iCOM

INSTRUCTION MANUAL

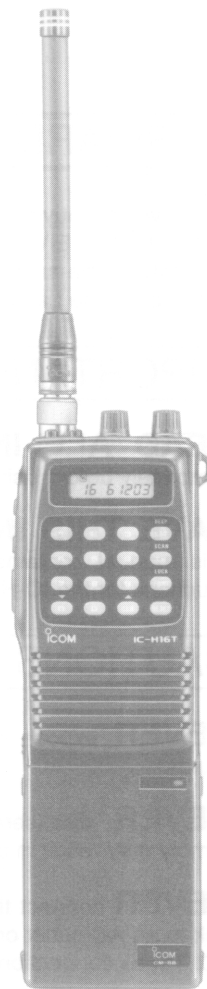VHF TRANSCEIVER
IC-H16T MKII

UHF TRANSCEIVER
IC-U16T MKII

Icom Inc.

FORWARD

Thank you for buying the **IC-H16T MKII/IC-U16T MKII** VHF /UHF TRANSCEIVER. The **IC-H16T MKII/ IC-U16T MKII** is a state-of-the-art handheld designed to meet the rigorous demands of the Land Mobile user.

IMPORTANT

READ ALL INSTRUCTIONS carefully and completely before using the transceiver.

SAVE THIS INSTRUCTION MANUAL.
This manual contains important safety and operating instructions for the IC-H16T MKII / IC-U16T MKII.

CAUTIONS

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

NEVER disassemble the transceiver. Incorrect reassembly may result in a fire hazard or an electric shock.

NEVER connect the transceiver via the [13.8 V DC IN] jack to an AC outlet or to a power source of more than 16 V DC. These connections will ruin the transceiver.

KEEP the transceiver out of the reach of children.

AVOID exposing the transceiver to direct sunlight for long periods.

BE CAREFUL! When transmitting for a long time at high output power, the rear panel will become hot.
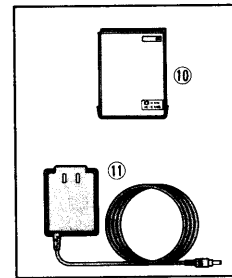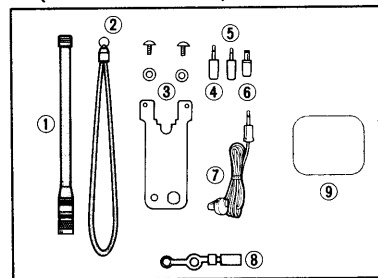
UNPACKING

Accessories included with the IC-H16T MKII/IC-U16T MKII:

① Flexible antenna................ 1
② Handstrap......................... 1
③ Belt clip and screws.....1 set
④ External speaker plug........1
⑤ External mic plug.............. 1

⑥ External DC power plug.... 1
⑦ Earphone......................... 1
⑧ Rainproof cap.................. 1
⑨ Front cover....................... 1

The following are also included with some versions:

⑩ Battery pack...................... 1
   (CM-8B or CM-96B)

⑪ Wall charger.......................1
   (CM-16E or CM-17E)

TABLE OF CONTENTS

■ Antenna connection

Attach the rainproof cap before connecting the antenna to protect the connectors from dust. Insert the supplied antenna into the antenna connector on the transceiver and screw down securely. See diagram at right.
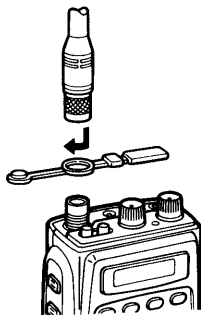
■ Belt clip installation

The belt clip allows you to attach the transceiver to your belt. Attach the belt clip to the back panel using the two supplied screws and plastic washers. See diagram below.
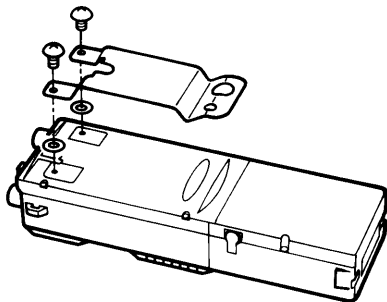
■ Handstrap attachment

Spread open and slide the ring of the handstsrap over the projecting loop on the side of the transceiver.

■ Front cover removal

To remove the front cover, use a flat head screwdriver or similar shaped object and gently pry the front cover from the transceiver body.
BE CAREFUL that the screwdriver doesn't slip and scratch the transceiver. See diagram below.

■ Battery replacement

Before replacing the battery pack, [PWR/VOL] MUST be rotated fully counterclockwise, until a click is heard, to turn the power OFF.

- To REMOVE the battery pack from the transceiver:
  Push and hold the battery release button upwards, then slide the battery pack to the right (with the front panel facing you).

- To ATTACH the battery pack to the transceiver:
  Mate the notched ends between the battery pack and the transceiver, then slide the battery pack until it snaps into place.
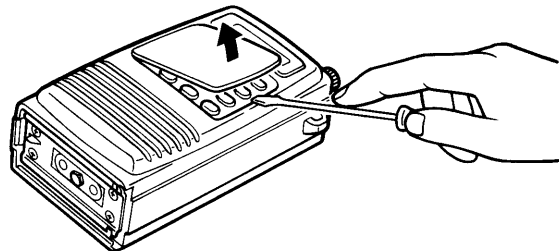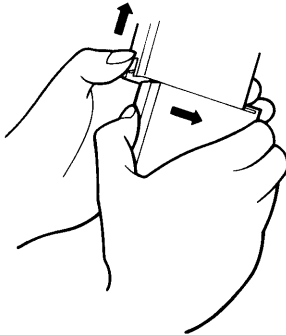
See diagram below.

■ Battery pack life

If your battery pack seems to have no capacity even after being fully charged, completely discharge it by leaving the power ON overnight. Then, fully charge the battery pack again.
If the battery pack still does not retain a charge (or very little), a new battery pack must be purchased.

■ Cautions

NEVER use an unauthorized battery pack or charger. You may damage the transceiver.

NEVER discard a battery pack into a fire. Internal battery gas may cause an explosion.

NEVER immerse the battery pack in water. If the battery pack becomes wet, be sure to wipe it dry.

NEVER short terminals of the battery pack. Internal components may become damaged. Current may flow into nearby metal objects so be careful when placing battery packs in handbags, etc.

AVOID charging the battery pack in extreme cold (under 0 ℃) or extreme heat (over +40 ℃). The battery pack may not fully charge under these conditions.

■ Charging and connections

Prior to using the transceiver for the first time, the battery pack must be fully charged for optimum life and operation.

CAUTION: To avoid damage to the transceiver, turn it OFF while charging.

● **Rapid charging with an optional CM-60A**
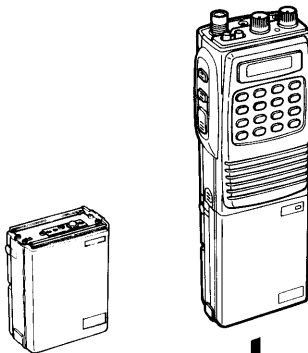
Charging period: 5 hrs. (approx.)

● **Rapid charging with an optional CM-35**

After charging is complete the [CHARGE] indicator goes off.
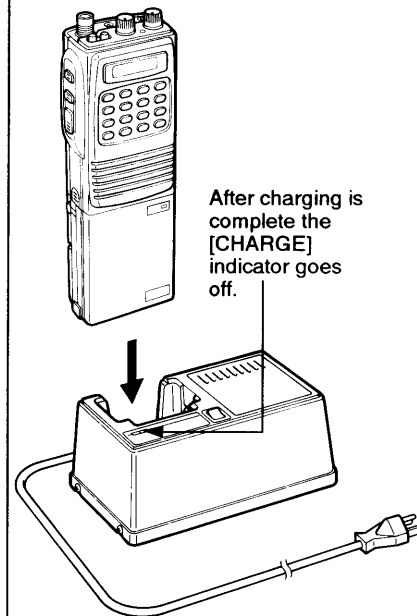
Charging period: 1~3 hrs. (approx.)

● Charging with a wall charger

Connect the wall charger (CM-16E, CM-17 or BC-18) to the WALL CHARGER jack on the battery pack.

Charge indicator lights.

AC outlet

CHARGER
TERMINAL A
[WALL CHARGER]
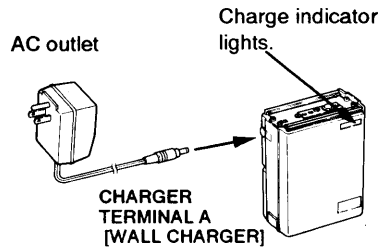
Avoid overcharging. The charging period should be less than 48 hrs.

Charging period: 15 hrs. (approx.)

● Charging with an optional cable

Connect an optional cable to the [DC 13.8 V] jack on the side of the battery pack.

To a 12 V or 24 V cigarette lighter socket

DM-2 for 24 V

CM-1 for 12 V

CHARGER TERMINAL B
[DC 13.8 V]
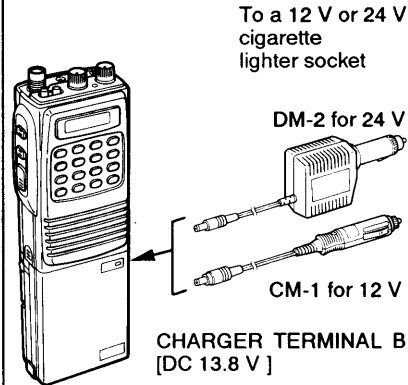
Charging period: 15 hrs. (approx.)

● Operating with an optional cable

CP-11   [DC 13.8 V]

To a 12 V
cigarette
lighter socket
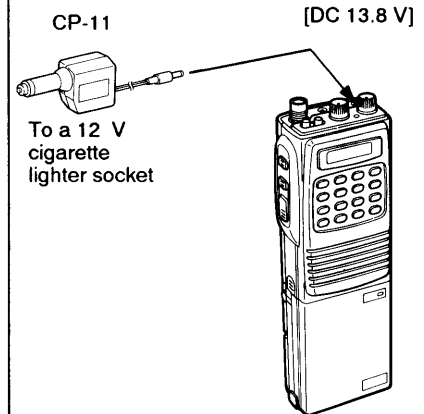
The transceiver can operate with an external DC power source (6~15 V DC, 2A) through the [DC 13.8 V] jack on the top panel of the transceiver.
BE CAREFUL of overcharging, as the connected battery pack simultaneously charges during operation.

3 TRANSCEIVER DESCRIPTION

■ Switches and controls
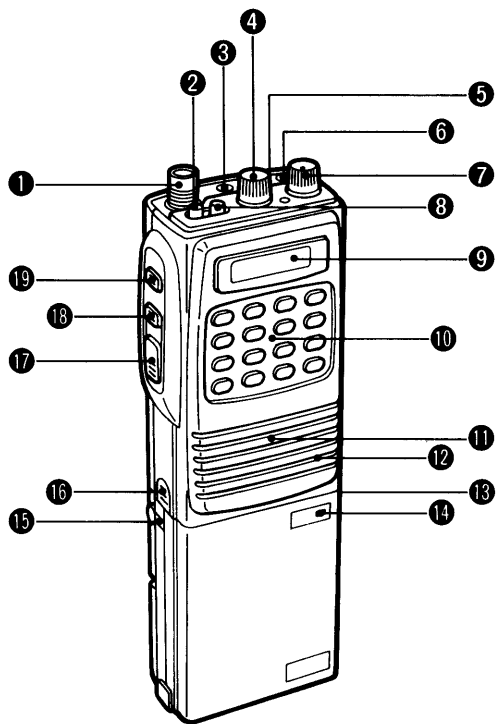
❶ ANTENNA CONNECTOR
Connect to the supplied flexible antenna.

❷ LIGHT SWITCH [LIGHT]
Push and hold [LIGHT] to turn ON the backlight for the function display.

❸ EXTERNAL DC POWER JACK
Connect to the CP-11 CIGARETTE LIGHTER CABLE for mobile operation if desired.
• Simultaneously charges the battery pack when attached.

❹ SQUELCH CONTROL [SQL]
Rotate to vary the squelch threshold point for noise mute while receiving.

❺ EXTERNAL MIC JACK
Connect to an optional speaker-microphone.

❻ EXTERNAL SPEAKER JACK
Connect to an earphone or an optional speaker-microphone for private listening.

❼ POWER SWITCH/VOLUME CONTROL [PWR/VOL]
Rotate to turn power ON and OFF and adust the audio level.

❽ HIGH/LOW OUTPUT POWER SWITCH [HI/LO]

Push to select low or high power.
- Push 'IN' to transmit at low power.
- Push 'OUT' to transmit at high power.

❾ FUNCTION DISPLAY

Indicates the channel, 5-Tone code, etc. See p. 8.

❿ KEYBOARD

The keyboard has 16 keys consisting of 10 numeral keys and 6 code keys. Some keys have dual functions. See p. 7.

⓫ SPEAKER

⓬ MICROPHONE

⓭ CHARGER TERMINAL B

Connect to an external 13.8 V DC power source to charge.

⓮ BATTERY CHARGE INDICATOR

Lights up while a battery pack is charging, except when a desktop charger or multi-charger is being used.

⓯ CHARGER TERMINAL A

Connect to the supplied wall charger* for battery charging. See p. 4.
*Not supplied with some versions.

⓰ BATTERY PACK RELEASE

Push to remove the battery pack from the transceiver. See p. 2.

⓱ PTT (Push-to-talk) SWITCH [PTT]

Push to transmit, release to receive.

⓲ CALL SWITCH [CALL]

Push to transmit a 5-Tone code.

⓳ FUNCTION SWITCH [FUNC]

Push to select the secondary function of a key. See p. 7.

■ Keyboard functions

Some keys have dual functions. To select a secondary function, push and hold [FUNC], then push the corresponding key for the secondary function desired.

KEY	PRIMARY FUNCTION	SECONDARY FUNCTION (While pushing [FUNC])
0 ~ 9	-Selects a 5-Tone code if programmed. -Inputs each number after pushing [CLR], [CH], or [TONE].	None. Overrides the lock function.
▼ G	Inputs the group call code after pushing [CLR]. See p.13.	Decreases the operating channel number. See p. 10.
▲ CLR	Clears the last digit of the 5-Tone code.	Increases the operating channel number. See p. 10.
BEEP SET	Selects the lockout scan channel.	Turns the beep tone, that sounds each time a key is pushed, ON and OFF. See p.11.
SCAN CH	Clears the operating channel number to input a new number. See p. 10.	Starts the scan function when " ◁» " does not appear. See p. 12.
LOCK TONE	Clears a 5-Tone code to input a new code. See p. 14.	Turns the lock function (to prevent accidental key entries) ON and OFF. See p.11.
RESET	Turns the monitor function ON and OFF. Returns the transceiver to the normal operating mode. See p. 8.	None. Overrides the lock function.

7

■ Function display
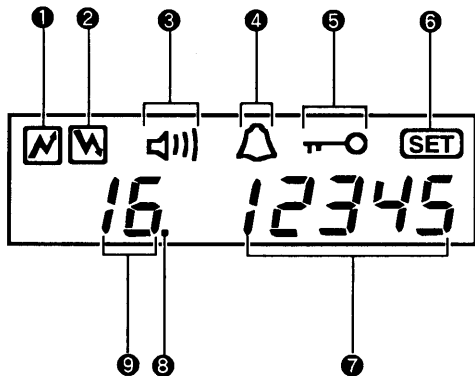
❶ TRANSMIT INDICATOR
" ⋈ " appears when the transceiver is transmitting a signal.

❷ BUSY INDICATOR
" ⋈ " appears when the transceiver is receiving a signal.

❸ MONITOR INDICATOR
" ◁» " appears when the monitor function is turned ON.
- The transceiver accepts any signal regardless of whether it is a 5-Tone code or not when this function is ON.

❹ CALL INDICATOR
" Ω " appears when an individual code is received.

❺ LOCK INDICATOR
"⊸" appears when the lock function has been activated. See p. 11.

❻ SET MODE INDICATOR
"(SET)" appears when the transceiver is in SET MODE to program lockout channels. See p. 12.

❼ 5-TONE INDICATOR
Displays the transmit 5-Tone code. See pgs. 9, 14.

❽ SCAN CHANNEL INDICATOR
" ■ " appears when a channel is not locked out and disappears when a channel is locked out. See p. 12.

## ❾ CHANNEL INDICATOR
Displays the operating channel number.

■ Receiving

① Rotate [VOL] clockwise to turn power ON.
  • The channel number and a 5-Tone code appear in the function display.

② Rotate [SQL] to its middle position.
  • If undesired signals are received, rotate [SQL] further clockwise.

③ If necessary, select an operating channel.* (See p. 10.)
  • When receiving a signal the transceiver may be activated in one of several ways.*

④ After finishing your communication it may be necessary to push [RESET].*

* Ask your Icom Dealer about channel information details and operating conditions for your transceiver.
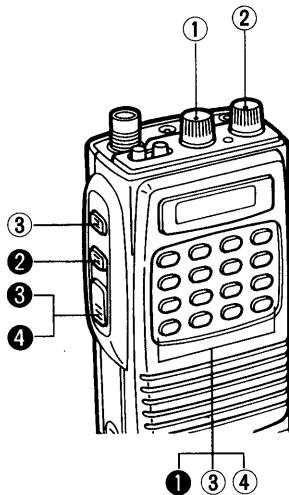
■ Transmitting

CAUTION: Transmitting without an antenna may damage the transceiver.

If power is OFF, repeat steps ① and ② as for receiving, then:

❶ Select a 5-Tone code, if necessary, by pushing one of the digit keys, "0"~"9."

❷ Push [CALL] to transmit a 5-Tone code.
  • An answer back may be received.

❸ Push and hold [PTT] to transmit.
  • **DO NOT** hold the transceiver too close to your mouth or speak too loudly. This may distort the signal.
  • " F " appears in the function display.
  • **NOTE: DO NOT** transmit while " D " appears as your transmission may interfere with other radio communications.

❹ Release [PTT] to receive.

■ Channel selection

The operating channel can be selected using the digit keys or the [▲]/[▼] keys.

- **Using the digit keys:** push [CH], then select the desired channel with the corresponding digit keys.(two digits)

- **Using the [▲]/[▼] keys:** while pushing [FUNC], push [CLR(▲)] or [G(▼)] to increase or decrease the operating channel respectively.

Example: Selecting channel 2 using the digit keys.

(CH)   (0)   (2)

`01 54210`   `-- 54210`   `0- 54210`   `02 54210`
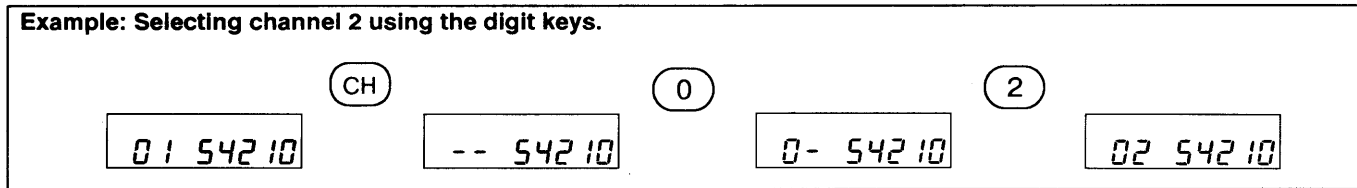
Example: Changing channels up or down.

FUNC ☰ Hold down →

(CLR) ▲   (CLR) ▲   ▼ (G)   ▼ (G)

`02 54210`   `03 54210`   `04 54210`   `03 54210`   `02 54210`
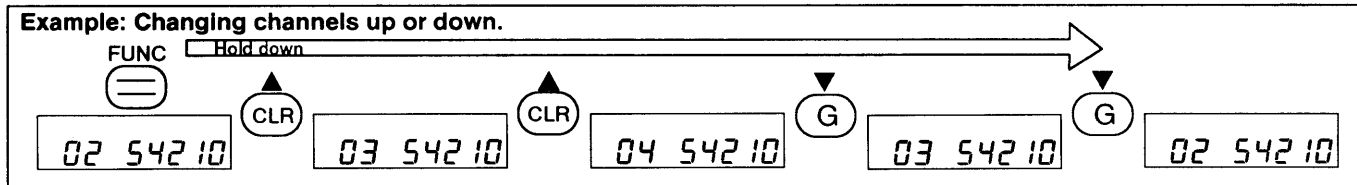
■ Keyboard lock

To prevent accidental keyboard input:

1) While pushing [FUNC], push [TONE(LOCK)] to activate the function.
   • "⊶" appears.
   • [RESET] and the digit keys can be used while pushing [FUNC].

2) While pushing [FUNC], push [TONE(LOCK)] again to clear the function.

FUNC   LOCK

═ + TONE

06. 28534   ⟷   06. 28534
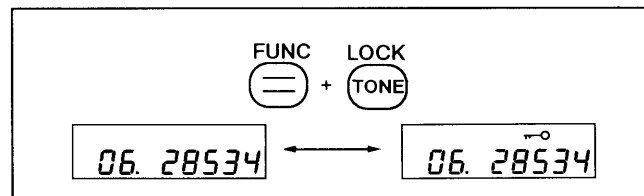
■ Beep function

When the beep tone function is ON, a beep sounds each time a key is pushed. The volume of the beep tone can be adjusted by rotating [VOL].

While pushing [FUNC], push [SET(BEEP)] to turn the beep tone function ON and OFF, alternately.

FUNC   BEEP

═ + SET

Beep
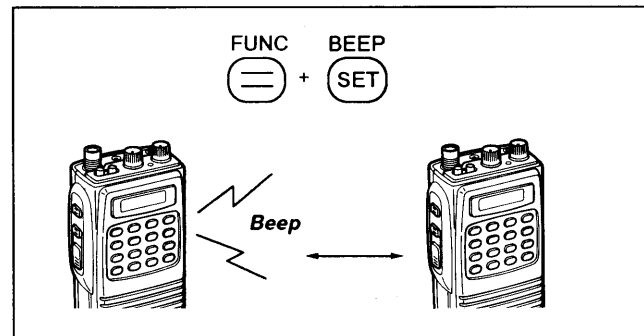
■ Scanning

This function scans pre-programmed channels which are not locked out (see below) and stops to monitor received signals.

1) Push [RESET] to turn OFF the monitor function (if ON).
  • " ◁))) " disappears.

2) While pushing [FUNC], push [CH(SCAN)].
  • Scanning moves from the displayed channel downwards.
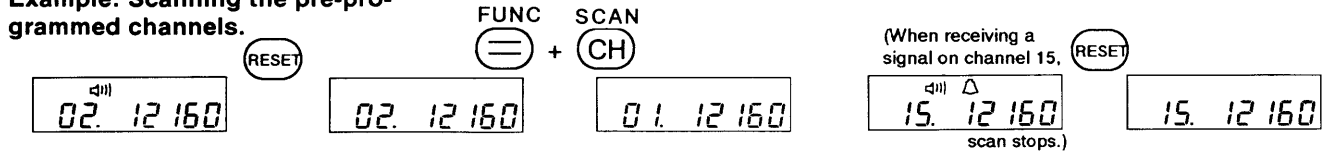
3) Push [RESET] to stop scanning.
  • Pushing [PTT] or repeating step 2) also stops the scan.
  • Scanning turns OFF when an individual code is received.

Example: Scanning the pre-pro-grammed channels.

FUNC SCAN

(When receiving a signal on channel 15, scan stops.)

■ Channel lockout

By setting lockout channels, a lockout scan is available so that you can scan only desired channels:

1) Select the desired channel.

2) Push [SET], then push [1].
  • "S-ch on" or "S-ch oFF" appears.

3) Push [SET] to program or clear a lockout channel.
  • "S-ch on"-monitors displayed channel during scanning.
  • "S-ch oFF"-skips displayed channel during scanning.

4) Push [RESET] to return to normal operation.
  • " ■ " appears to the right of channels not locked out.

Example: Locking out channel 4.

locked out

no indicator
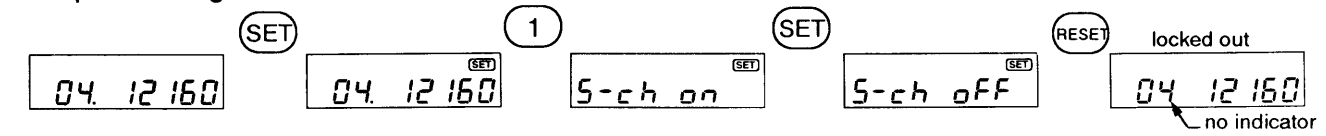
■ Group codes

These allow you to call several stations at the same time.

1) Push [CLR] one or two times depending on your required group code.

2) Push [G] the same number of times as [CLR].

3) Push [CALL] to transmit the group code.

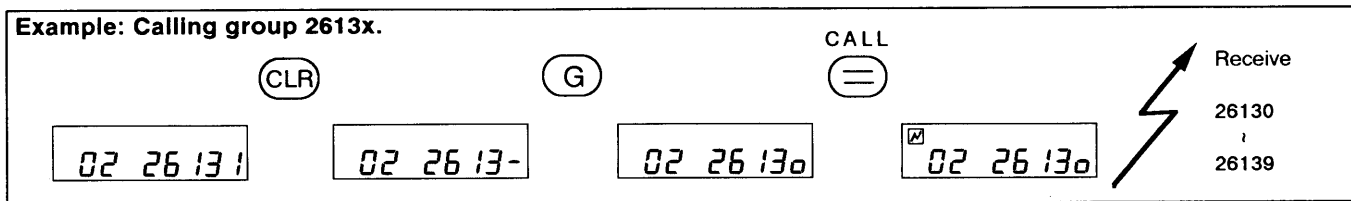---

Example: Calling group 2613x.

(CLR)   (G)   CALL (=)

| 02 26131 | 02 2613- | 02 26130 | 02 26130 | Receive 26130 ⌇ 26139 |

Ask your Icom Dealer about internal programming for the following three features:

■ Time-out timer

This function automatically returns to receive after a pre-programmed period of transmission. This is useful to keep transmissions brief and to prevent prolonged, accidental transmission.

■ Transmit inhibit

Channels can be programmed to effectively receive only. This is useful for monitoring frequencies which you are not authorized to transmit on.

■ Answer back

This function automatically transmits an answer back code after receiving an individual code. This is useful to indicate that the receive side transceiver is turned ON and is within communicating distance from the calling station.

■ Manual 5-Tone setting

When you need a new 5-Tone code the transceiver will accept 5 digits temporarily. However, new 5-Tone codes cannot be permanently programmed yourself. If you need new, often-used 5-Tone codes programmed, see your Icom Dealer.

1) Push [TONE].
   • The displayed 5-Tone code disappears.

2) Enter the displayed 5-Tone code with the digit keys.
   • When changing the last few digits only, push [CLR] a few times and enter the new number. See the second example below.

Example: Entering the 5-Tone code 23456.

(TONE)   (2)   (3)(4)   (5)(6)

```
02 26131    02 -----    02 2----    02 234--    02 23456
```
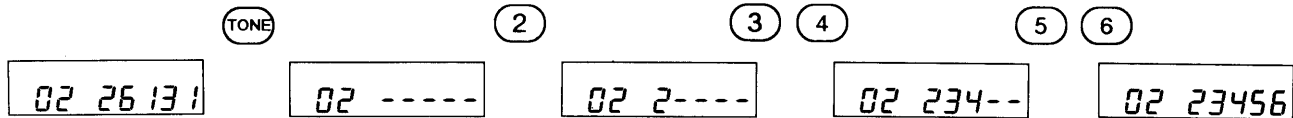
Example: Changing a 5-Tone code from 12158 to 12160.

(CLR)   (CLR)   (6)   (0)

```
02 12158    02 1215-    02 121--    02 1216-    02 12160
```

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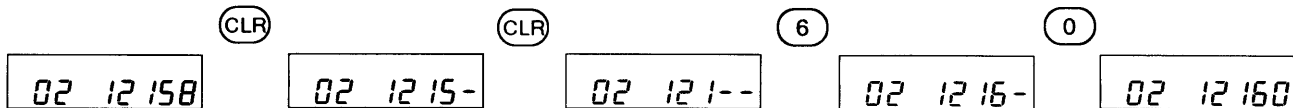
6 TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION	REF.
• No power comes on.	• The battery pack is exhausted. • Poor plug connection to the external DC power cable.	• Charge the battery pack or replace with a fully charged one. • Check the connector or remove the cable.	pgs. 2~4
• Power cannot be turned OFF.	• The battery pack became exhausted during operation.	• Charge the battery pack or replace with a fully charged one, then turn the power OFF.	pgs. 2~4
• No sound comes from the speaker.	• [SQL] is turned too far clockwise. • The monitor function is OFF.	• Rotate [SQL] counterclockwise. • Push [RESET] to turn the function ON.	p. 9 p. 9
• Transmitting is impossible.	• A transmit inhibit channel has been selected.	• Select a different channel or have the channel re-programmed by your Icom Dealer.	p. 13
• Keyboard is not functioning.	• The keyboard lock is activated.	• Clear the lock function.	p. 11
• Scan cannot be activated.	• The keyboard lock is activated. • The monitor function is ON.	• Clear the lock function. • Push [RESET] to turn the function OFF.	p. 11 p. 12

• Backup battery

The IC-H16T MKII / IC-U16T MKII has a built-in backup battery for retaining memory information. The usual life of the battery is more than 5 years. If the battery is exhausted, the transceiver operates normally but contents in memory channels are not retained when power is turned OFF.

NOTE: Backup battery replacement **MUST** be done by an authorized Icom Dealer or Service Center.

■ Specifications

• General

Frequency   IC-H16T MKII : 146~174 MHz
coverage   IC-U16T MKII : 450~460 MHz
                           460~470 MHz

Ask your Icom Dealer for the permitted frequency range in your area.

Usable temperature range : − 25 ℃ ~+55 ℃
Power supply requirement : CM-7B, CM-8B or CM-96B
Current drain (with CM-8B) :

		IC-H16T MKII	IC-U16T MKII
Transmit	High	1.3 A	1.5 A
	Low	750 mA	1 A
Receive	Squelched	70 mA	105 mA
	Max. audio	250 mA	260 mA

Dimensions (with CM-8B) : 65 (W) × 196 (H) × 38 (D)
                            mm
Weight (with CM-8B)   : 595 g

• Receiver

Sensitivity   : 0.35 μV for 12 dB SINAD
Audio output power : 500 mW with an 8 Ω load

• Transmitter

Output power   High: With CM-7B 5W
                      With CM-8B or CM-96B
                      3W   (IC-H16T MKII)
                      2.5 W (IC-U16T MKII)
                Low: 1 W

■ Options

Some versions cannot use all the options listed, since type approval for the IC-H16T MKII/IC-U16T MKII varies between countries. Ask your Icom Dealer which options are available.

CM-16E, CM-17E, BC-18 WALL CHARGERS
Fully charge one battery pack.
CM-35 AC BATTERY CHARGER
Rapidly charges one battery pack.
CM-60A MULTI-CHARGER
Rapidly charges up to 6 separate battery packs.
CM-1 CIGARETTE LIGHTER CABLE
Charges a battery pack in a car.
CM-10 BATTERY SEPARATION CABLE
For separating the transceiver from the battery pack.
CP-11 CIGARETTE LIGHTER CABLE WITH NOISE FILTER
Allows you to use your transceiver through a 12 V cigarette lighter socket.
DM-2 DC-DC CONVERTER
Allows you to use your transceiver through a 24 V cigarette lighter socket. Also charges a battery pack.

Battery packs

Model	Output voltage	Battery capacity	Height
CM-7B	13.2 V	450 mAh	80mm
CM-8B	8.4 V	800 mAh	80mm
CM-96B	8.4 V	1200 mAh	80mm

MB-16 MOBILE BRACKET
Transceiver bracket for mobile operation.
MB-16D WALL BRACKET
For attaching your IC-H16T MKII / IC-U16T MKII to a wall.
CM-9 SPEAKER-MICROPHONE
Combination speaker and microphone.
EM-46 SPEAKER-MICROPHONE
Combination speaker and microphone. Equipped with an earphone jack. Clips to your shirt or lapel.
HM-54 SPEAKER-MICROPHONE
Combination speaker and microphone. Clips to your shirt or lapel.
HS-51 HEADSET
Lightweight headset. Includes a VOX function that allows hands-free operation. Also includes PTT and "one-touch-PTT."

Count on us!

Icom Inc.
6-9-16, Kamihigashi, Hirano-ku, Osaka 547, Japan