



INSTRUCTION MANUAL

HF MARINE TRANSCEIVER **IC-M802**

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT

READ THIS INSTRUCTION MANUAL CAREFULLY before attempting to operate the transceiver.

SAVE THIS INSTRUCTION MANUAL. This manual contains important safety and operating instructions for the IC-M802.

EXPLICIT DEFINITIONS

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

PRECAUTIONS

⚠ WARNING HIGH VOLTAGE! NEVER attach an antenna or internal antenna connector during transmission. This may result in an electrical shock or burn.

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

⚠ WARNING! NEVER mount the transceiver (main unit) overhead. The weight of the transceiver is approximately 8 kg, but its apparent weight will increase several fold due to wave shocks or vibration. The transceiver must be mounted on a flat hard surface only.

⚠ NEVER connect a power source of more than 16 V DC, such as a 24 V battery. This connection could cause a fire or ruin the transceiver.

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

⚠ NEVER let metal, wire or other objects touch any internal part or connectors on the rear panel of the transceiver. This may result in an electric shock.

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

DO NOT use chemical agents such as benzine or alcohol when cleaning, as they can damage the transceiver surface.

During maritime mobile operation, **KEEP** the transceiver and microphone **as far away** as possible (at least 1 m; 3 ft) from the magnetic navigation **compass** to prevent erroneous indications.

Use Icom microphones and/or headset only (supplied or optional). Other manufacturer's microphones and/or headset have different pin assignments, and connection to the IC-M802 may damage the transceiver.


AVOID using or placing the transceiver in areas with temperatures below -20°C (-4°F) or above $+60^{\circ}\text{C}$ ($+140^{\circ}\text{F}$).

AVOID placing the transceiver in excessively dusty environments or in direct sunlight.

AVOID placing the transceiver against walls or putting anything on top of the transceiver. This will obstruct heat dissipation.

Place unit in a secure place to avoid inadvertent use by children.

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

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IN CASE OF EMERGENCY (for maritime operation)

If your vessel requires assistance, contact other vessels and the Coast Guard by sending a distress call on 2182 kHz.

◇ USING 2182 kHz WITH VOICE

- ① Push [2182kHz] to select the emergency frequency.
- ② Push [ALARM] and [TX FREQ] for 1 sec. to transmit a two tone alarm signal for at least 30 sec.
 - The transceiver automatically stops the alarm after 50 sec.
- ③ Push [ALARM] to turn OFF the alarm transmission, then push and hold the PTT switch on the microphone and send the following information.
 1. "MAY DAY, MAY DAY, MAY DAY."
 2. "THIS IS." (name of vessel)
 3. "LOCATED AT" (vessel's position)
 4. Give the reason for the distress call.
 5. Explain what assistance you need.
 6. Give additional information:
 - Vessel type
 - Vessel length
 - Vessel color
 - Number of people on-board

Or transmit your distress call using digital selective calling on 2187.5 kHz.

◇ USING DIGITAL SELECTIVE CALLING

When immediate help is needed

- ① Push and hold [DISTRESS] for 5 sec. until the short beeps become one long beep, to send the distress call.
- ② After 2182 kHz is automatically selected, transmit the appropriate information as at left using voice.

When potential problems exists

- ① Push [SEL], then select "All ships call" with [CH] selector.
- ② Push and hold [CANCEL/CALL] for 5 sec. until the short beeps becomes one long beep, to use the "all ships call" function.
- ③ After the pre-selected frequency is selected, transmit the appropriate information using voice.
 - DSC equipped ships may monitor your transmission.

Before transmitting, monitor the channel you wish to use so as to avoid interrupting transmissions already in progress.

•CALL PROCEDURE

Calls must be properly identified and the time limit must be respected.

- ① Give your call sign each time you call another vessel or coast guard station. If you have no call sign, identify the station by giving your vessel name and the name of the licensee.
- ② Give your call sign at the end of each transmission that lasts more than 3 min.
- ③ You must break and give your call sign at least once every 15 min. during long ship-to-shore calls.
- ④ Keep your unanswered calls short, less than 30 sec. Do not repeat a call for 2 min.
- ⑤ Unnecessary transmissions are not allowed.

•PRIORITIES

- ① Read all rules and regulations pertaining to priorities and keep an up-to-date copy handy. Safety and distress calls take priority over all others.
- ② False or fraudulent distress signals are prohibited and punishable by law.

•PRIVACY

- ① Information overheard but not intended for you, cannot lawfully be used in any way.
- ② Indecent or profane language is prohibited.

•LOGS

- ① All distress, emergency and safety calls must be recorded in complete details. Log data activity is usually recorded in 24 hour time. Universal Time (UTC) is frequently used.
- ② Adjustments, repairs, channel frequency changes and authorized modifications affecting electrical operation of the equipment must be kept in the maintenance log; entries must be signed by the authorized licensed technician performing or supervising the work.

•RADIO LICENSES

(1) SHIP STATION LICENSE

You must have a current radio station license before using the transceiver. It is unlawful to operate a ship station which is not licensed.

Inquire through your dealer or the appropriate government agency for a Ship-Radiotelephone license application. This government-issued license states the call sign which is your craft's identification for radio purposes.

(2) OPERATOR'S LICENSE

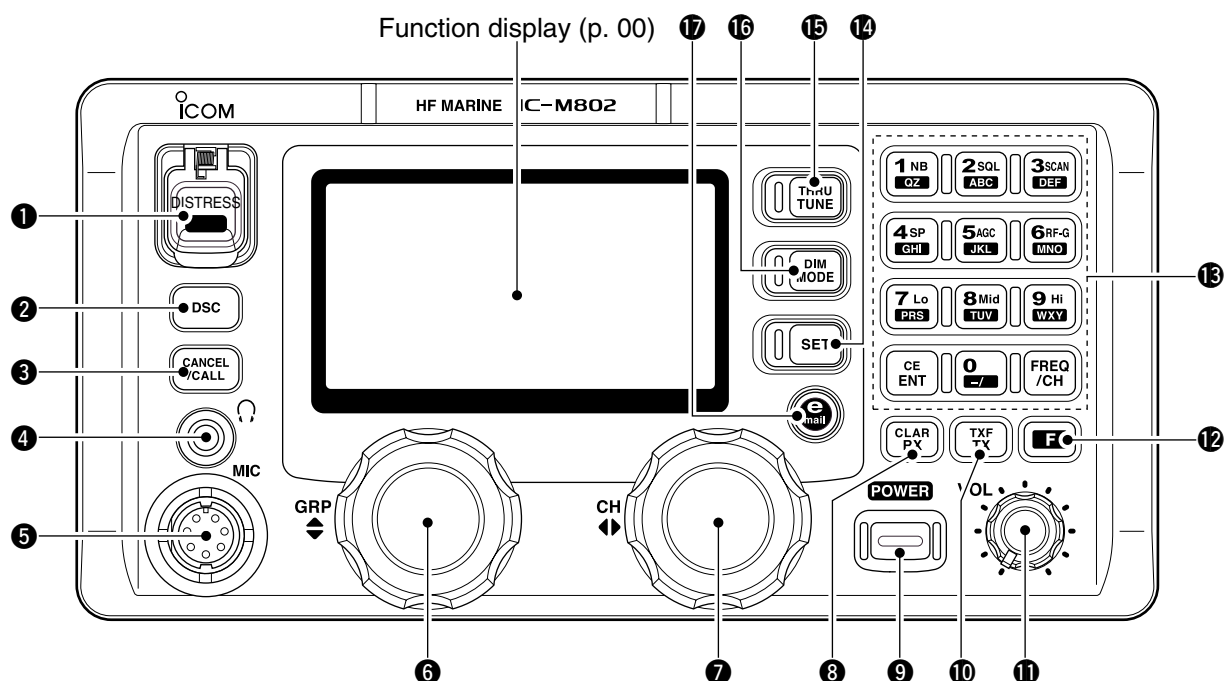
A Restricted Radiotelephone Operator Permit is the license most often held by small vessel radio operators when a radio is not required for safety purposes.

The Restricted Radiotelephone Operator Permit must be posted or kept with the operator. Only a licensed radio operator may operate the transceiver.

However, non-licensed individuals may talk over a transceiver if a licensed operator starts, supervises, and ends the call and makes the necessary log entries.

Keep a copy of the current government rules and regulation handy.

■ Front panel— Controller



1 DISTRESS SWITCH [DISTRESS] (p. 00)

Push for 5 sec. to make a distress call.

2 DSC SWITCH [DSC]

- ➔ Selects DSC function when pushed. (p. 00)
 - Select DSC channel with [CH].
- ➔ After pushing [F], print out the selected contents, when a printer is connected. (p. 00)

3 CANCEL/CALL SWITCH [CANCEL/CALL]

- ➔ Cancels a distress call. (p. 00)
- ➔ Push for 1 sec. to make a DSC call. (p. 00)

4 HEADPHONE JACK []

Accepts headphones.

- Output power: 5 mW with an 8 Ω load.
- When headphones are connected, the internal speaker or connected external speaker does not function.

5 MICROPHONE CONNECTOR [MIC]

Accepts the supplied or optional microphone or handset.

- See p. 00 for appropriate microphones.
- See p. 00 for microphone connector information.

6 GROUP CHANNEL SELECTOR [GRP] (p. 00)

Selects groups in 20 channel steps and ITU marine channel groups.

⚡ NOTE: Some versions have no ITU channels.

7 CHANNEL SELECTOR [CH] (p. 00)

- ➔ Selects an operating channel within the selected channel group such as ITU channels. (p. 00)
 - User channels can be selected from 1 to 160 (max.) in sequence regardless of the channel group.
- ➔ Changes the operating frequency* after [RX CLAR] is pushed (while “ \mathbb{H} ” appears).
 - The changed frequency is not programmed in this way.

8 RX/CLARITY SWITCH [RX CLAR] (p. 00)

- ➔ Push to enable the receive frequency set with the keypad or [CH] selector. (p. 00)
 - While receive frequency set is enabled, “ \mathbb{H} ” appears.
- ➔ After pushing [F], turns clarity function ON and OFF.
 - [CH] selector is used for clarity control.
- ➔ After pushing [DSC], shows received DSC messages.
 - [GRP] selector is used for Distress and Individual call selection.
 - [CH] selector is used for message selection.

9 POWER SWITCH [POWER]

- ➔ Push to turn the power ON.
- ➔ Push for 1 sec. to turn the power OFF.

10 TX/TRANSMIT FREQUENCY SWITCH [TX TXF] (p. 00)

- ➔ Push to enable the transmit frequency set with the keypad. (p. 00)
 - While transmit frequency set is enabled, “TX” blinks.
- ➔ After pushing [F], displays the transmit frequency, and opens the squelch. Checks and monitors the transmit frequency while holding. (p. 00)

*Some versions do not have frequency selection and frequency indication.

11 VOLUME CONTROL [VOL] (p. 00)

Adjusts the audio output level.

- Audio does not come from the speaker when:
 - A microphone is not connected.
 - The speaker switch is turned ON.
 - The squelch switch is turned ON and no signal is being received.

12 FUNCTION SWITCH [F] (p. 00)

After pushing, activates the secondary functions.

- “[F]” appears when a secondary function can be accessed.

13 KEYPAD (p. 00)



- ➔ Input numeral “1” for channel number, frequency input, etc.
- ➔ Input “1,” “Q” or “Z” for channel comment input.
- ➔ After pushing [F], turns the noise blanker function ON and OFF. (p. 00)



- ➔ Input numeral “2” for channel number, frequency input, etc.
- ➔ Input “2,” “A,” “B” or “C” for channel comment input.
- ➔ After pushing [F], turns the voice or S-meter squelch ON and OFF. (p. 00)



- ➔ Input numeral “3” for channel number, frequency input, etc.
- ➔ Input “3,” “D,” “E” or “F” for channel comment input.
- ➔ After pushing [F], starts and stops the scan function. (p. 00)



- ➔ Input numeral “4” for channel number, frequency input, etc.
- ➔ Input “4,” “G,” “H” or “I” for channel comment input.
- ➔ After pushing [F], turns the speaker output ON and OFF. (p. 00)



- ➔ Input numeral “5” for channel number, frequency input, etc.
- ➔ Input “5,” “J,” “K” or “L” for channel comment input.
- ➔ After pushing [F], turns the AGC function ON and OFF. (p. 00)



- ➔ Input numeral “6” for channel number, frequency input, etc.
- ➔ Input “6,” “M,” “N” or “O” for channel comment input.
- ➔ After pushing [F], enters to the RF gain adjustment mode. (p. 00)



- ➔ Input numeral “7” for channel number, frequency input, etc.
- ➔ Input “7,” “P,” “R” or “S” for channel comment input.
- ➔ After pushing [F], selects low transmit output power. (p. 00)



- ➔ Input numeral “8” for channel number, frequency input, etc.
- ➔ Input “8,” “T,” “U” or “V” for channel comment input.
- ➔ After pushing [F], selects middle transmit output power. (p. 00)



- ➔ Input numeral “9” for channel number, frequency input, etc.
- ➔ Input “9,” “W,” “X” or “Y” for channel comment input.
- ➔ After pushing [F], selects high transmit output power. (p. 00)



- ➔ Input numeral “0” for channel number, frequency input, etc.
- ➔ Input “0” and symbols (as follows) for channel comment input.



- ➔ Fixes input of channel number, frequency and channel comment, etc.
- ➔ When pushed for 1 sec., stores programmed frequency, operating mode and memory comment into a channel.
- ➔ After pushing [F], clears clarity setting.



- ➔ Selects display type:
 - When channel comment indication is ON; switches transmit frequency indication ON and OFF
 - when channel comment indication is OFF; switches channel comment indication ON and OFF
- ➔ After pushing [F], enters channel comment programming mode, when channel comment indication is ON.

14 SET SWITCH [SET]

- ➔ Enters quick set mode (p. 00)
- ➔ After pushing [DSC], enters DSC set mode. (p. 00)

15 TUNE/THROUGH SWITCH [TUNE THRU] (p. 00)

- ➔ Starts tuning when an optional antenna tuner is connected.
 - “TUNE” appears when tuned.
 - When the tuner cannot tune the antenna, the tuning circuit is bypassed automatically after 20 sec.
- ➔ After pushing [F], bypasses an external antenna tuner.
 - “THROUGH” appears instead of “TUNE” indication.

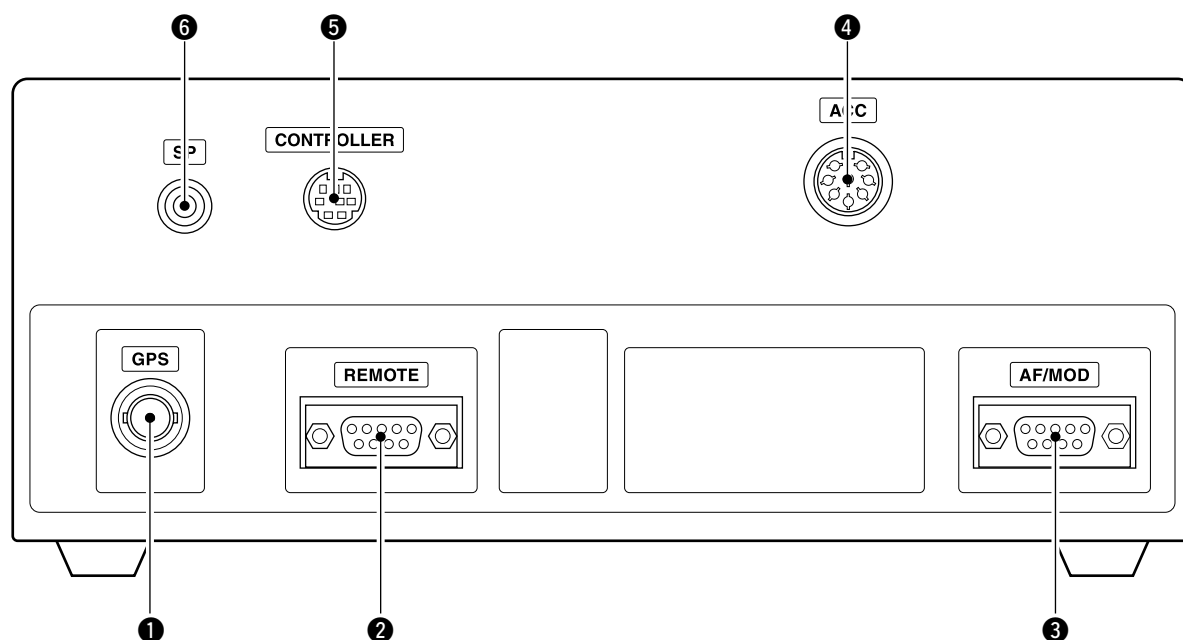
16 MODE/DIMMER SWITCH [MODE DIM] (p. 00)

- ➔ Push to select an operating mode.
 - J3E, H3E, LSB, J2B, F1B and A1A modes are available, depending on version or countries.
- ➔ After pushing [F], selects LCD backlight brightness.

17 E-MAIL SWITCH [e-mail] (p. 00)

- ➔ Selects the operating frequencies, mode and filter setting for e-mail operation.

■ Front panel— Main unit



① GPS CONNECTOR [GPS] (p. 00)

Connects a GPS receiver (NMEA0183 ver. 2.0) for sending positioning data without manual input.

② REMOTE CONNECTOR [REMOTE] (p. 00)

Connects the IC-M802 to a PC via an RS-232C cable (9-pin) for remote control of transceiver function in the NMEA format.

③ AF/MOD CONNECTOR [AF/MOD] (p. 00)

Connects the IC-M802 to an NBDP system via an RS-232C cable (9-pin).

④ ACC CONNECTOR [ACC] (p. 00)

Connects a CW keyer or an FSK terminal unit

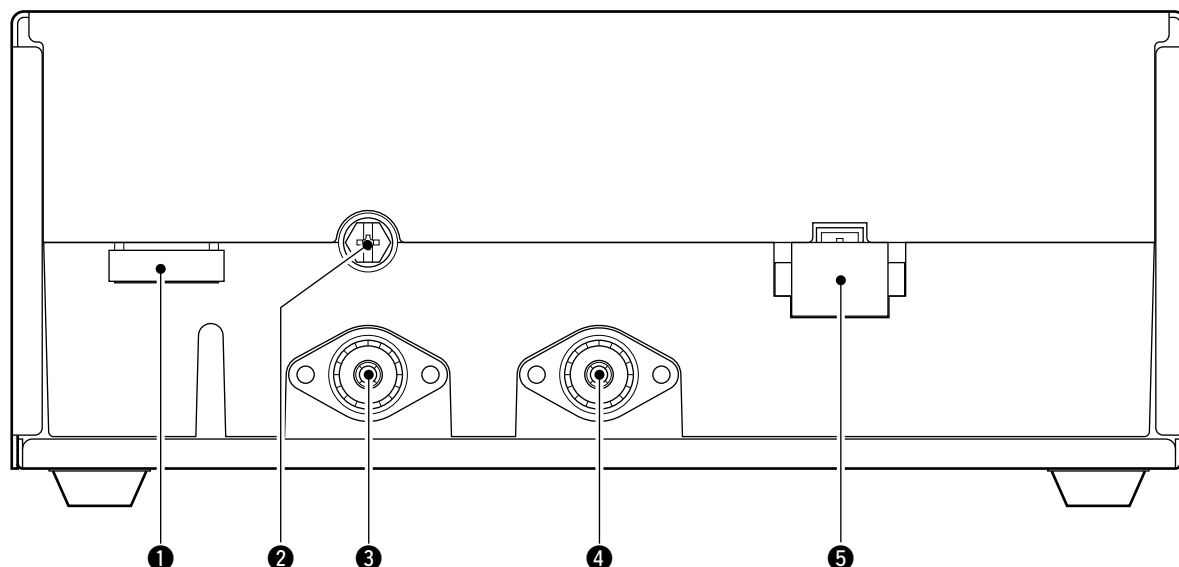
⑤ CONTROLLER CONNECTOR [CONTROLLER] (p. 00)

Connects the supplied remote controller.

⑥ SPEAKER JACK [SP] (p. 00)

Connects the supplied external speaker.

■ Rear panel— Main unit



❶ TUNER CONTROL SOCKET (p. 00)

Connects a control cable to an optional antenna tuner, AT-140, AT-130/E ANTENNA TUNER, A female connector is supplied for connection.

❷ GROUND TERMINAL (p. 00)

IMPORTANT! Connects a vessel's (or vehicle's) ground. See p. 00 for details.

❸ ANTENNA CONNECTOR 1 (p. 00)

Connects a 50 Ω HF band antenna with a 50 Ω matched coaxial cable and a PL-259 plug for both transmit and receive operation.

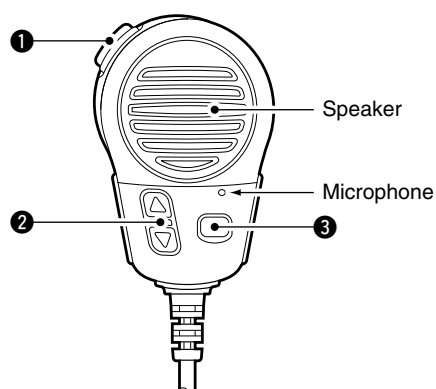
❹ ANTENNA CONNECTOR 2 (p. 00)

Connects a 50 Ω HF band antenna with a 50 Ω matched coaxial cable and a PL-259 plug for DSC receive operation only.

❺ DC POWER SOCKET (p. 00)

Accepts 13.6 V DC through the supplied DC power cable.

■ Microphone (HM-135)



❶ PTT SWITCH [PTT]

Push and hold to transmit; release to receive.

❷ UP/DOWN SWITCHES [▲]/[▼] (p. 00)

Push either switch to change the operating channel, set mode contents, etc.

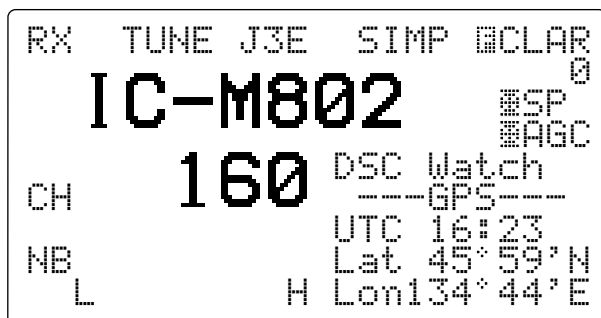
❸ USER PROGRAMMABLE SWITCH [P] (p. 00)

Push to activate or deactivate a function, selected in set mode (p. 00).

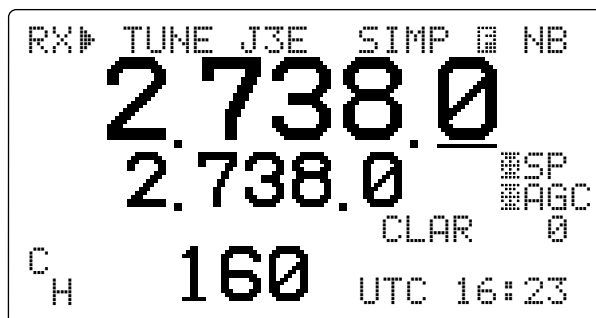
■ LCD screen

The IC-M802 has 2 display types, one is channel name indication and other one is frequency indication. These display types can be switched with a push of a button, depending on versions and set modes setting. See p. 00 and p. 00 for display type settings.

• Channel name indication



• Frequency indication



① RECEIVE INDICATOR

“RX” appears when signals are received or the squelch is open.

② TUNE INDICATOR (p. 00)

“TUNE” blinks while tuning, if an optional external antenna tuner is connected.

- “TUNE” appears after tuning is completed and the tuner is ON when AH-3 is connected.

③ OPERATING MODE INDICATOR (p. 00)

Shows the selected operating mode.

- “J3E” “H3E” “LSB” “J2B” “F1B” or “A1A” appears depending on version.

④ SIMPLEX/DUPLEX INDICATOR (p. 00)

“SIMP” appears when a simplex channel, “DUP” appears when a duplex channel is selected.

⑤ CLARITY INDICATOR (p. 00)

“CLAR” appears when the clarity function is activated and shows shifting frequency in Hz.

⑥ CHANNEL NAME INDICATION

Shows the programmed channel names.

- Shows the programmed receive frequency when no channel names are programmed.

⑦ CHANNEL NUMBER INDICATION

Shows the selected channel number.

⑧ SPEAKER OFF INDICATOR (p. 00)

“SP” appears when the speaker output is turned OFF.

⑨ AGC OFF INDICATOR (p. 00)

“AGC” appears when the AGC is turned OFF.

⑩ DSC WATCH INDICATOR (p. 00)

“DSC Watch” appears while the DSC receiver is activated.

⑪ NOISE BLANKER INDICATOR (p. 00)

“NB” appears when the noise blanker function is activated.

⑫ SQUELCH INDICATOR (p. 00)

“SQL” appears when the squelch is open.

⑬ S/RF INDICATOR (p. 00)

Shows relative transmit output power levels during transmit and receiving signal strength during receive.

⑭ GPS INDICATOR (p. 00)

Shows position and UTC time when a GPS receiver is connected. The indication is up dated each time new GPS data is received.

- If no GPS receiver is connected, the position and UTC time must be set in advance.

⑮ TRANSMIT INDICATOR (p. 00)

- “TX” appears during transmit.

- “TX” blinks when setting a transmit frequency or during cross channel operation.

⑯ RECEIVE FREQUENCY READOUT (p. 00)

Shows receive frequency.

⑰ TRANSMIT FREQUENCY READOUT (p. 00)

Shows transmit frequency.

⑱ RECEIVE FREQUENCY SELECT MODE INDICATOR (p. 00)

“F” appears while in receive frequency select mode.

⑲ CURSOR (p. 00)

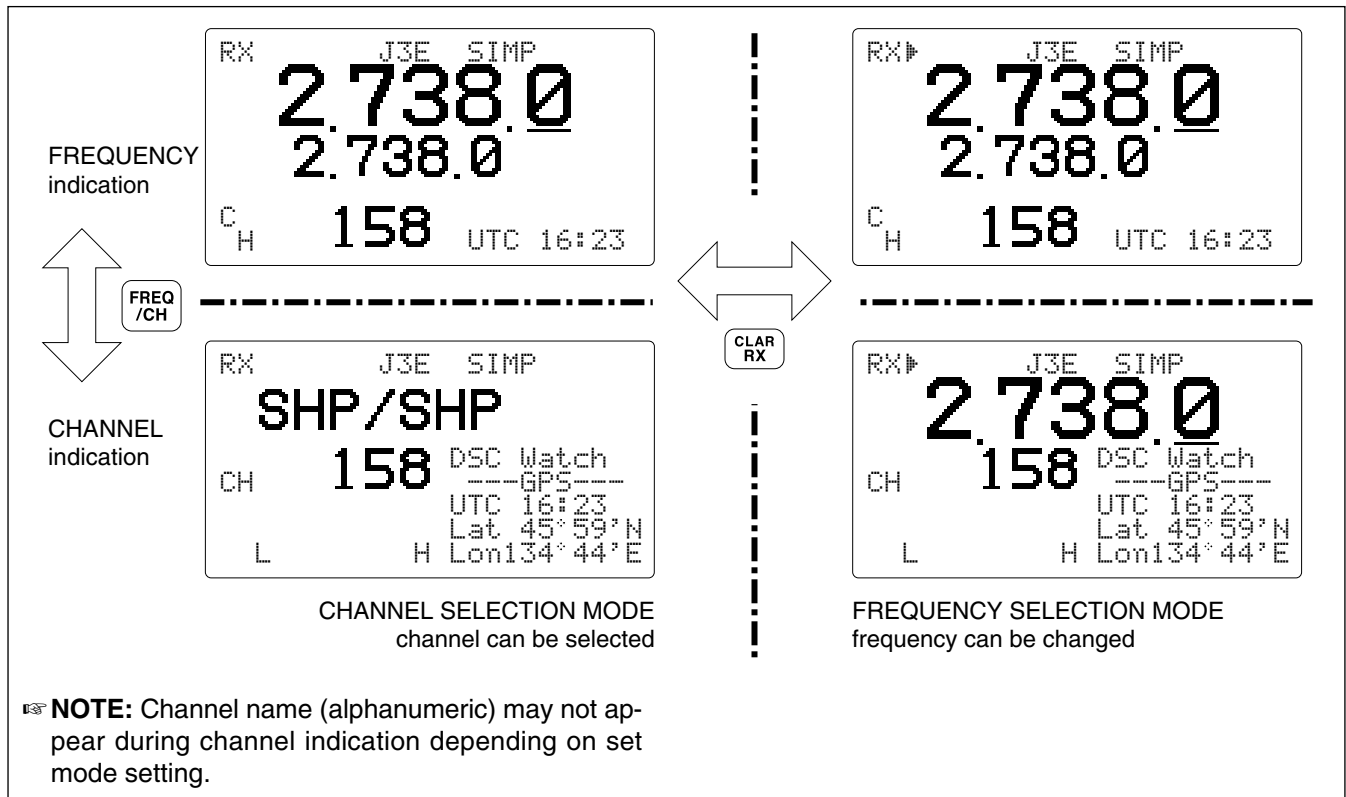
Shows the changeable receive frequency digit.

- The cursor moves by rotating the [GRP] selector while in receive frequency select mode.

■ Selecting a channel

The transceiver has 160 user channels and ITU channels. However, the number of user channels can be optionally restricted and ITU channels are not available with some versions.

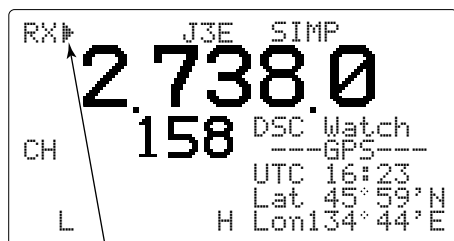
NOTE: When Channel 0 or 2182 kHz is selected with the [2182kHz] switch, channel selection is NOT possible. In such case, push [2182kHz] in advance.



◆ Using the channel selector

The transceiver has two large controls for group selection and channel selection. The [GRP] selector changes channels in 20 channel increments and selects ITU channel groups*; and the [CH] selector selects each channel.

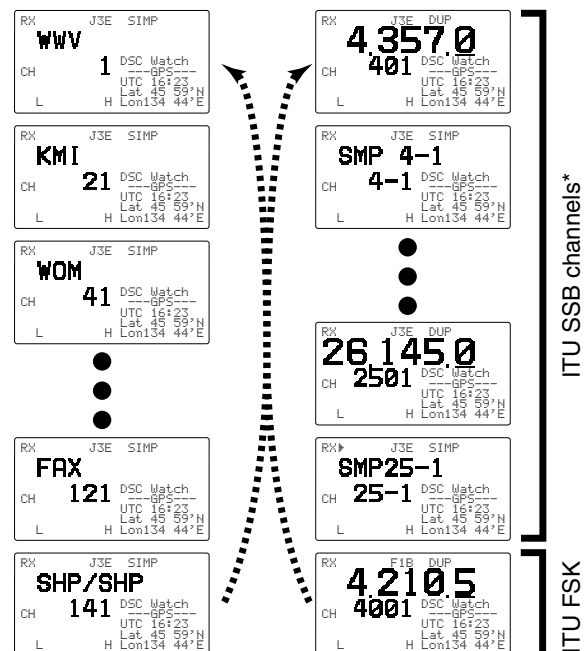
- ① Make sure no "✖" indicator appears in the display.



If appears, push **CLAR RX** to delete it.

- ② Rotate [GRP] selector to select the desired channel group as shown at right and/or below.
- ③ Rotate [CH] selector to select the desired channel.

[EXAMPLE]: Selection with the [GRP] selector




*All ITU channels are not available with some versions and ITU FSK channels can be hidden using set mode (p 00).

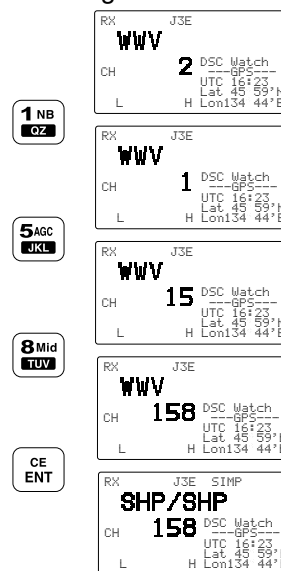
3 SELECTING A CHANNEL/FREQUENCY

◆ Using the keypad

Direct channel selection via the keypad is available for quick channel selection.

- ① Make sure no “” indicator appears in the display.
 - If it appears, push [RX CLAR] to delete it.
- ② Enter the desired channel number via the keypad.
 - A user channel is selected when channel 1–160 is input (max. number may be optionally restricted).
 - An ITU SSB channel is selected when channel numbers higher than 401 are input (not available for some versions).
 - An ITU FSK channel is selected when channel numbers higher than 4001 are input (not usable according to set mode setting).
 - When selecting an ITU simplex channel, push [0] three times instead of the “—” input. (e.g. When selecting the channel 4-1; — push [4 SP], [0], [0], [0] then [1 NB].)
- ③ Push [ENT CE] to select the channel.

[EXAMPLE]: Selecting channel 158

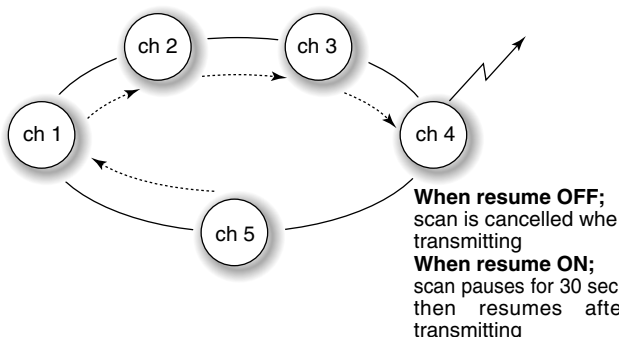


◆ Using scan function

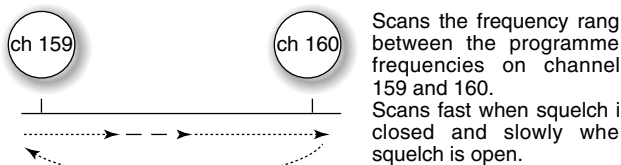
(some versions do not have these functions)

The transceiver has automatic channel or frequency change capability (scan function). There are 3 types of scan functions available to suit your needs.

Channel scan/Channel resume scan



Programmed scan (optional)



Channel scan and channel resume scan increase channels within a 5 channel range such as Ch 1 to Ch 5, Ch 156 to Ch 160, etc. in user channels; or all channels in the group of ITU channels.

Programmed scan (optional) scans frequencies within the frequency range between user channels 159 and 160.

Scan selection is available in set mode. See p. 00 for scan selection.

SCAN OPERATION

- ① Rotate [GRP] and [CH] selectors to select your desired channel group.
 - Or use the keypad and [CE ENT] for direct selection.
 - This operation is not necessary for programmed scan.
- ② Push [F] then [2 SQL] to turn OFF the squelch function, if programmed scan is selected.
 - A user channel is selected when channel 1–160 is input (max. number may be optionally restricted).
- ③ Push [F] then [3 SCAN] to start the scan.
- ④ To stop the scan, repeat step ③ again.
 - Pushing other switches also stops the scan.

CHANNEL GROUPS

Channel No.	Description	Channel No.	Description	Channel No.	Description
1 to 160	User ch.*1	8-1 to 8-9	8 MHz ITU simplex ch.	18-1 to 18-9	18 MHz ITU simplex ch.
401 to 427	4 MHz ITU duplex ch.	1201 to 1241	12 MHz ITU duplex ch.	2201 to 2253	22 MHz ITU duplex ch.
4-1 to 4-9	4 MHz ITU simplex ch.	12-1 to 12-9	12 MHz ITU simplex ch.	22-1 to 22-9	22 MHz ITU simplex ch.
601 to 608	6 MHz ITU duplex ch.	1601 to 1656	16 MHz ITU duplex ch.	2501 to 2510	25 MHz ITU duplex ch.
6-1 to 6-9	6 MHz ITU simplex ch.	16-1 to 16-9	16 MHz ITU simplex ch.	25-1 to 25-9	25 MHz ITU simplex ch.
801 to 832	8 MHz ITU duplex ch.	1801 to 1815	18 MHz ITU duplex ch.	4001 to 25040	ITU FSK duplex ch.*2


*[GRP] selector changes in 20 channels steps. *2SITOR use— no group separation.

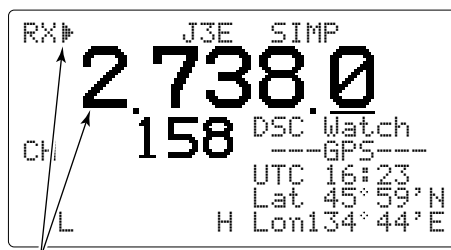
■ Selecting a frequency


The transceiver has 0.5 to 30.0 MHz general coverage receive capability with 1 Hz resolution. The receive frequency can be changed instantly, independent of the transmit frequency.

NOTE: The selected frequency is used for temporary receiving (transmitting is not available). This frequency is cleared once the channel is changed. If you want to program a frequency refer to p. 00.

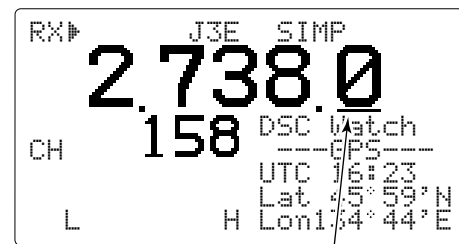
◆ Using the channel selector

- ① Select a channel which is programmed near the frequency you want to receive.
- ② Push [RX CLAR] to select frequency selection mode.
 - “” appears in the display.




“” and frequency show that the frequency can be changed.

- ③ Rotate [GRP] selector to select the digit for tuning.
 - Under-bar shows the selected digit.



The under-bar is moved with [GRP] rotation.

- The under-bar is not displayed when 10 or 1 Hz digits are selected during frequency indication.
- ④ Rotate [CH] selector to tune the frequency.
 - ⑤ To return to the previous frequency, push [RX CLAR].
 - “” disappears.


◆ Using the keypad

CAUTION: A frequency can be entered into a user channel or ITU simplex channel by pushing [RX CLAR] after entering a frequency. The previously programmed contents are erased and cannot be retrieved. Therefore, keypad entry should be used only on spare channels.

- ① Rotate [GRP] and [CH], or enter a 1 to 4 digit number via the keypad, then push [ENT CE] to select the memory channel to be used for general coverage use.

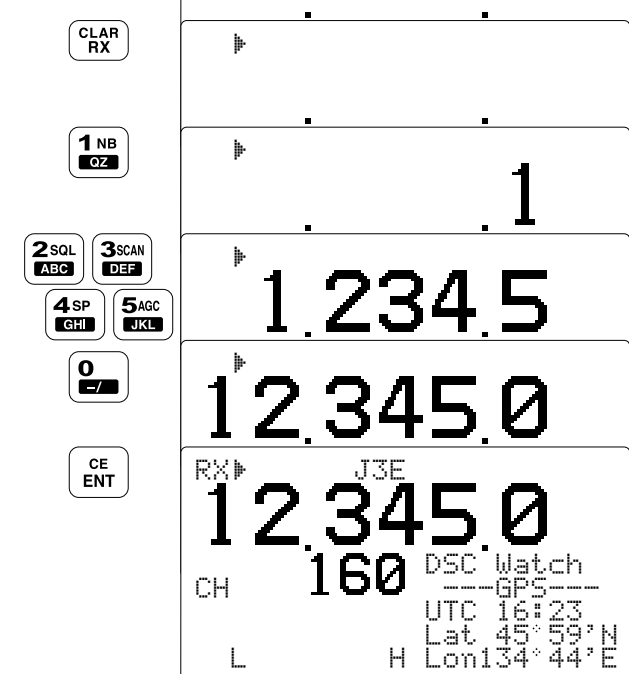



When no frequency programmed channel is selected, operating frequency, mode and channel name do not appear.

- ② Push [RX CLAR] to select frequency selection mode.
 - “” appears in the display.
- ③ Enter 4 to 6 digits of the desired frequency via the keypad.
- ④ Push [ENT CE] to input the frequency.
 - DO NOT hold** [ENT CE] for more than 1 sec., otherwise the frequency will be programmed into the channel.

[EXAMPLE]: Setting 12.3450 MHz

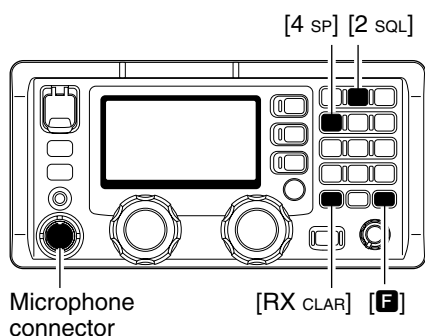
Select no frequency programmed channel



When push  then rotate [CH] to re-select the channel, the set frequency will be cleared.

Basic voice transmit and receive

- ① Check the following in advance.
 - ➔ Microphone or handset is connected.
 - ➔ No “SQL” indication.
 - If “SQL” appears, push [F] then [2 SQL] to turn the squelch OFF.
 - ➔ No “SP” indication.
 - If “SP” appears, push [F] then [4 SP] to activate the speaker.
 - ➔ The clarity function is not activated.
 - Push [F] then [RX CLAR] to turn the clarity function OFF.



- ② Rotate [GRP] and [CH] selectors to select the desired channel to be received.
 - When receiving a signal, the S-meter shows the signal strength.
- ③ Adjust [VOL] to the desired audio level when receiving a signal.
- ④ Push [MODE DIM] to select the desired operating mode.
- ⑤ Push [TUNE THRU] to tune the antenna tuner, if connected.
 - This operation is not necessary when “automatic tuning” is selected in set mode (p. 00).
- ⑥ To transmit on the channel, push and hold the PTT switch on the microphone (or handset).
 - “TUNE” blinks for 1 to 2 sec. for the first transmission on a channel when an antenna tuner is connected.
- ⑦ After the blinking stops, speak into the microphone at your normal voice level.
 - The RF meter shows the output power according to your voice level.
- ⑧ Release the PTT switch to return to receive.

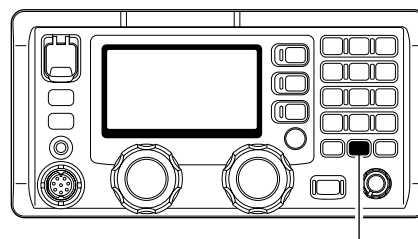
Functions for transmit

◆ Transmit frequency check

When “DUF” appears in the display such as for a ship-to-ship channel, the transmit frequency differs from the receive frequency.

In such cases, the transmit frequency should be monitored before transmitting to prevent interference to other stations.

- ➔ Push and hold [TX TXF] to monitor the transmit frequency.



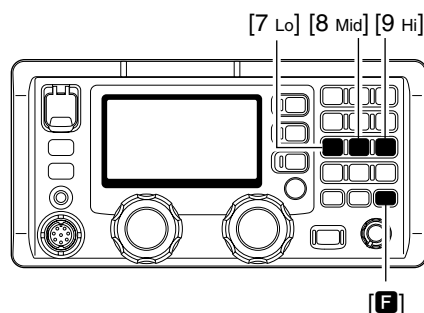
- The display shows the transmit frequency.

◆ Transmit power selection

The transceiver has 3 selectable power output levels.* High power allows longer distance communications and low power reduces power consumption.

*Only 2 selectable output power levels are available with some versions. In this case, low stands for 60 W (the same as middle).

- ① Push [F] first.
 - “F” appears.
- ② Push one of [7 Lo], [8 Mid] or [9 Hi] to select low, middle or high output power levels, respectively.
 - The display shows the selected output power level for approx. 2 sec., then returns to the previous indication.



- NOTE: Low power setting affects all channels except the 2182 kHz emergency channel.

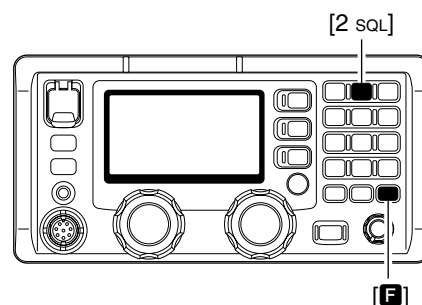
■ Functions for receive

◆ Squelch function

The squelch function detects signals with voice components and squelches (mutes) unwanted signals such as unmodulated beat signals. This provides quiet stand-by.

When you need to receive weak signals, the squelch should be turned OFF.

➡ Push [F] then [2 SQL] to switch the function ON and OFF.



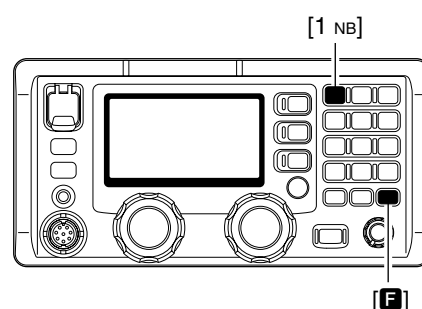
•“SQL” appears when the squelch function is turned ON.

◆ Noise blanker

The noise blanker function reduces pulse type noise such as that coming from engine ignitions, etc.

The noise blanker may distort reception of strong signals. In such cases, the noise blanker should be turned OFF.

➡ Push [F] then [1 NB] to switch the function ON and OFF.



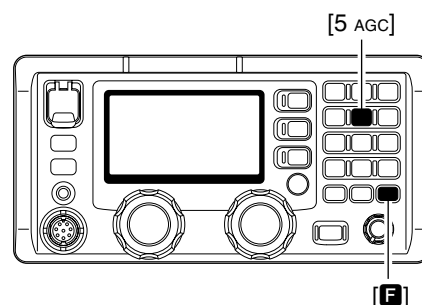
•“NB” appears when the squelch function is turned ON.

◆ AGC OFF function

The receive gain is automatically adjusted according to received signal strength with the AGC (Automatic Gain Control) function to prevent distortion from strong signals and to obtain a constant output level.

When receiving weak signals with adjacent strong signals or noise, the AGC function may reduce the sensitivity. In this situation, the AGC function should be deactivated.

➡ Push [F] then [5 AGC] to switch the function ON and OFF.



•“AGC” appears when the squelch function is turned OFF.

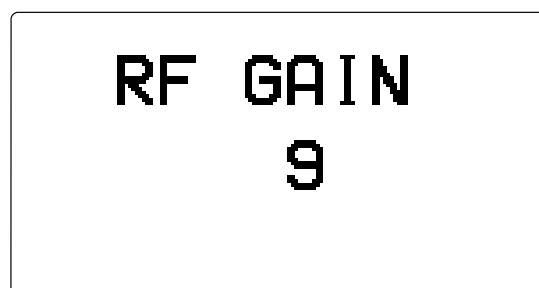
◆ RF gain setting

The receiver gain can be reduced with the RF gain setting. This may help to remove undesired weak signals while monitoring strong signals.

Usually, the AGC function reduces the RF gain according to the receive signal strength and these weak signals are removed. However, during no signal reception, these weak signals may not be heard.

In such cases, the RF gain may be useful for setting a minimum level at which to hear signals.

① Push [F] then [6 RF-G] to select the RF gain set mode, as shown at right.



② Rotate [CH] selector to set the desired minimum cutting level.

•“0” to “9” are available.

•S-meter shows the minimum permitted level.

③ Push [SET] to exit the RF gain set mode.

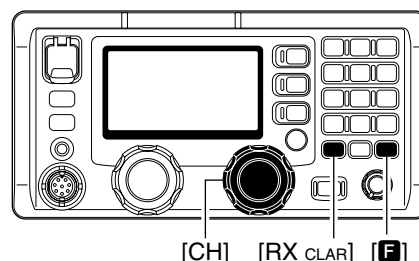
■ Functions for receive (continued)

◆ Clarity control

Voice signals received from other stations may be difficult to receive. This may sometimes happen if a station is transmitting slightly off frequency. In such cases, you can compensate by using the clarity control.

When receiving weak signals with adjacent strong signals or noise, the AGC function may reduce the sensitivity. In this situation, the AGC function should be deactivated.

- ① Push [**F**] then [RX CLAR] to switch the function ON and OFF.
 - “CLAR” and shifting value appear



- ② Rotate [CH] to improve the audio readability.
 - Adjustable between ± 150 Hz in 10 Hz steps.

■ CW operation

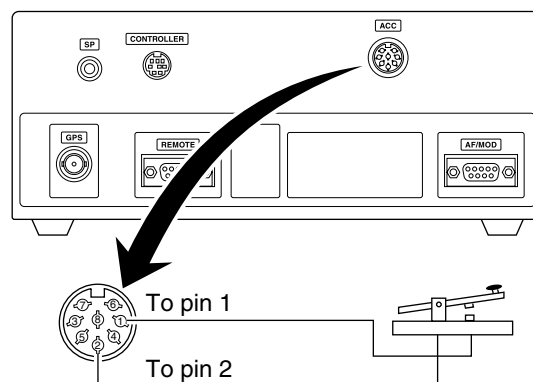
The transceiver has the following CW keying features selectable in set mode as described on p. 00.

- ➔ Full break-in (receiving is possible while transmitting)
- ➔ Semi break-in (automatic transmission with keying)
- ➔ OFF (manual transmission is necessary before keying)

- ① Connect a CW keyer or an external electronic keyer to the [ACC] socket as shown at right.
- ② Select the desired channel to operate CW mode.
- ③ When the selected channel is not in A1A mode, push [MODE DIM] several times to select “A1A.”
- ④ Operate the CW keyer to transmit a CW signal.

⚠ **NOTE:** CW mode is not available in some versions and CW narrow can be selected in set mode (p. 00) when an optional filter is installed (already built-in to the GMDSS version).

CW key connection



■ FSK operation

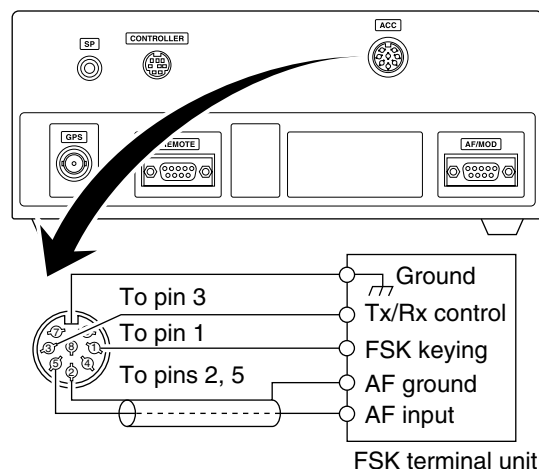
The transceiver has FSK and J2B modes for FSK operation— use F1B when using the built-in oscillator; use J2B when using an AFSK terminal unit.

- ① Connect an FSK terminal unit to the [ACC] socket as shown at right.
- ② Select the desired channel to operate FSK mode.
 - FSK ITU channel group, Ch 4001 to Ch 2540, are available depending on version.
- ③ Push [MODE DIM] several times to select F1B or J2B.
- ④ Operate the FSK terminal unit.

⚠ NOTE:

- ➔ FSK shift frequency and FSK polarity can be adjusted in set mode (p. 00)
- ➔ Some transceivers may operate 1.7 kHz higher than the IC-M802's J2B mode even when the same displayed frequencies are in use.

FSK terminal unit connection






■ Programming a frequency

The IC-M802 has up to 160 user-programmable channels each with channel name capability of up to 8 alphanumeric characters.

NOTE: ITU simplex channels can be programmed as well as user channels. However, transmit frequencies cannot be programmed as it is not necessary.

◆ Receive frequency

- ① Select the desired channel to be programmed.
 - Channel 1 to 160 (maximum) are programmable.
- ② Push [RX CLAR] to select frequency selection mode.
 - “” and frequency appear in the display.
- ③ Enter the desired frequency via the keypad— 5 or 6 digits.
 - Or rotate [GRP] and [CH] selectors to change the frequency.
- ④ Push [MODE DIM] several times to select the desired operating mode (type of emission).
- ⑤ Push [ENT CE] for 1 sec. to program the user channel.
 - 3 beeps sound.
 - “” and frequency disappear from the display.

Push 

```

RX▶      J3E  DUP
12.345.0
CH      160  DSC Watch
          ---GPS---
          UTC 16:23
          Lat 45°59'N
          L      H Lon134°44'E
    
```


“” indicator blinks.

Set frequency

```

RX▶      J3E  DUP
8.728.0
CH      160  DSC Watch
          ---GPS---
          UTC 16:23
          Lat 45°59'N
          L      H Lon134°44'E
    
```

Use keypad or channel selector.

Push  for 1 sec.


```

RX      J3E  DUP
8.728.0
CH      160  DSC Watch
          ---GPS---
          UTC 16:23
          Lat 45°59'N
          L      H Lon134°44'E
    
```


Programming is completed.

◆ Channel names

- ① Select the desired channel to be programmed.
- ② Push [FREQ/CH] to select channel indication mode, if desired.
- ③ Push [F] then [FREQ/CH].
 - The 1st character for the channel names blinks.
- ④ Rotate [CH] selector to select the character of channel names and push keypad several times to enter that character.
- ⑤ Push [ENT CE] to program the channel name.

Push  then 

```

RX      J3E  DUP
 -----
CH      160  DSC Watch
          ---GPS---
          UTC 16:23
    
```

Rotate [CH] to select character and push keypad to enter that character.

```

RX      J3E  DUP
COMMENT
CH      160  DSC Watch
          ---GPS---
          UTC 16:23
    
```

Push 


```

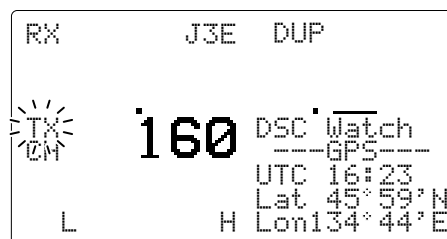
RX      J3E  DUP
COMMENT
CH      160  DSC Watch
          ---GPS---
          UTC 16:23
          Lat 45°59'N
          L      H Lon134°44'E
    
```


◆ Transmit frequency

(Not applicable for General versions)

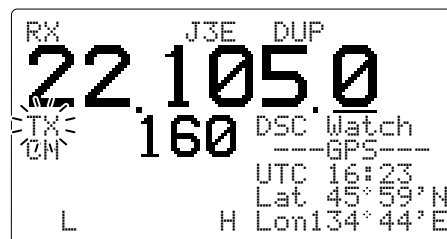
- ① Select the desired channel to be programmed.
- ② Push [TX TXF]
- "TX" blinks.
- ③ Enter the desired frequency via the keypad with 5 or 6 digits.
- [GRP] and [CH] selectors cannot be used.
- ④ Push [MODE DIM] several times to select the desired operating mode (type of emission).
- ⑤ Push [ENT CE] for 1 sec. to program the user channel.
- 3 beeps sound.

Push 




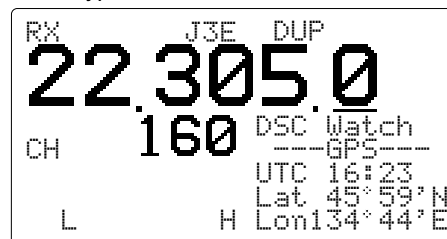
"TX" indicator blinks and shows transmit frequency.

Set frequency



Use keypad.

Push  for 1 sec.



Programming is completed.

■ About set mode

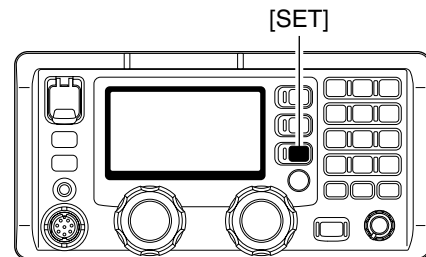
Set mode operation is used for programming infrequently changed values or conditions of functions.

NOTE: Some of the set mode items described in this selection are not available on some transceiver versions.

■ General set mode

◇ Entering general set mode

- ① Push [SET] to enter general set mode.
- ② Rotate [GRP] to select the desired item.
- ③ Rotate [CH] to set the values or conditions for the selected item.
- ④ Push [SET] again to exit general set mode.



◇ General set mode items

Noise blanker level

This item adjusts the noise blanker level to protect a signal from various pulse-type noises from 1 to 10. (default: 10)

The set level is effective when the noise blanker is activated.

NB Level
10

GRP→ITEM CH→SEL

Dimmer

This item sets the LCD back light brightness for dimmer selection from 0 (dark) to 10 (bright).

By pushing [F] then [MODE DIM], the set brightness is selected to provide easy visibility during night time operation, etc. (default: 10)

DIMMER
10

GRP→ITEM CH→SEL

LCD contrast

This item sets the LCD contrast from 1 to 10.

CONTRAST
10

GRP→ITEM CH→SEL

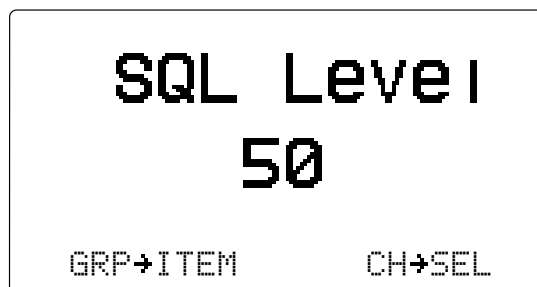
◆ General set mode items (continued)

Squelch level

This item adjusts the squelch threshold level from 1 to 100.

(default: 50)

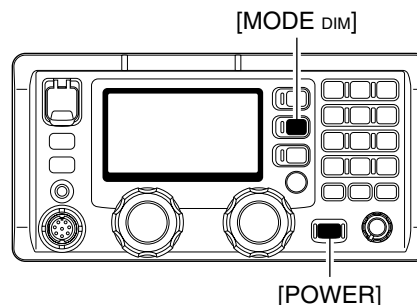
When the squelch is activated, signals stronger than the this set level only are received.



■ Set mode A

◆ Entering set mode

- ① Push [POWER] for 1 sec. to turn the power OFF, if necessary.
- ② While pushing [MODE DIM], push [POWER] to turn the power ON and enter set mode.
- ③ Rotate [GRP] to select the desired item.
- ③ Rotate [CH] to set the values or conditions for the selected item.
- ④ Turn the power OFF and ON again to exit set mode.

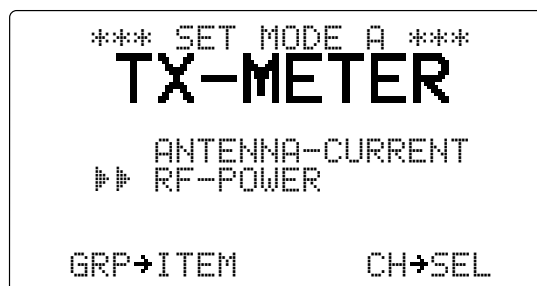


◆ Set mode A items

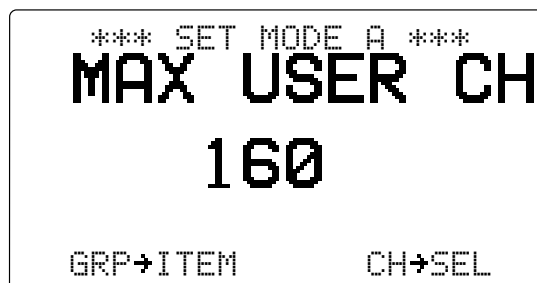
Transmit meter

This item selects the transmit meter type from antenna current and RF power.

- **ANTENNA-CURRENT** : Shows driving current of the antenna. (Can be selected when an external antenna tuner is connected.)
- **RF-POWER** : Shows relative output power. (default)

**Number of user channels**

This item sets the number of user channels. Up to 160 channels can be set.



◆ Set mode A items (continued)

FSK ITU channel selection

This item sets the capability of the ITU channels for FSK from ON and OFF.

This item will not appear when ITU channels are inhibited.

```

*** SET MODE A ***
SITOR-CH

▶▶ ON
   OFF

GRP→ITEM      CH→SEL

```

External antenna tuner type

This item selects the connected Icom antenna tuner type from AT-140, AT-130/E, AT-120/E and AH-3

- AT-140 : AT-140 is connected. (default)
- AT-130/E : AT-130/E is connected.
- AT-120/E : AT-120/E is connected.
- AH-3 : AH-3 is connected.

```

*** SET MODE A ***
ICOM TUNER

▶▶ AT-140
   AT-130/E
   AT-120/E
   AH-3

GRP→ITEM      CH→SEL

```

External antenna tuner type

This item selects the external antenna tuner control signals (Start and Key) conditions for operation with a non-Icom antenna tuner.

- START&KEY : Reverse both start and key signals.
- KEY : Reverse the KEY signal.
- START : Reverse the START signal.
- ICOM : Use Icom's standard conditions (default)

```

*** SET MODE A ***
NON-ICOM

START&KEY
START
KEY
▶▶ ICOM

GRP→ITEM      CH→SEL

```

Automatic tune

When an optional AT-130A, AT-130 or AT-130E automatic antenna tuner is connected, tuning can be started automatically without pushing [TUNE THRU], for instant operation.

If manual tuning is required, this automatic operation can be deactivated.

```

*** SET MODE A ***
AUTO-TUNE

▶▶ ON
   OFF

GRP→ITEM      CH→SEL

```

◆ Set mode A items (continued)

Scan type

This item selects one of the following scan functions.

Programmed scan (optional) searches signals within the frequency range and activates slowly while squelch is open and fast while squelch is closed.

Channel scan and channel resume scan searches 5 channels around a user selected channel, or searches all ITU channels in the band when an ITU channel is selected.

```

*** SET MODE A ***
SCAN-TYPE

PROGRAM SCAN
CH-RESUME SCAN
▶▶ CH SCAN

GRP→ITEM      CH→SEL

```

Scan speed

This item adjusts the scan speed (rate at which channels are searched). The scan speed can be set from 1 to 10 with "1" being the fastest and "10" being the slowest.

```

*** SET MODE A ***
SCAN SPEED

1

GRP→ITEM      CH→SEL

```

Display type*

The upper half of the display can be set to display a programmable channel name or a receive frequency according to your needs.

*When the channel comment indication setting is OFF, this item will not appear.

```

*** SET MODE A ***
CH-NAME DISP

▶▶ CH-NAME
CH-FREQUENCY

GRP→ITEM      CH→SEL

```

FSK tone frequency

Several mark frequencies are used for FSK operation. This item selects an FSK mark frequency for almost any FSK system from 1615 Hz, 1487.5 Hz, 1275 Hz and 1200 Hz.

```

*** SET MODE A ***
FSK-TONE

▶▶ 1615Hz
1487.5Hz
1275Hz
1200Hz

GRP→ITEM      CH→SEL

```

◆ Set mode A items (continued)

FSK shift frequency

Several shift frequencies are used for FSK operation. This item selects an FSK shift frequency for almost any FSK system from 850Hz, 425 Hz, 200 Hz and 170 Hz.

```

*** SET MODE A ***
FSK-SHIFT

▶▶ 850Hz
    425Hz
    200Hz
    170Hz
GRP→ITEM      CH→SEL

```

FSK polarity

Normal and reverse polarities are available for FSK operations. This item allows you to select one of these polarities.

- **REVERSE** : Key open=mark; Key close=space
- **NORMAL** : Key open=space; Key close=mark

```

*** SET MODE A ***
FSK REVERSE

▶▶ REVERSE
    NORMAL
GRP→ITEM      CH→SEL

```

CW break-in function

The CW break-in function (in A1A mode) toggles transmit and receive with CW keying. Full break-in allows you to receive signals between transmitted keying pulses during CW transmission. Semi break-in allows you to mute receiving until keying stops with some delay time.

```

*** SET MODE A ***
CW BREAK-IN

▶▶ FULL
    DELAY
    OFF
GRP→ITEM      CH→SEL

```

Microphone keys

This item activates/deactivates the keys on the HM-135 HAND MICROPHONE ("P," "▲" and "▼"). Refer to p. 00 to program the [P] key.

```

*** SET MODE A ***
MIC-KEY

▶▶ ON
    OFF
GRP→ITEM      CH→SEL

```

◆ Set mode A items (continued)

[P] key function

This item assigns a function to the [P] key on the HM-135 HAND MICROPHONE to activate it as the [2 SQL], [1 NB], [MODE DIM] or [TUNE THRU] function.

```

*** SET MODE A ***
P-KEY

SQL
NB
▶▶ MODE
TUNE
GRP→ITEM          CH→SEL

```

Voice squelch

This item turns the voice squelch function ON and OFF when operating in J3E and H3E modes. When the function is set to OFF, the squelch acts as an S-meter squelch for J3E and H3E modes.

```

*** SET MODE A ***
VOICE SQL

▶▶ ON
OFF

GRP→ITEM          CH→SEL

```

NMEA ID

This item selects the NMEA ID for the transceiver from 1 to 99.

```

*** SET MODE A ***
NMEA ID

4

GRP→ITEM          CH→SEL

```

Count on us!

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