the cable connections.

Crimp



Solder



**1 MICROPHONE HANGER**

Connect the supplied microphone hanger to the vehicle's ground.

**2 ANTENNA CONNECTOR**

Connects to an antenna. Ask your dealer about antenna selection and placement.

**3 DC POWER RECEPTACLE**

Connects to a **12 V DC** battery. Pay attention to polarities. **NEVER** connect to a **24 V** battery. This could damage the transceiver.

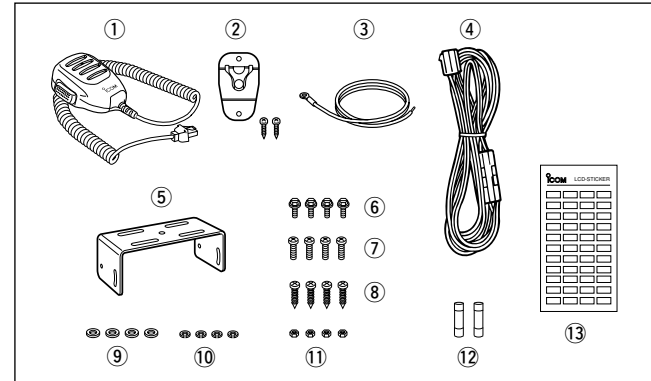
**4 OPTIONAL CABLE (OPC-617)**

Connect an external modem unit, LCD backlight control, etc.

**5 EXTERNAL SPEAKER JACK**

Connect a 4–8 Ω external speaker, if desired.

**Supplied Accessories**



- ① Microphone ..... 1
- ② Microphone hanger and screw set ..... 1 set
- ③ Microphone hanger cable . 1
- ④ DC power cable ..... 1  
(OPC-345 : IC-F610/F620, OPC-1132: IC-F621)
- ⑤ Mounting bracket ..... 1
- ⑥ Bracket bolts ..... 4
- ⑦ Mounting screws (M5×12) . 4
- ⑧ Self-tapping screws (M5×20) ..... 4
- ⑨ Flat washers ..... 4
- ⑩ Spring washers ..... 4
- ⑪ Nuts ..... 4
- ⑫ Fuses ..... 2  
(15 A: IC-F610/F620, 20 A: IC-F621)
- ⑬ Function name stickers\* (1705 LCD SEAL(H)) ..... 1

**\*Function name stickers**

There are no names on the programmable function keys since the needed functions can be assigned to these keys. Attach the supplied function name stickers above the appropriate keys.

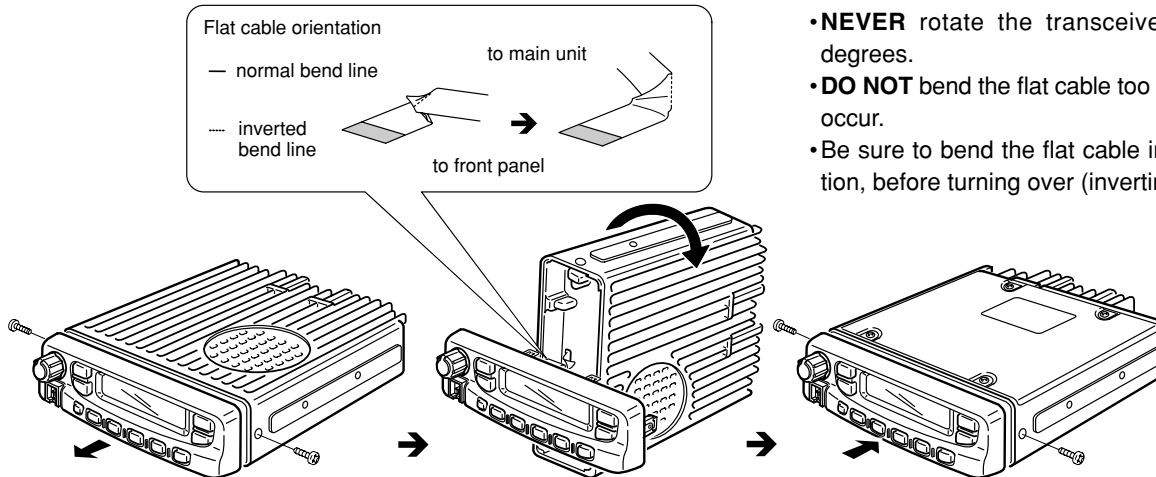
## 2 CONNECTION AND MAINTENANCE

### ■ Mounting the transceiver

The front panel can be inverted for correct viewing while leaving the built-in speaker facing away from the mounting surface.

#### ◇ Inverting the front panel

- ① Unscrew the 2-side screws.
- ② Detach the front panel forward from the transceiver.
- ③ Bend the flat cable between front panel and main unit as shown in the following diagram.
- ④ Invert the transceiver 180 degrees clockwise as below.
- ⑤ Re-attach the front panel to the transceiver.
- ⑥ Tighten the 2 screws.



#### CAUTION:

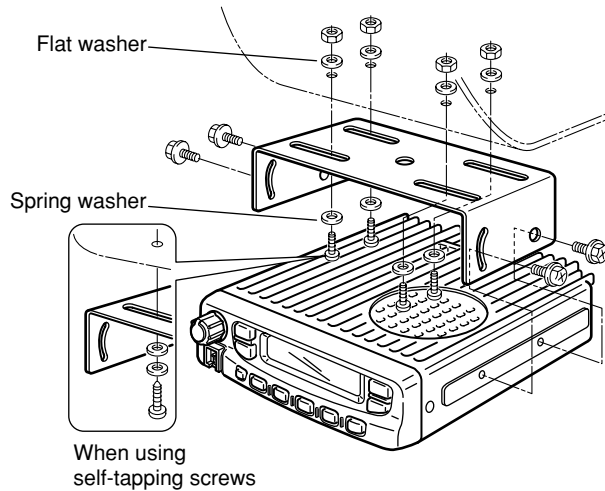
- **NEVER** rotate the transceiver more than 180 degrees.
- **DO NOT** bend the flat cable too hard. Damage may occur.
- Be sure to bend the flat cable in the correct direction, before turning over (inverting) the transceiver.



◇ **Mounting the transceiver**

The universal mounting bracket supplied with your transceiver allows overhead mounting.

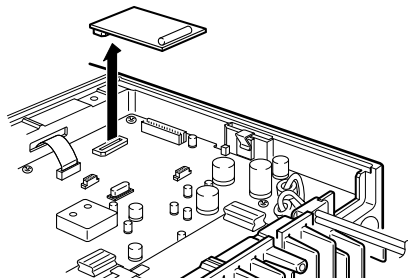
- Mount the transceiver securely with the 4 supplied screws to a thick surface which can support more than 1.5 kg.



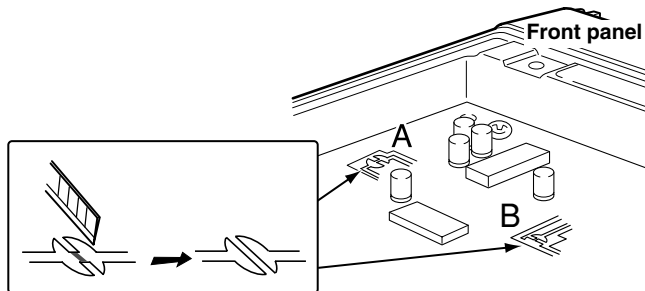
### ■ Optional UT-109/UT-110 installation

Install the optional UT-109 and UT-110 as shown below:

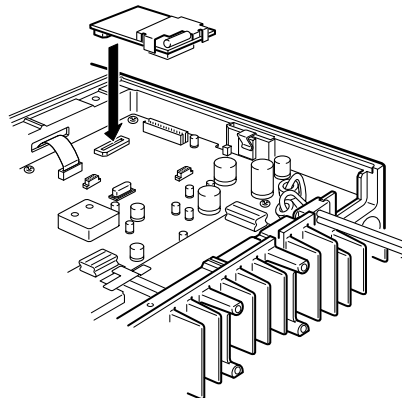
- ① Turn power OFF, then disconnect the DC power cable.
- ② Unscrew the 4 screws, then remove the bottom cover.
- ③ Remove the unit pre-installed at the factory.



- ④ Cut the print pattern on the PCB at the TX mic circuit (A) and RX AF circuit (B) as shown below.

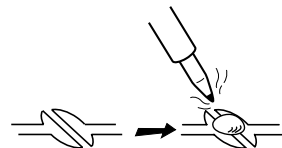


- ⑤ Install the scrambler unit.



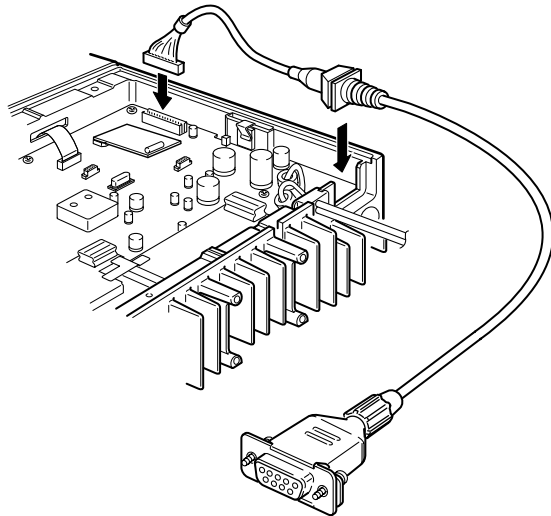
- ⑥ Replace the bottom cover and screws, then the DC power cable.

**NOTE:** Be sure to re-solder the disconnected points at left, otherwise no TX modulation or AF output is available when you remove the scrambler units.

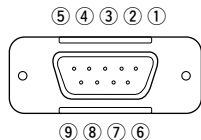


## ■ Optional OPC-617 installation

Install the OPC-617 as shown below.



### OPTIONAL CABLE PIN ASSIGNMENT



- |                        |               |
|------------------------|---------------|
| ① LCD backlit cont. IN | ⑥ —           |
| ② AF OUT               | ⑦ AF GND      |
| ③ Det. AF OUT          | ⑧ Det. AF GND |
| ④ Mod. IN              | ⑨ Mod. GND    |
| ⑤ PTT control IN       |               |

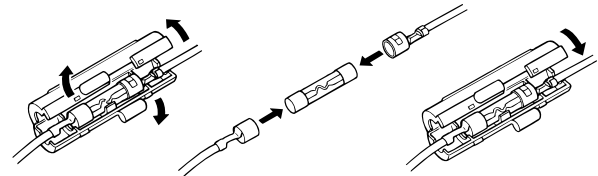
## ■ Antenna

A key element in the performance of any communication system is an antenna. Ask your dealer about antennas and the best places to mount them.

## ■ Fuse replacement

Two fuses are installed in the supplied DC power cable. If a fuse blows or the transceiver stops functioning, track down the source of the problem if possible, and replace the damaged fuse with a new rated one.

- Fuse rating : 15 A (IC-F610/F620), 20 A (IC-F621)



## ■ Cleaning

If the transceiver becomes dusty or dirty, wipe it clean with a dry, soft cloth.



**AVOID** the use of solvents such as benzene or alcohol, as they may damage transceiver surfaces.

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## 2 CONNECTION AND MAINTENANCE

### ■ Options

#### **SP-22** EXTERNAL SPEAKER

Compact and easy-to-install.

Input impedance : 4  $\Omega$

Max. input power : 5 W

#### **OPC-617** ACC CABLE

Allows you to connect to an external terminal.

#### **HM-152/HM-152T/HM-148** HAND MICROPHONE

- HM-152 : Hand microphone. The same as that supplied with the transceiver.
- HM-152T : DTMF microphone
- HM-148 : Heavy duty microphone

#### **SM-25** DESKTOP MICROPHONE

For base station operation.

Monitor switch is equipped.

#### **UT-109/UT-110 (#02)** VOICE SCRAMBLER UNIT

- UT-109: Non-rolling type (max. 32 codes)
- UT-110: Rolling type (max. 1020 codes)



Your Icom radio generates RF electromagnetic energy during transmit mode. This radio is designed for and classified as “Occupational Use Only”, meaning it must be used only during the course of employment by individuals aware of the hazards,

and the ways to minimize such hazards. This radio is **NOT** intended for use by the “General Population” in an uncontrolled environment.

• For compliance with FCC and Industry Canada RF Exposure Requirements, the transmitter antenna installation shall comply with the following two conditions:

1. The transmitter antenna gain shall not exceed 0 dBi.

2. IC-F620:

The transmitter antenna is required to be located outside of a vehicle and kept at a separation distance of 37 centimeters or more between the transmitter antenna of this device and persons during operation.

2. IC-F621:

The transmitter antenna is required to be located outside of a vehicle and kept at a separation distance of 50 centimeters or more between the transmitter antenna of this device and persons during operation.



**CAUTION**

To ensure that your exposure to RF electromagnetic energy is within the FCC allowable limits for occupational use, always adhere to the following guidelines:

• **DO NOT** operate the radio without a proper antenna attached, as this may damage the radio and may also cause you to exceed FCC RF exposure limits. A proper antenna is the antenna supplied with this radio by the manufacturer or an antenna specifically authorized by the manufacturer for use with this radio.

• **DO NOT** transmit for more than 50% of total radio use time (“50% duty cycle”). Transmitting more than 50% of the time can cause FCC RF exposure compliance requirements to be exceeded. The radio is transmitting when the “TX indicator” lights red. You can cause the radio to transmit by pressing the “PTT” switch.

## Electromagnetic Interference/Compatibility

During transmissions, your Icom radio generates RF energy that can possibly cause interference with other devices or systems. To avoid such interference, turn off the radio in areas where signs are posted to do so. **DO NOT** operate the transmitter in areas that are sensitive to electromagnetic radiation such as hospitals, aircraft, and blasting sites.





**Count on us!**

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