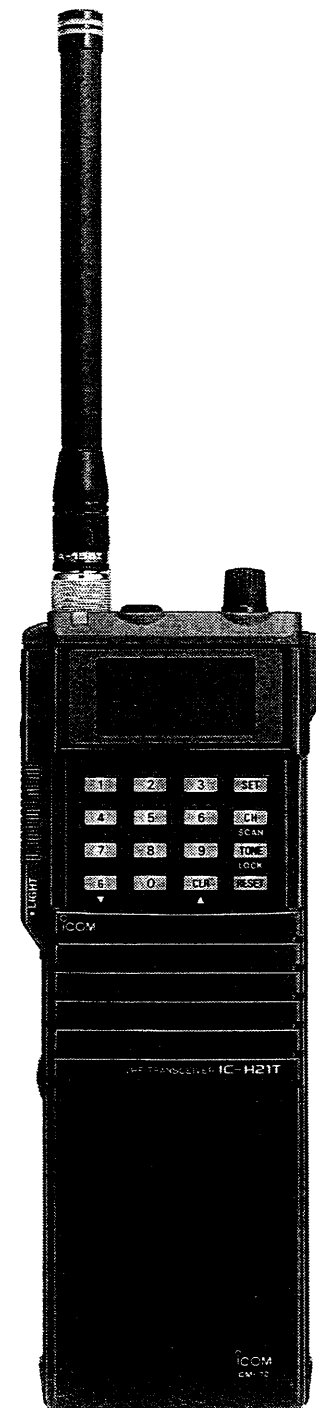


ICOM

INSTRUCTION MANUAL

VHF TRANSCEIVER
IC-H21T

Icom Inc.



IMPORTANT

READ ALL INSTRUCTIONS carefully and completely before using the transceiver.

SAVE THIS INSTRUCTION MANUAL —
This instruction manual contains important safety and operating instructions for the IC-H21T.

FOREWORD

Thank you for choosing the Icom **IC-H21T VHF TRANSCEIVER**. Since the **IC-H21T** is equipped with both 5-tone and CTCSS capability, it can be used with all types of VHF business band transceivers.

This instruction manual explains the basic operation for the IC-H21T. The way to use the IC-H21T greatly changes depending on the internal programming. Please ask your dealer for further information.

CAUTIONS

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

NEVER disassemble the transceiver. Incorrect reassembly may result in a fire or explosion hazard.

NEVER allow children to touch the transceiver.

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

NEVER connect the transceiver to a power source using reverse polarity. This connection will harm internal transceiver circuitry.

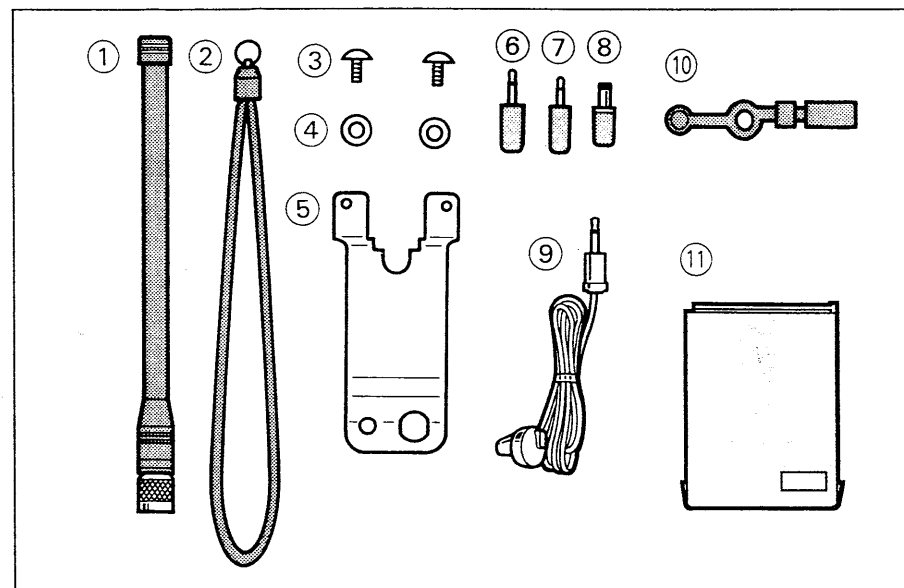
AVOID the use of chemical agents such as benzine or alcohol when cleaning. These agents can damage the transceiver's surfaces.

The use of non-Icom battery packs/chargers may impair transceiver performance and invalidate the warranty.

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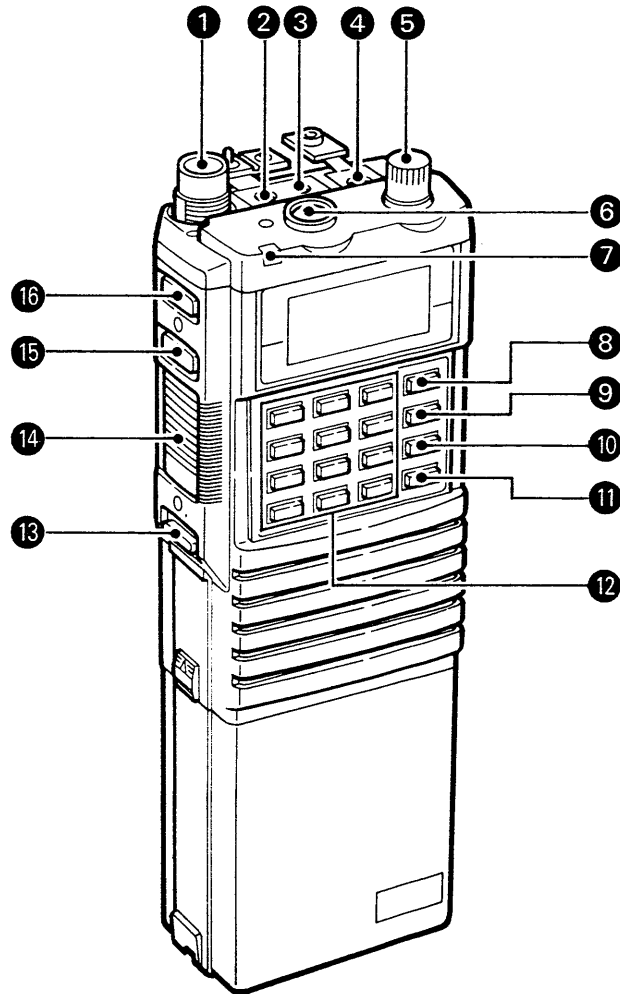
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UNPACKING



ACCESSORIES:	Qty.
① Flexible antenna	1
② Handstrap	1
③ Belt clip screws	2
④ Belt clip plastic washers	2
⑤ Belt clip	1
⑥ External speaker plug	1
⑦ External microphone plug	1
⑧ External DC power plug	1
⑨ Earphone	1
⑩ Rainproof cap	1
⑪ Battery pack (CM-72)	1

Switches and controls



- ① ANTENNA CONNECTOR**
Connects the supplied antenna.
- ② EXTERNAL SPEAKER JACK [EXT SP]**
Connects an earphone or an optional speaker-microphone or headset.
- ③ EXTERNAL MICROPHONE JACK [MIC]**
Connects an optional speaker-microphone or headset.
- ④ DC POWER JACK [DC IN 13.8V]**
Accepts 8~16 V DC power.
- ⑤ POWER SWITCH/VOLUME CONTROL [VOL]**
Turns the power ON and OFF.
- ⑥ SQUELCH SWITCH [S]**
Opens the squelch manually while being pushed and held in the monitor condition.
 - May activate another function depending on the transceiver type.
- ⑦ TRANSMIT INDICATOR [TX]**
Lights up while transmitting.

8 SET SWITCH [SET]

- Selects TX 5-tone indication or comment indication when pushed and held for 4 sec. or more.
- Scrolls the comment while pushing [FUNC].

9 CHANNEL SWITCH [CH SCAN]

- Selects a memory channel when used with the keyboard.
- Starts and stops scanning while pushing [FUNC].

10 TONE SWITCH [TONE LOCK]

- Selects a TX 5-tone code when used with the keyboard.
- Activates the keyboard lock function while pushing [FUNC].

11 RESET SWITCH [RESET]

- Selects the reset or monitor condition.
 - The monitor condition may or may not be selectable depending on version.
- Resets each operation.

12 KEYBOARD

Selects the memory channel number or TX 5-tone channel number.

13 LIGHT SWITCH [LIGHT]

- Turns ON and OFF the LCD backlight.
- The LCD backlight automatically turns OFF in 5 sec.

14 PTT SWITCH

Push and hold to transmit the voice signal.

15 CALL SWITCH [CALL]

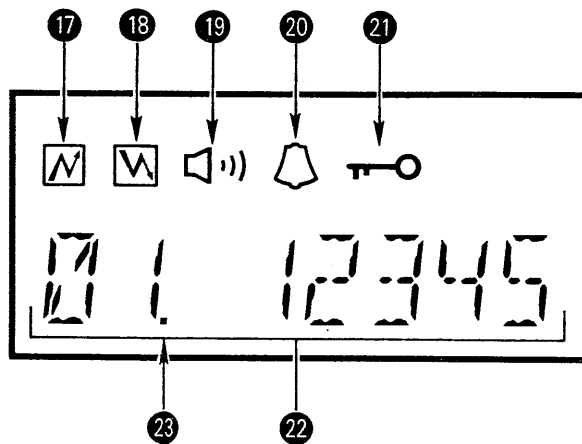
Transmits a TX 5-tone code.

16 FUNCTION SWITCH [FUNC]

Activates the secondary functions of the other switches.

1 PANEL DESCRIPTION

■ Function display



17 TRANSMIT INDICATOR

Appears when transmitting.

18 BUSY INDICATOR

Appears when the selected channel is busy.

19 MONITOR INDICATOR

Appears when the transceiver is in the monitor condition.

20 BELL INDICATOR

Displays or blinks when the 5-tone code for you is received.

- This is an optional function. Ask your dealer for details.

21 LOCK INDICATOR

Appears when the keyboard lock function is activated.

22 FUNCTION INDICATOR

Displays the channel number, 5-tone code, comment, etc.

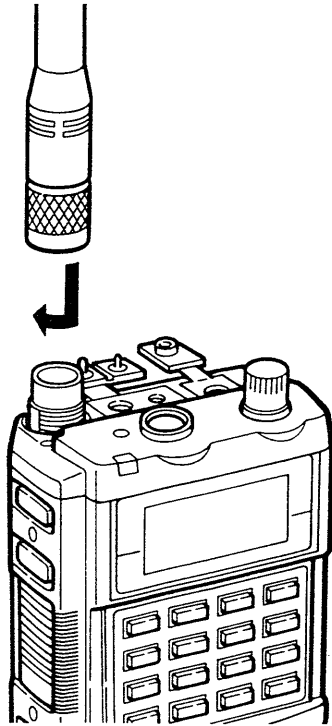
23 SCAN CHANNEL INDICATOR

“ • ” appears when the channel is a scan channel.

■ Attaching accessories

ANTENNA CONNECTION

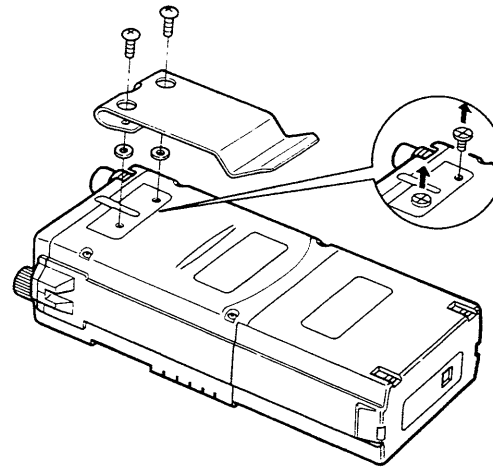
Insert the supplied flexible antenna into the antenna connector on the top of the transceiver, and then screw down securely.



BELT CLIP ATTACHMENT

The belt clip allows you to attach the transceiver to your belt.

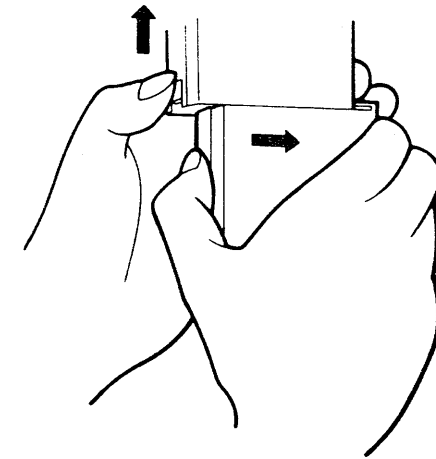
Remove the bushings from the two holes on the rear panel, and then attach the belt clip using the supplied screws and washers.



BATTERY PACK REMOVAL

Push and hold the battery pack release button upwards, then slide the battery pack to the right.

To attach the battery pack, mate the notched ends of the transceiver and the battery pack and slide until a click sound is heard.



2 PRE-OPERATIONS

■ Charging a battery pack

Battery pack precautions

NEVER put batteries into or near a fire. Internal battery gas will cause an explosion.

NEVER put the battery pack in water. Wipe the battery pack dry before using or charging if it gets wet.

NEVER short the terminals as damage will result.

AVOID charging in extreme cold (under 0°C) or extreme heat (over +40°C).

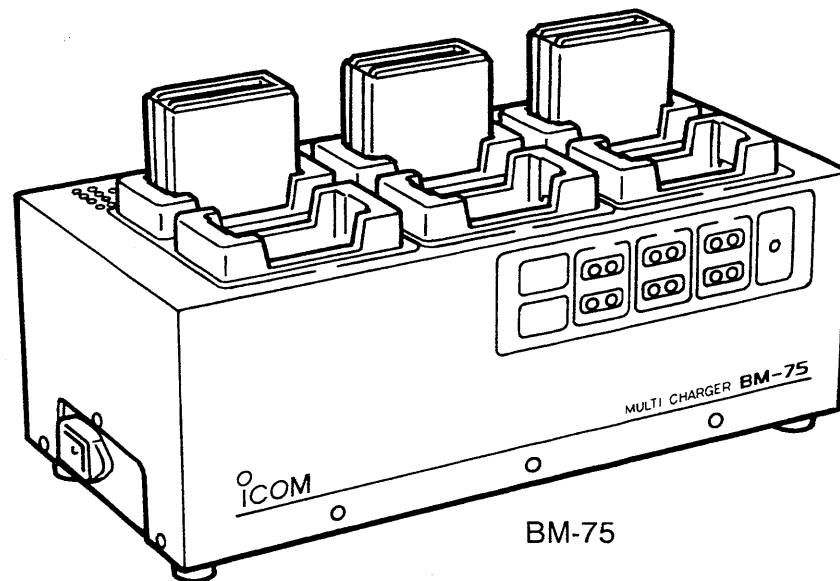
Using the battery pack wisely

The battery pack is designed to withstand recharging periods as long as 1 week or more and can be fully discharged. However, overcharging or complete discharging shortens the life of a battery.

1. Avoid overcharging. Charging times should be less than 48 hours.
2. Use almost all of the battery capacity under normal conditions prior to charging. Charge the battery pack once transmitting becomes impossible.
3. Turn the transceiver power OFF while charging a battery pack attached to the transceiver.

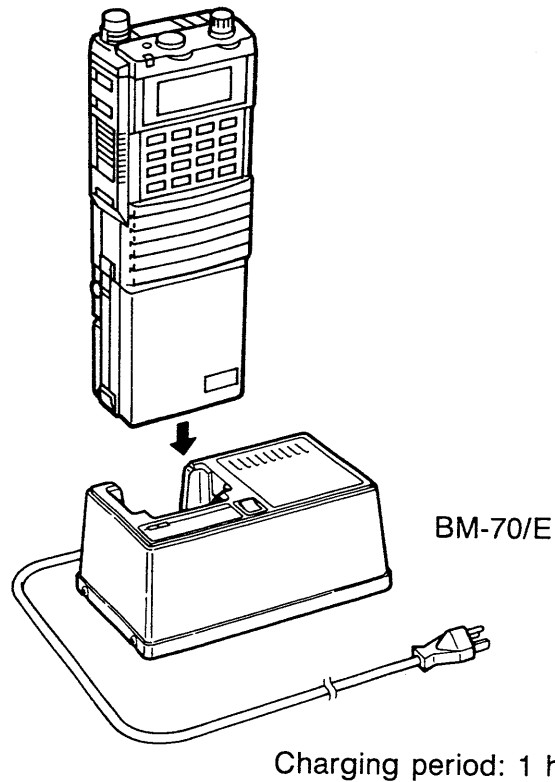
REGULAR CHARGING

Use an optional BM-70/E AC BATTERY CHARGER or BM-75 MULTI-CHARGER. The BM-75 quickly charges up to 6 separate battery packs.



Period for simultaneous charging of 3 separate battery packs: 1.5 hrs.

Period for charging of 6 separate battery packs: 3hrs.

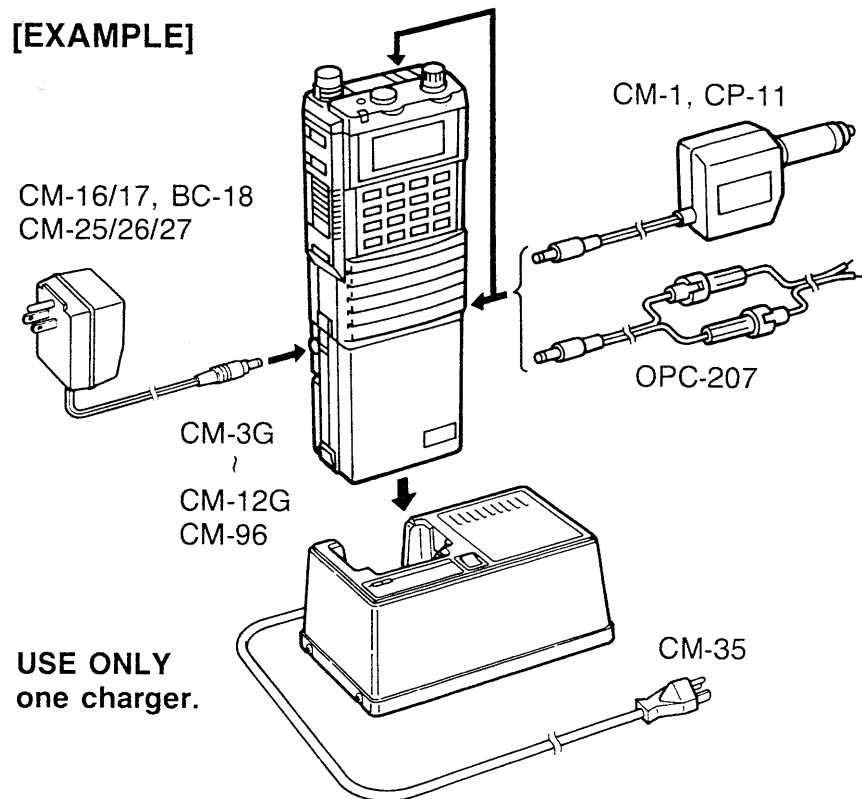


NOTE: The BM-70/E and BM-75 can charge only CM-72 ~ CM-73 but cannot charge other Icom optional battery packs. To charge other Icom optional battery packs, use the CM-35U/E AC BATTERY CHARGER or CM-60A MULTI-CHARGER.

OPTIONAL BATTERY PACK CHARGING

Charging methods vary depending on battery pack type. Some battery packs accept charging through the [DC IN 13.8 V] jack, and some battery packs cannot be charged without a desktop charger. See the instruction sheet of each battery pack for details.

[EXAMPLE]




The CM-60A is capable of charging 6 battery packs.

■ Receiving


- 1) Rotate [VOL] to turn power ON.
 - When “PASSWORD” appears, enter the password. (p. 12)
 - When “SCANNING” appears, skip step 2 and proceed from step 3.
- 2) If your transceiver is a multi-channel type, push a digit key to select the memory channel.
 - Some types require pushing [CH] before digit input. See p. 8 “Channel selection” for details.
- 3) Set [VOL] to the 10 o'clock position.
- 4) When the call signal is received, either the function display shows the received code or the received voice is heard from the speaker.
 - Beep may sound to inform you. (p. 11)
 - Scan may start automatically. (p. 13)
- 5) Perform transmit operation or push [RESET] to wait for the next call.
- 6) To turn power OFF, rotate [VOL] fully counterclockwise until a click is heard.

■ Transmitting

CAUTION: DO NOT transmit while “” appears. Your transmission may interfere with other communications. And, **DO NOT** transmit without an antenna.

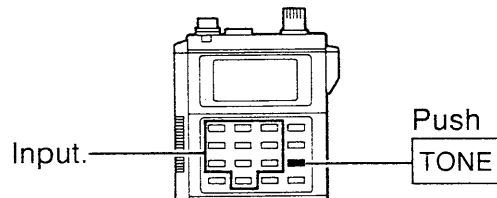
- 1) When you call a station using the 5-tone code, perform “Call operation” at right.
 - After receiving a call or when the channel does not use a 5-tone code, skip this step.
- 2) Push and hold the PTT switch to transmit the voice signal. Then, speak into the microphone.
 - **DO NOT** hold the microphone too closely to your mouth or speak too loudly.
- 3) To return to receive, release the PTT switch.
- 4) Push [RESET] when communication has ended.

TRANSMITTING NOTE

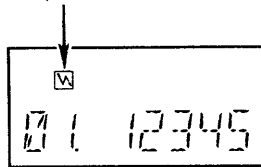
- If “” does not appear, transmission may be impossible. (p. 8)
- T.O.T. function may act automatically to stop transmission. (P. 14)
- Transmitting may be impossible on some channels. (p. 14)

CALLING OPERATION

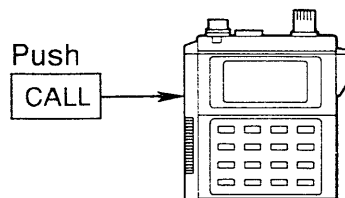
1. Select the TX 5-tone channel.
 - Push [TONE] then input the channel number (2 digits).
 - See the box at right for channel selecting details.



2. Be sure "W" is NOT indicated.
 - If "W" is indicated, wait until the indicator disappears.



3. Push [CALL] to transmit the TX 5-tone code.
 - An answer back call from the other station may appear on the function display.



4. Proceed to transmitting operation when the channel accepts voice transmission.

CHANNEL SELECTION

DIRECT SELECTING: Selects either a memory channel or TX 5-tone channel directly by pushing any digit key.

- Push the digit key of a memory channel or a TX 5-tone channel number.
 - This method is only effective for channels 0~9.

To select channels not corresponding to direct selection procedure or channels 10~99, follow "NORMAL SELECTING" procedure.

NORMAL SELECTING: Selects both a memory channel and TX 5-tone channel.

- Push [CH]([TONE]*), and then enter the channel number (2 digits) from the keyboard.
 - This method is effective for all programmed channels.
 - * For TX 5-tone channels.

NORMAL SELECTING EXAMPLE

- When selecting memory channel 19.
Push CH 1 9 .
- When selecting TX 5-tone channel 3.
Push TONE 0 3 .

Channels

2 types of channels are used to operate the transceiver.

- Memory channel
- TX 5-tone channel

(1) Memory channel

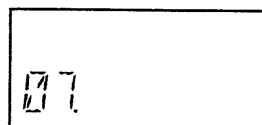
A memory channel is used as an operating channel. You can select the desired memory channel using the memory channel number that appears on the left side of the function display.

The number of memory channels depends on transceiver type.

2 types of memory channels are available.

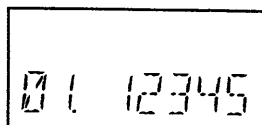
① CTCSS memory channel

This channel is only effective for CTCSS.



② 5-tone memory channel

This channel is only effective for 5-tone.



(2) TX 5-tone channels

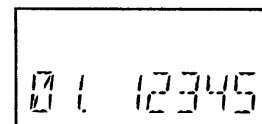
TX 5-tone channels contain TX 5-tone codes and are used with 5-tone memory channels for selective calling to other stations.

You can select the TX 5-tone channel on these memory channels. The number of TX 5-tone channels depends on the transceiver type.

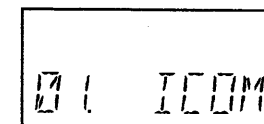
TX 5-tone channel numbers do not appear on the function display, but they are indicated by the TX 5-tone code or comment.

- To change the display mode (indication of the TX 5-tone code or comment), push and hold [SET] for 4 sec.

TX 5-tone indication



Comment indication



NOTE: The number of indicated 5-tone digits depends on transceiver type.


■ Conditions

For 5-tone operation, 2 types of conditions exist.


- Reset condition
- Monitor condition

NOTE: For operation on CTCSS memory channels, these conditions exist, but operation is the same in both cases.

RESET CONDITION

“


MONITOR CONDITION

“

Push
RESET

(1) Reset condition


This is the standby condition. The transceiver usually is in the reset condition.

- “

The transceiver enters the monitor condition automatically when the 5-tone code for you is received.

(2) Monitor condition

This is the receiving condition.

- “

After pushing [CALL] for call operation, the transceiver automatically enters the monitor condition.

- Push [RESET] to enter the monitor condition manually.

NOTE: The monitor condition is restricted for entry according to transceiver type. Therefore, the transceiver does not enter the monitor condition even if the [RESET] switch is pushed or a call intended for you is received.

■ Scan

The scan function automatically changes the memory channels continuously at very high speed to detect a signal intended for you on all memory channels programmed as scan channels.

While pushing [FUNC], push [CH](SCAN) to start or to stop scan.

- “SCANNING” appears during scanning operation.

The scan pauses on a channel when the scan detects a signal for you, and the transceiver receives on that channel until the signal disappears.

SCAN NOTE

The transceiver decodes the signal using either the CTCSS or 5-tone during scan operation depending on the the transceiver type.

- If “CTCSS” is programmed, no 5-tone code can stop the scan; only the correct CTCSS tone can stop scan.
- If “5-tone” is programmed, no CTCSS tone can stop the scan; only the correct 5-tone code can stop the scan.

The scan function will not start if:

- The transceiver is not the scan type.
- The transceiver is the single channel type.
- None or only one memory channel has been programmed as a scan channel.

■ Comment scroll

A comment consists of a maximum of 13 characters. Although the function display indicates only the first 5 characters initially, the remaining 8 characters can be indicated using this function.

- 1) While pushing [FUNC], push [SET] to indicate the next 5 characters. Do not release [FUNC].
- 2) While continuously holding [FUNC], push [SET] again to indicate the next 3 characters.
- 3) Release [FUNC].
 - The first 5 characters appear.

■ Keyboard lock

The keyboard lock function prevents the transceiver from changing the memory and TX 5-tone channels accidentally.

- 1) While pushing [FUNC], push [TONE] to activate the function.
 - The lock indicator appears.
- 2) To cancel the function, while pushing [FUNC], push [TONE] again.

NOTE: The function is not canceled when power turns OFF.

■ For receiving

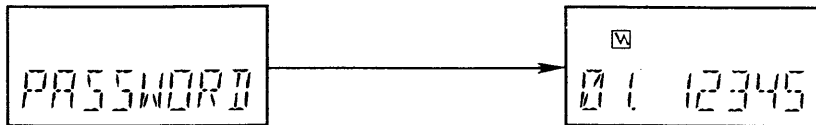
The following optional capabilities for receiving are equipped in the transceiver. Ask your dealer for further information.

PASSWORD

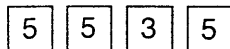
The password restricts access to the transceiver. After power ON, "PASSWORD" appears.

- Input the correct password with the keyboard to use the transceiver.

Enter PASSWORD.



[EXAMPLE]



POWER ON SCAN

After power ON, the scan automatically starts. You need not select a memory channel for receiving.

- "SCANNING" appears.
- To stop scan, push [CH](SCAN) while pushing [FUNC].
- See p. 11 for scan details.

POWER ON MONITOR

After power ON, the transceiver automatically enters the monitor condition.

- "🔊" indicator appears.
- Push [RESET] to enter the reset condition to wait for selective calling.
- See p. 6 for the monitor condition.

BEEP FUNCTION

A beep informs you that the 5-tone code for you is received. 3 types of beeps can be programmed as follows:

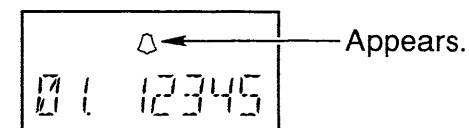
- Single beep
- Rapid beep
- Repeat beep

No beep is also possible. Ask your dealer for further information.

BELL INDICATION

The bell indicator is indicated or blinked when the 5-tone code for you is received.

- This indicator is displayed until the transceiver enters the reset condition.



6 OPTIONAL FUNCTIONS

POWER SAVER FUNCTION

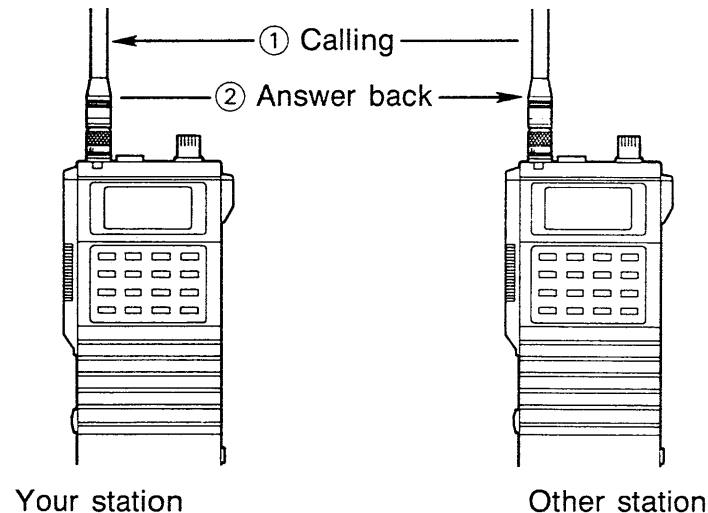
This function reduces the receive current drain. The receiving circuit is repeatedly turned ON and OFF automatically. It is effective for conserving battery power.

ID CODE INDICATION

The function display shows the ID code of the transmit station instead of the receiving code. You can easily recognize the transmit station.

ANSWER BACK TRANSMISSION

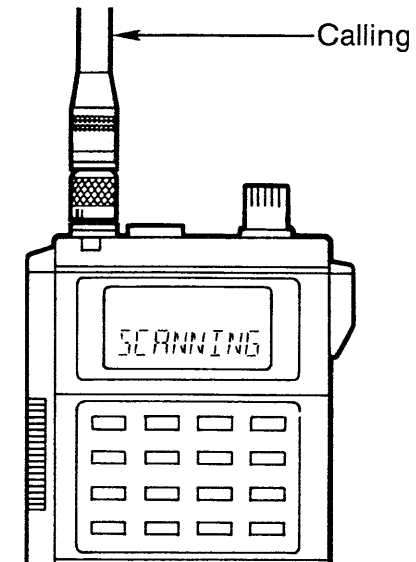
The transceiver automatically sends an answer back code when the 5-tone code for you is received to inform the transmit station of the connection.



AUTO SCAN

Scan automatically starts when the 5-tone code for you is received. When this function is activated, voice transmission is impossible.

- See p. 11 for scan details.



AUTO RESET

After the 5-tone code for you is received the transceiver automatically enters the reset condition when the programmed period ends.

AUTO TX

Ask your dealer for information.

■ For transmitting

The following optional capabilities for transmitting are equipped in the transceiver. Ask your dealer for further information.

TRANSMISSION INHIBIT

All transmission can be inhibited on some specified CTCSS or 5-tone memory channels.

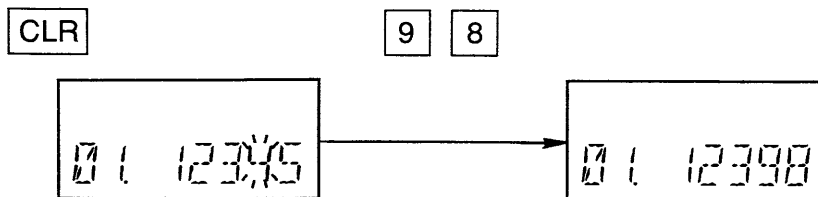
- If you attempt to transmit, beeps alarm you that the selected memory channel is a transmit inhibit channel.

TX 5-TONE CODE REWRITING

All or some digits of a TX 5-tone code can be rewritten on some TX 5-tone memory channels.

- Push [CLR], then enter the new code.
- Changeable digits are restricted depending on the transceiver type.

[EXAMPLE]



ID CODE TRANSMISSION

Your ID code can be transmitted with a TX 5-tone code when calling. The function display of the receiving station shows your ID code.

ANSWER BACK DISPLAY

The digits to be indicated of the receiving station's answer back code can be designated. Only designated digits are indicated on the function display.

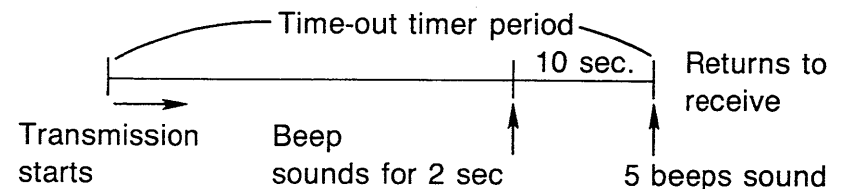
VOICE TRANSMISSION INHIBIT

Voice transmission can be inhibited on some 5-tone memory channels.

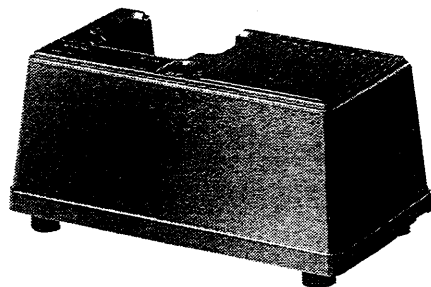
- Only call operation can be performed.

TIME-OUT TIMER (T. O. T.)

During continuous transmitting the transceiver automatically returns to receive when the set time-out timer period ends. And, transmission is impossible during the penalty period.

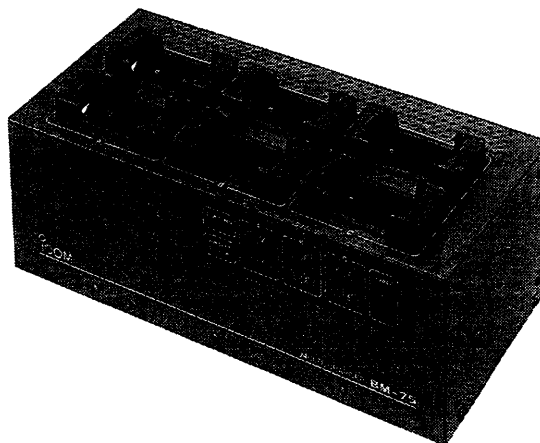


• **BM-70/E DESKTOP CHARGER**



Rapidly charges CM-72 ~ CM-73 BATTERY PACKS.

• **BM-75 MULTI-CHARGER**



Rapidly charges up to 6 separate CM-72 ~ CM-73 BATTERY PACKS.

• **CM-9 SPEAKER-MICROPHONES**



Combination speaker and microphone. Rugged type.

• **BATTERY PACKS AND BATTERY CASES**

Model	Voltage	Capacity	Height
CM-72*1	8.4 V	1000 mAh	75 mm
CM-73	13.2 V	1000 mAh	109 mm

*1 The same type as supplied with the IC-H21T.

The IC-H21T also accepts the other types of Icom battery packs described in the box at right. To charge these battery packs, the CM-35 or CM-60A is necessary.

Model	Voltage	Capacity	Height
CM-3G	8.4 V	270 mAh	39 mm
CM-4G*2	Battery case For six R6 (AA)'s*2		49 mm
CM-5G	10.8 V	450 mAh	56 mm
CM-5AG	10.8 V	450 mAh	80 mm
CM-7G	13.2 V	450 mAh	80 mm
CM-8G	8.4 V	800 mAh	80 mm
CM-12G	Battery case For ten R6 (AA)'s		80 mm
CM-96	8.4 V	1200 mAh	80 mm

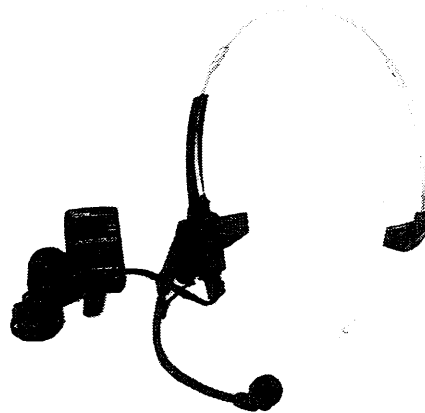
*2 Can be charged when NiCd batteries are installed.

• **HM-54
SPEAKER-MICROPHONES**



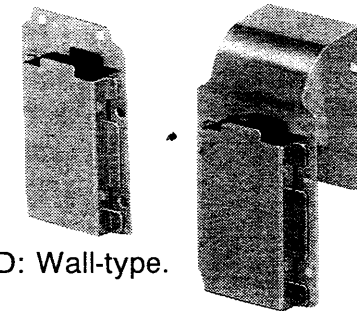
Combination speaker and microphone. Heavy-duty type.

• **HS-51 HEADSET**



Includes a VOX function and "one touch PTT."

• **MB-16, MB-16D
MOUNTING BRACKETS**



MB-16D: Wall-type.

MB-16: Hanger-type.

• **EM-46 SPEAKER-MICROPHONES**

Combination speaker and microphone. Thin type.

• **ST-10 SHOULDER STRAP**

For carrying the transceiver anywhere.

• **CP-13 CIGARETTE LIGHTER CABLE
WITH NOISE FILTER**

For operation with a 12 V battery.

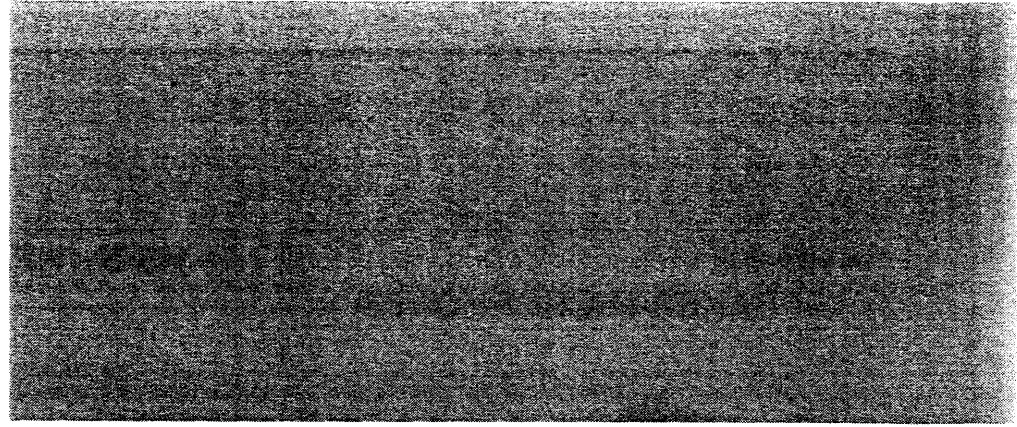
- Can be used for charging optional battery packs

• **OPC-288 DC POWER CABLE**

For operation with an external DC power supply.

- Can be used for charging optional battery packs.

Count on us!



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