ICOM

VHF/UHF DIGITAL TRANSCEIVER

ID-880H

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.

WARNING: MODIFICATION OF THIS DEVICE TO RECEIVE CEL-LULAR RADIOTELEPHONE SERVICE SIGNALS IS PROHIBITED UNDER FCC RULES AND FEDERAL LAW.

Icom Inc.

FOREWORD

Thank you for purchasing this fine Icom product. The ID-880H VHF/UHF DIGITAL TRANSCEIVER is designed and built with Icom's state of the art technology and craftsmanship. With proper care, this product should provide you with years of trouble-free operation.

We want to take a couple of moments of your time to thank you for making your ID-880H your radio of choice, and hope you agree with Icom's philosophy of "technology first." Many hours of research and development went into the design of your ID-880H.

EXPLICIT DEFINITIONS

WORD	DEFINITION
⚠ WARNING!	Personal injury, fire hazard or electric shock may occur.
CAUTION	Equipment damage may occur.
NOTE	Recommended for optimum use. No risk of personal injury, fire or electric shock.

FEATURES

❍ *DV mode (Digital voice + Low-speed data communication) operation ready*
  – *Text message and call sign exchange*
  – *Transmitting position data with a third-party GPS receiver*

❍ *DR (D-STAR Repeater) mode and repeater list allow you to operate D-STAR repeater simply*

❍ *Switchable VHF and UHF transceiver*

❍ *50 W*—high transmit output power*
  *VHF band; 50 W for UHF band

❍ *Detachable controller for flexible installation*

❍ *Large tuning dial and band switch button*

IMPORTANT

READ ALL INSTRUCTIONS carefully and completely before using the transceiver.

SAVE THIS INSTRUCTION MANUAL— This instruction manual contains important operating instructions for the ID-880H.

PRECAUTIONS

⚠️**WARNING RF EXPOSURE!** This device emits Radio Frequency (RF) energy. Extreme caution should be observed when operating this device. If you have any questions regarding RF exposure and safety standards please refer to the Federal Communications Commission Office of Engineering and Technology's report on Evaluating Compliance with FCC Guidelines for Human Radio frequency Electromagnetic Fields (OET Bulletin 65).

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

⚠️**WARNING! NEVER** operate the transceiver while driving a vehicle. Safe driving requires your full attention—anything less may result in an accident.

NEVER connect the transceiver to a power source of more than 16 V DC. This will damage the transceiver.

NEVER connect the transceiver to a power source using reverse polarity. This will damage the transceiver.

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

NEVER expose the transceiver to rain, snow or any liquids. The transceiver may be damaged.

NEVER operate or touch the transceiver with wet hands. This may result in an electric shock or damage the transceiver.

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

NEVER let objects impede the operation of the cooling fan on the rear panel.

DO NOT push the PTT when not actually desiring to transmit.

DO NOT allow children to play with any radio equipment containing a transmitter.

During mobile operation, **DO NOT** operate the transceiver without running the vehicle's engine. When the transceiver's power is ON and your vehicle's engine is OFF, the vehicle's battery will soon become exhausted.

AVOID using or placing the transceiver in direct sunlight or in areas with temperatures below –10°C or above +60°C.

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

AVOID setting the transceiver in a place without adequate ventilation. Heat dissipation may be affected, and the transceiver may be damaged.

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

USE Icom microphones only (supplied or optional). Other manufacturer's microphones have different pin assignments and may damage the transceiver if attached.

For USA only

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

FCC INFORMATION

• FOR CLASS B UNINTENTIONAL RADIATORS:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- • Reorient or relocate the receiving antenna.
- • Increase the separation between the equipment and receiver.
- • Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- • Consult the dealer or an experienced radio/TV technician for help.

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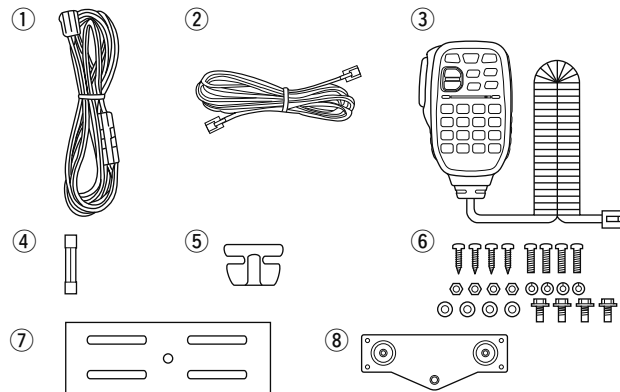
SUPPLIED ACCESSORIES

The following accessories are supplied with the transceiver.

① DC power cable (3 m) 1
② Separation cable (3.4 m†; 11.2 ft†) 1
③ Microphone (HM-133)* 1
④ Fuse (20 A) 1
⑤ Microphone hanger..1
⑥ Mounting screws, nuts and washers ....1 set
⑦ Mobile mounting bracket 1
⑧ Remote controller bracket...1

*HM-154 HAND MICROPHONE may be supplied with some versions.
†Approx.

QUICK REFERENCE GUIDE

■ Installation

◇ Precaution— magnets

⚠CAUTION
Magnets are used for the controller's attachment to the main unit.

NEVER attach the controller on the main unit's top cover, particularly around the internal speaker grill. It may cause the contents of the CPU and memory device could be deleted.

NEVER put the controller near a clock, television set (CRT type), magnetic compass and any magnetic/IC cards, credit cards, etc. It may cause the product to malfunction, and the content of the magnetic card could be deleted.

Please note that the controller may drop off when a high impact or vibration is applied.

◇ Installation methods

• *Single body installation*

Transceiver
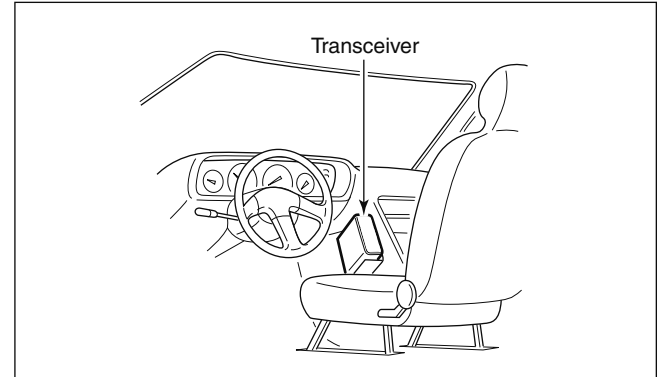
• The supplied mounting bracket can be used for the main unit installation.

• *Remote installation*

Controller

Main unit
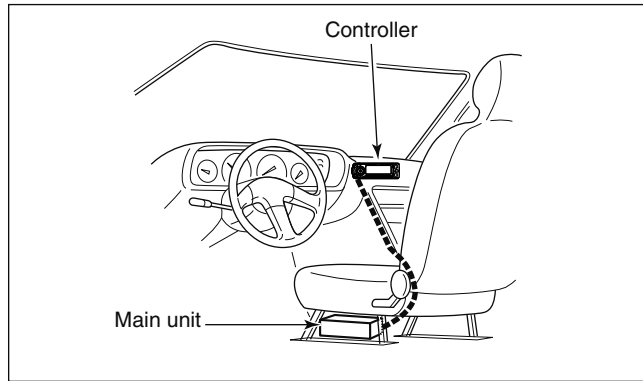
- The supplied remote controller bracket and separation cable can be used for installation.
- Optional OPC-440 MICROPHONE CABLE (5.0 m; 16.4 ft) is available to extend the microphone cable.
- Optional OPC-441 SPEAKER CABLE (5.0 m; 16.4 ft) is available to extend the speaker cable.

◇ **Location**

Select a location which can support the weight of the transceiver and does not interfere with driving. We recommend the locations shown in the diagram below.

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

NEVER place the transceiver or remote controller where air bag deployment may be obstructed.

DO NOT place the transceiver or remote controller where hot or cold air blows directly onto it.

AVOID placing the transceiver or remote controller in direct sunlight.

Main unit

Main unit

Controller

Main unit

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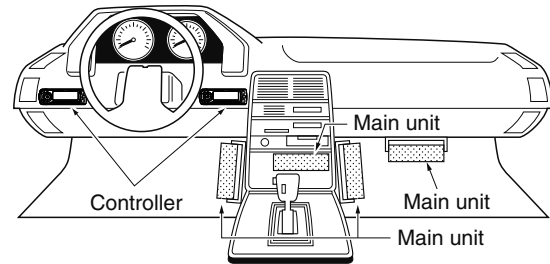
◇ Using the mounting bracket

① Drill 4 holes where the mounting bracket is to be installed.
- Approx. 5.5–6 mm (¼″) when using nuts; approx. 2–3 mm (⅛″) when using self-tapping screws.

② Insert the supplied screws, nuts and washers through the mounting bracket and tighten.
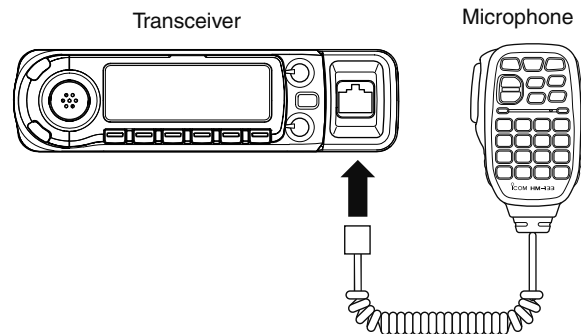
③ Adjust the angle for your suitable position.

Nut
Spring washer
Flat washer
Mounting bracket
Mounting nut
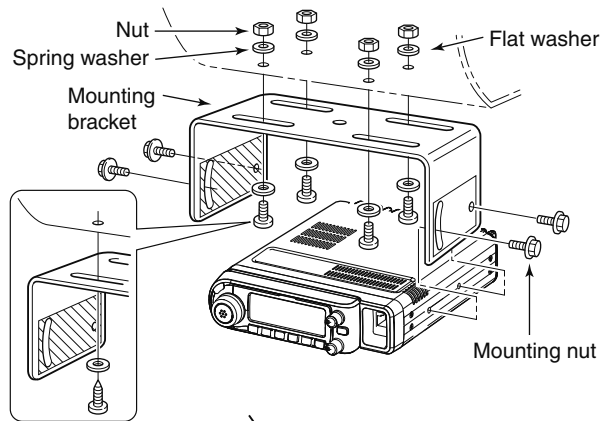
When using self-tapping screws
25°
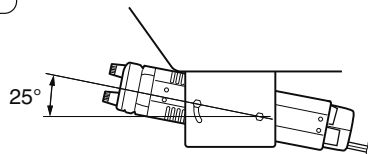
◇ Microphone connection

A microphone connector is available on the main unit front panel. Connect the supplied microphone connector as illustrated below.

Transceiver

Microphone

III

◇ Controller's attachment/detachment

You can attach or detach the controller to/from the main unit as below.

• Attach the controller

• Detach the controller

Release latch
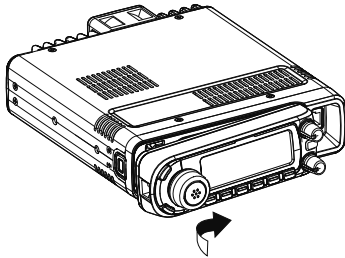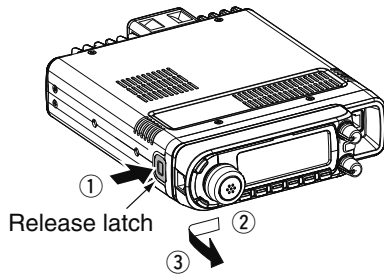
◇ Separation cable connection

Using the supplied separation cable (3.4 m; 11.2 ft), the controller can be separated from the main unit, doubling as a remote controller.

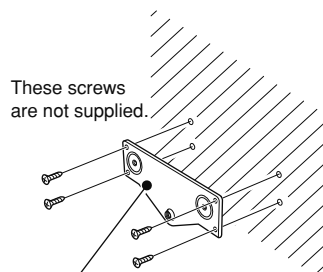Connect the controller and the main unit using with the supplied separation cable as follows.

Controller

Main unit

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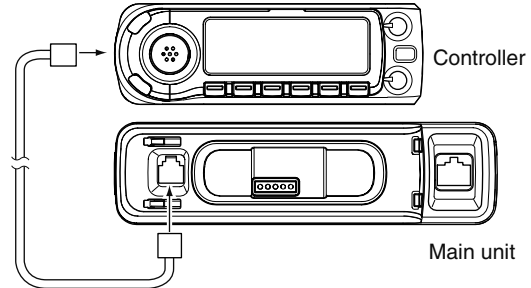
◇ Remote installation

The supplied remote controller bracket is used for remote installation.

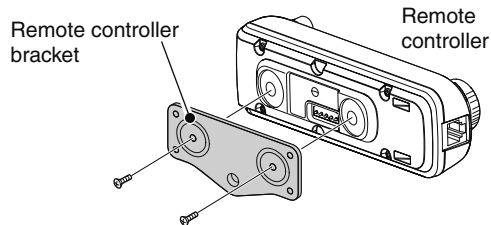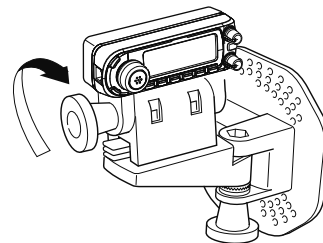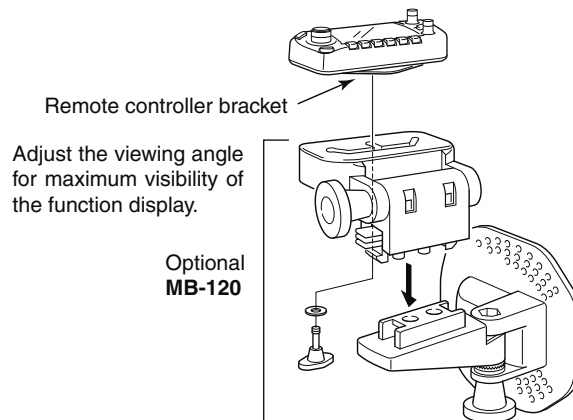These screws are not supplied.

• Attach the remote controller bracket onto a flat surface using with 4 self-tapping screws (2.6 mm(d)), or double-sticky tape, etc., as at left, then attach remote controller to the bracket.

Remote controller bracket

When installing into your vehicle

① Remove two screws and magnets from the remote controller.

② Attach the supplied remote controller bracket as below.

Remote controller bracket

Remote controller

③ Attach the remote controller on to the optional MB-65 as below.

Remote controller bracket

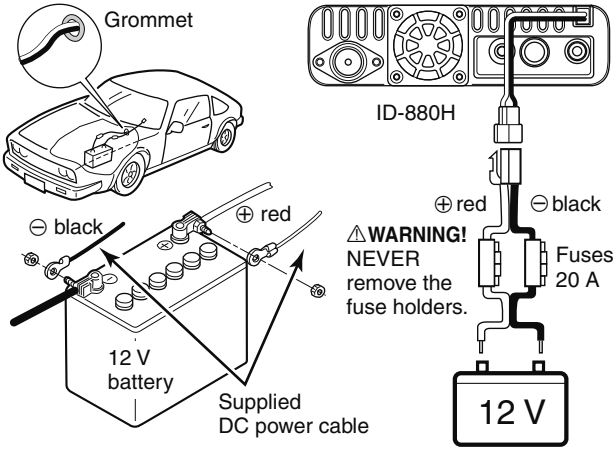Adjust the viewing angle for maximum visibility of the function display.

Optional **MB-120**

◇ Battery connection

➥ ⚠**WARNING NEVER** remove the fuse holders from the DC power cable.

➥ **NEVER** connect the transceiver directly to a 24 V battery.

➥ **DO NOT** use the cigarette lighter socket for power connections. (See p. 10 for details)

Use a rubber grommet when passing the DC power cable through a metal plate to prevent a short circuit.

• CONNECTING TO A DC POWER SOURCE

Grommet

ID-880H

⊖ black   ⊕ red

⊕ red   ⊖ black

⚠**WARNING!**
NEVER remove the fuse holders.

Fuses 20 A

12 V battery

Supplied DC power cable

12 V

NOTE:
Use terminals for the cable connections.

Crimp   Solder

◇ DC power supply connection

Use a 13.8 V DC power supply with at least 13 A capacity.

Make sure the ground terminal of the DC power supply is grounded.

• CONNECTING TO A DC POWER SUPPLY
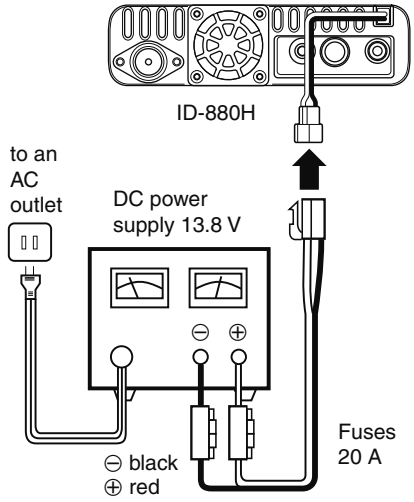
ID-880H

to an AC outlet

DC power supply 13.8 V

⊖   ⊕

⊖ black
⊕ red

Fuses 20 A

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VI

◇ Antenna installation

• Antenna location

To obtain maximum performance from the transceiver, select a high-quality antenna and mount it in a good location. It is not necessary to use radials on a magnetic mount ("mag mount") antenna.

Roof-mount antenna
(Drill a hole or use a magnetic mount.)

Gutter-mount antenna

Trunk-mount antenna
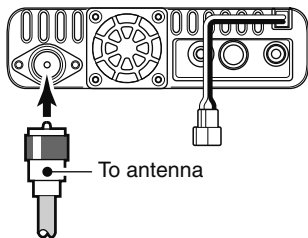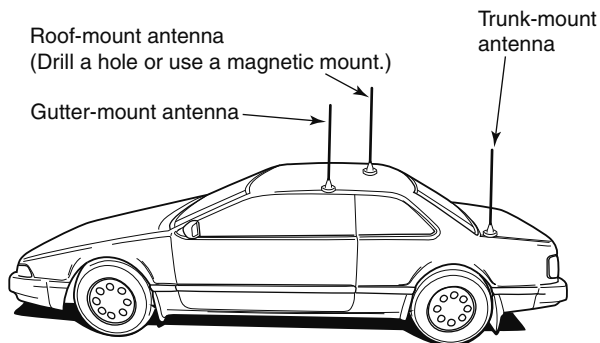
To antenna

• Antenna connector

The antenna uses a PL-259 connector.

• PL-259 CONNECTOR

30 mm

Coupling ring   10 mm (soft solder)

10 mm   Soft solder

1–2 mm
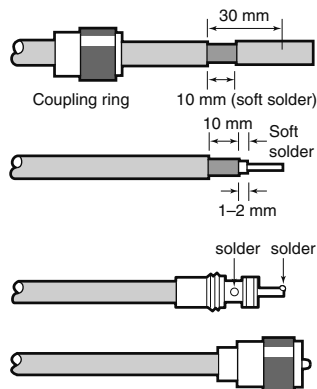
solder solder

①-Slide the coupling ring down. Strip the cable jacket and tin.

②-Strip the cable as shown at left. Soft solder the center conductor.

③-Slide the connector body on and solder it.

④-Screw the coupling ring onto the connector body.
(10 mm ≅ ³⁄₈ in)

NOTE: There are many publications covering proper antennas and their installation. Check with your local dealer for more information and recommendations.

■ Your first contact

Now that you have your ID-880H installed in your car or shack, you are probably anxious to get on the air. We would like to take you through a few basic operation steps to make your first time "On The Air" an enjoyable experience.

1. Turning ON the transceiver

Before powering up your ID-880H, you may want to make sure the audio volume and squelch level controls are set in 9–10 o'clock positions.

[SQL]

Although you have purchased a brand new transceiver, some settings may be changed from the factory defaults because of the Quality Control (QC) process. Resetting the CPU is necessary to start from factory default.

[S.MW]   [VFO/MHz]   **Partial reset**
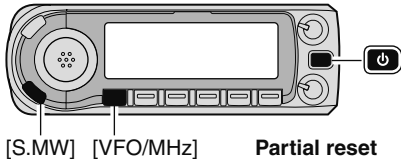
➥ While pushing and holding **[S.MW]** and **[VFO/MHz]** keys, push and hold **[⏻]** for 1 sec. to reset the CPU.

2. Selecting the operating frequency band

The ID-880H can use 2 m or 70 cm transmittable bands.

146   0
FM
SCAN TONE UR RX–CS DUP DTMF

[BAND]   [DIAL]   Frequency band initial is displayed.
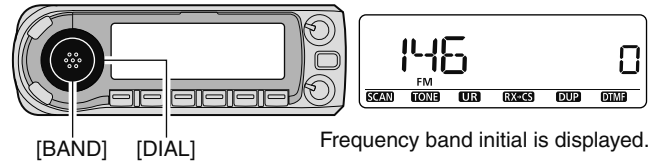
➥ Push **[BAND]** then rotate **[DIAL]** to select the desired frequency band.
  • Push **[BAND]** again to return to frequency indication.

Using the HM-133

You can select the desired frequency band from the HM-133.

• **144 MHz band**

146.0 10   0
FM
SCAN TONE UR RX–CS DUP DTMF

Push ⌐BAND⌐

• **400 MHz band**

440.000   0
FM
SCAN TONE UR RX–CS DUP DTMF

Push ⌐BAND⌐

4. Tune the frequency

The tuning dial will allow you to dial in the frequency you want to use. Pages 17 and 18 will instruct you on how to set the tuning speed.
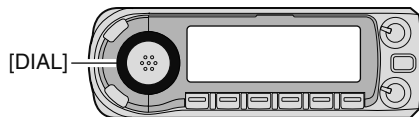
[DIAL]

Rotate [DIAL] to tune the frequency.

Using the HM-133

You can directly enter the frequency with the HM-133 keypad.

[EXAMPLE]: Setting frequency to 145.3625 MHz.

Push [VFO/LOCK]

145.680 0

FM
SCAN TONE UR RX-CS DUP DTMF

Push [T-OFF ENT C]

. 0

FM
SCAN TONE UR RX-CS DUP DTMF

Push [BANK MONI1] [DTCS HIGH4] [DTCS(·) MID 5]
[PTT-M PRIO3] [DTMF LOW6]

145.36 0

FM
SCAN TONE UR RX-CS DUP DTMF

Push [T-SCAN SCAN2]

145.362₅₀ 0

FM
SCAN TONE UR RX-CS DUP DTMF

IX

■ Repeater operation

1. Setting duplex

➥ Push **[BAND]** then rotate **[DIAL]** to select the frequency band. Then rotate **[DIAL]** to select the repeater frequency.
➥ Push and hold **[DUP]**(LOW) for 1 sec. then rotate **[DIAL]** to select minus duplex or plus duplex.
  • The USA version has an auto repeater function, therefore, setting duplex is not required.

[DIAL]   [DUP]

DUP−
146.820   0
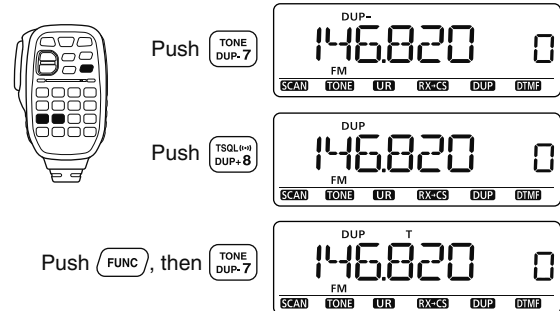FM
SCAN TONE UR RX-CS DUP DTMF
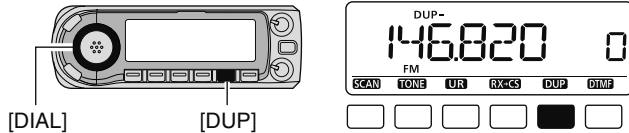
2. Repeater tone

Push and hold **[TONE]**(M/CALL) for 1 sec. then rotate **[DIAL]** to select "TONE," if the repeater requires a subaudible tone to be accessed.

[DIAL]   [TONE]

DUP−   T
146.820   0
FM
SCAN TONE UR RX-CS DUP DTMF
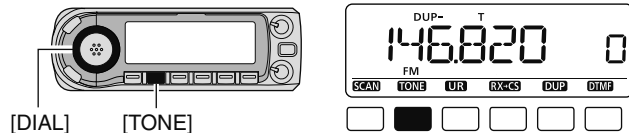
Using the HM-133

Plus or minus duplex selection and the repeater tone setting can be made easily via the HM-133.
Push [DUP− 7(TONE)] for minus duplex; [DUP+ 8(TSQL ((•)))] for plus duplex selection, push [FUNC] then [DUP− 7(TONE)] to turn the repeater tone ON.

Push [TONE DUP-7]

DUP−
146.820   0
FM
SCAN TONE UR RX-CS DUP DTMF

Push [TSQL((•)) DUP+8]

DUP
146.820   0
FM
SCAN TONE UR RX-CS DUP DTMF

Push [FUNC], then [TONE DUP-7]

DUP   T
146.820   0
FM
SCAN TONE UR RX-CS DUP DTMF

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■ Programming memory channels

The ID-880H has a total of 1052 memory channels (including 25 pairs scan edges and 2 call channels) for storing often used operating frequency, repeater settings, etc.

1. Setting a frequency

In VFO mode, set the desired operating frequency with repeater, tone and tuning steps, etc.
➡ Push **[VFO/MHz]** to select VFO.
➡ Rotate **[DIAL]** to set the desired frequency.
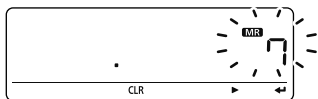 • Set other data, such as repeater tone, duplex information, tuning step), if desired.

2. Selecting a memory channel

Push **[S.MW]**, then rotate **[DIAL]** to select the desired memory channel.
• "🄼🅁" indicator and memory channel number blink.

[S.MW 🄼🅆]

3. Writing a memory channel

Push and hold **[MW]**(S.MW) for 1 sec. to program.
• 3 beeps sound
• Return to VFO mode automatically after programming.
• Memory channel number automatically increases when continuing to push **[MW]**(S.MW) after programming.

Using the HM-133

① Push [MR/CALL] to select memory mode.
② Push [ENT C(T-OFF)] first, then enter the desired memory channel via the keypad.
③ Push [VFO/LOCK] to select VFO mode, then set the desired operating frequency, including offset direction, tone settings, etc.
  ➡ Push [VFO/LOCK] to select VFO.
  ➡ Push [ENT C(T-OFF)] first, then enter the desired operating frequency via the keypad.
    • Set other data, such as repeater tone, duplex information, tuning step, if necessary.
④ Push [FUNC] then push and hold [CLR A(MW)] for 1 sec. to program.

Push (FUNC), then (MW CLR A)

• 3 beeps sound
• Memory channel number automatically increases when continuing to push [CLR A(MW)] after programming.

■ Main unit
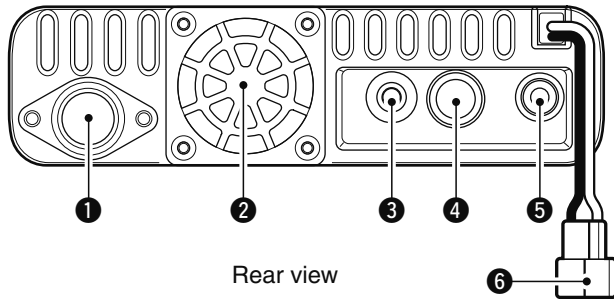
Rear view

q ANTENNA CONNECTOR [ANT] (p. IX)
Connects a 50 Ω antenna with a PL-259 connector and a 50 Ω coaxial cable for transmission and reception.

w COOLING FAN
Rotates while transmitting.
Also rotates while receiving depending on the setting in FUNC set mode (SET). (p. 101)

e DATA JACK [DATA] (p. 57)
➥ Connect a PC through the optional data communication cable OPC-1529R, for low-speed data communication in DV mode or data cloning with the cloning software CS-80/880 (free download).
➥ Connect a GPS receiver through the optional data communication cable OPC-1529R, for GPS operation.

r PACKET JACK [PACKET] (pgs. 120, 121)
Connects a TNC (Terminal Node Controller), etc. for data communications. The receiver can support 1200/9600 bps packet communication (AFSK/GMSK).

t EXTERNAL SPEAKER JACK [SP]
➥ Connects an 8 Ω speaker.
• Audio output power is more than 2.0 W.
➥ Connect an optional cloning cable OPC-478UC or OPC-474 for data cloning.

y POWER RECEPTACLE [DC13.8V]
Accepts 13.8 V DC ±15% with the supplied DC power cable.

NOTE: DO NOT use a cigarette lighter socket as a power source when operating in a vehicle. The plug may cause voltage drops and ignition noise may be superimposed onto transmit or receive audio.

ANTENNA INFORMATION
For radio communications, the antenna is of critical importance, to maximize your output power and receiver sensitivity. The transceiver accepts a 50 Ω antenna and a Voltage Standing Wave Ratio (VSWR) of 1.5:1 or less. High SWR values not only may damage the transceiver but also lead to TVI or BCI problems.

■ Front panel— controller

Function display (p. 3)
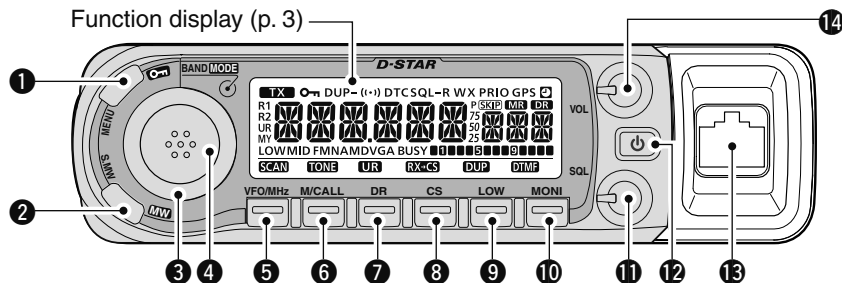
q **MENU•LOCK KEY [MENU🔒]**
➥ Push to enter menu screen indication ON and OFF. (p. 7)
➥ Push and hold for 1 sec. to toggle the lock function ON and OFF. (p. 19)

w **SELECT MEMORY WRITE•MEMORY WRITE KEY [S.MW•MW]**
➥ Push to enter select memory write mode for memory channel programming. (pgs. 62, 73, 76)
• Push **[MENU🔒]** to cancel and exit the select memory write mode.
➥ Push and hold to store the frequency, operating mode, etc. into the selected memory channel. (pgs. 62, 73, 76)

e **TUNING DIAL [DIAL]**
Selects the operating frequency (p. 17), memory channel (p. 61), the setting of the set mode item and the scanning direction (p. 75).

r **BAND•MODE KEY [BAND•MODE]**
➥ Push to enter band selection state. (p. 15)
• Rotating **[DIAL]** selects the band.
➥ Push and hold for 1 sec. to enter operating mode selection state. (p. 15)
• Rotating **[DIAL]** selects the operating mode.

t **VFO/MHz TUNING•SCAN KEY [VFO/MHz•SCAN]**
➥ Push to select VFO mode. (p. 17)
➥ During VFO mode operation, push to select 1 MHz and 10 MHz tuning steps. (p. 75)
➥ Push and hold for 1 sec. to enter scan type selection state. (p. 75)
• Cancels a scan when pushed during scan.

y **MEMORY/CALL•TONE KEY [M/CALL•TONE]**
➥ Push to select memory, call and weather channel* modes. (pgs. 61, 72, 123)
*Weather channels are available for USA version only.

➥ During FM/FM-N mode operation, push and hold for 1 sec. to enter tone function selection state. (pgs. 86, 91)
  • Rotating **[DIAL]** selects the tone function.
  • T (Repeater tone), TSQL ((•)), TSQL, DTCS ((•)), DTCS, tone squelch reverse, DTCS squelch reverse or tone function OFF can be selected.
➥ During DV mode operation, push and hold for 1 sec. to select digital call sign squelch, digital code squelch and no squelch operation in sequence. (p. 149)
  • DSQL ((•)), DSQL, CSQL ((•)), CSQL or digital call squelch OFF can be selected.

❼ D-STAR REPEATER•YOUR KEY [DR•UR]
➥ Push to select DR mode. (p. 21)
  • Rotating **[DIAL]** selects access repeater.
  • DV mode is automatically selected.
➥ During DV mode operation, push and hold for 1 sec. to enter your call sign selection state. (p. 30)
  • Rotating **[DIAL]** selects your call sign.
  • DV mode is automatically selected.

❽ CALL SIGN•RX CALL WRITE KEY [CS•RX→CS]
➥ Push to display the current call sign. (p. 21)
  • Rotating **[DIAL]** selects UR (your) call sign, R1 (access repeater) call sign, R2 (link repeater) call sign and MY (your own) call sign.
➥ Push and hold for 1 sec. to set the received call signs (stations and repeaters) to current call sign. (p. 30)

❾ OUTPUT POWER•DUPLEX KEY [LOW•DUP]
➥ Each push changes the output power selection. (p. 21)
  • LOW, MID and HIGH (no indicator visible) are available.
➥ Push and hold for 1 sec. to enter duplex operation selection state. (p. 30)
  • Rotating **[DIAL]** selects the tone function.
  • DUP– (minus duplex), DUP (plus duplex) and simplex (no indicator visible) are available.

❿ MONITOR•DTMF KEY [MONI•DTMF]
➥ Push to turn the monitor function ON and OFF. (p. 24)
➥ Push and hold for 1 sec. to enter DTMF set mode. (p. 82)

⓫ SQUELCH CONTROL [SQL]
Varies the squelch level for left and right band. (p. 20)
  • The RF attenuator activates and increases the attenuation when rotated clockwise at and beyond the center position. (p. 22)

⓬ POWER KEY [PWR]
Push and hold for 1 sec. to turn power ON and OFF.

⓭ MICROPHONE CONNECTOR (p. IV)
Connects the supplied or an optional microphone.
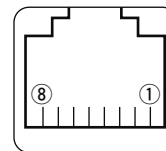
① +8 V DC output (Max. 10 mA)
② Channel up/down
③ 8 V control IN
④ PTT
⑤ GND (microphone ground)
⑥ MIC (microphone input)
⑦ GND
⑧ Data IN

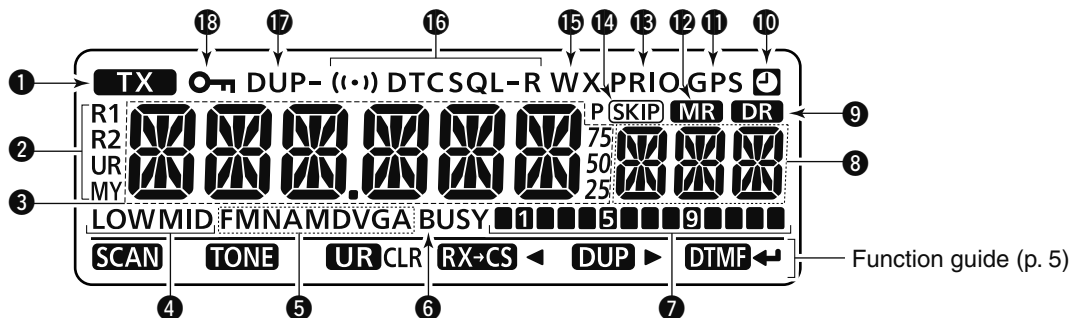**⓮ VOLUME CONTROL [VOL]** (p. 20)
Adjusts the audio level for left or right band.

3

■ Function display

Function guide (p. 5)

❶TRANSMIT INDICATOR
➥ Appears while transmitting. (p. 17)

❷CALL SIGN TYPE INDICATORS
"MY" appears when your own call sign; "UR" appears when station call sign; "R1" appears when access repeater call sign and "R2" appears when link repeater call sign is selected.

❸FREQUENCY READOUT
Shows the operating frequency, set mode contents, etc.
• Frequency decimal point blinks while scanning. (p. 75)

❹OUTPUT POWER INDICATORS
"LOW" appears when low output power; "MID" appears when middle output power, no indication appears when high output power is selected.

❺OPERATING MODE INDICATOR (p. 21)
Shows the selected operating mode.
• FM, FMN (FM narrow), AM, NAM (AM narrow) and DV (Digital voice) are available.
• "DVG" "DV A" appears when GPS transmission or GPS-A transmission is selected in DV mode. (p. ???)

❻BUSY INDICATOR
➥ Appears when a signal is being received or the squelch is open. (p. 20)
➥ Blinks while the monitor function is activated. (p. 24)

❼S/RF INDICATORS
➥ Shows the relative signal strength while receiving signals. (p. 20)
➥ Shows the output power level while transmitting. (p. 21)

⑧MEMORY CHANNEL NUMBER INDICATORS
➥ Shows the selected memory channel number. (p. 61)
➥ Shows the selected bank initial. (p. 64)
➥ "C0" or "C1" appears when the call channel is selected. (p. 72)

⑨DR (D-STAR REPEATER) INDICATOR (p. 118)
Appears when DR mode is selected.

⑩AUTO POWER OFF INDICATOR (p. 118)
Appears when the auto power OFF function is in use.

⑪GPS INDICATOR (p. 126)
Appears while GPS function* is in use.
• GPS indicator can be turned OFF in GPS.SET mode. (p.???).
*Available when GPS receiver is connected.

⑫MEMORY INDICATOR (p. 61)
Appears when memory mode is selected.

⑬PRIORITY INDICATOR (p. 81)
Appears while priority watch is activated, blinks while priority watch is paused.

⑭SKIP INDICATOR (p. 79)
➥ "SKIP" appears when the displayed memory channel is specified as a skip channel.
➥ "PSKIP" appears when the displayed frequency is specified as a program skip frequency.

⑮WEATHER ALERT INDICATOR (p. 123)
"WX" appears when the weather alert function is in use.
*Available with the USA version only.

⑯TONE INDICATOR
• *During FM/FM-N mode operation:*
➥ "T" appears while the repeater tone is in use. (p. 30)
➥ "TSQL" appears while the tone squelch function is in use. (p. 86)
➥ "TSQL-R" appears while the reverse tone squelch function is in use. (p. 87)
➥ "DTCS" appears while the DTCS squelch function is in use. (p. 86)
➥ "DTCS-R" appears while the reverse DTCS squelch function is in use. (p. 87)
➥ "((•))" appears with the "TSQL" or "DTCS" indicator while the pocket beep function is in use. (pgs. 86, 91)

• *During DV mode operation:*
➥ "DSQL" appears while the digital call sign squelch function is in use. (p. 91)
➥ "CSQL" appears while the digital code squelch function is in use. (p. 91)
➥ "((•))" appears with the "DSQL"* or "C SQL" indicator while the pocket beep function is in use. (pgs. 86, 91)

⑰DUPLEX INDICATORS (p. 30)
"DUP" appears when plus duplex, "DUP–" appears when minus duplex (repeater) operation is selected.

⑱KEY LOCK INDICATOR (p. 19)
Appears when the key lock function is activated.

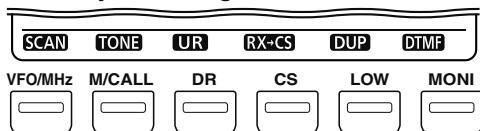# 1 PANEL DESCRIPTION

◊ Function guide indicator

The function guide indicators allow you to simply using a variety of functions. Two types of guide are available.

• Secondary function guides

SCAN	TONE	UR	RX←CS	DUP	DTMF
VFO/MHz	M/CALL	DR	CS	LOW	MONI

These function guides indicate the secondary functions for below the keys. Push and hold for 1 sec to activate the indicated functions. See page 1 to 2 (❺ to ❿).

• Set condition guides

❶ ❷ ❸ ❹

		CLR	◄	►	↵
VFO/MHz	M/CALL	DR	CS	LOW	MONI
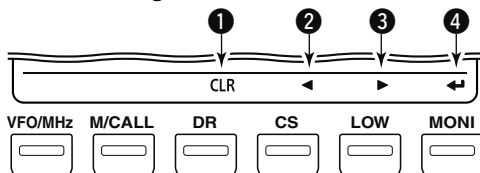
Set condition guides appear when the transceiver enters menu screen, select memory write state, optional UT-123 is installed and GPS function is set to ON.

❶ **CLEAR KEY [CLR](DR)** (p. 39)
➥ During programming state for call signs, repeater list, memory name, etc., push to erase the selected character.
➥ During programming state for call signs, repeater list, memory name, etc., push and hold for 1 sec. to erase all character following the corsor.

❷ **LEFT KEY [◄](CS)**
➥ During programming state for call signs, repeater list, memory name, etc., push to move the cursor left.
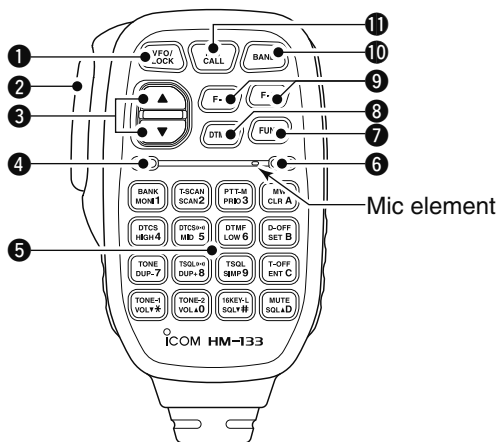➥ During menu screen operation, push to select the upper layer. (p. 113)

❸ **RIGHT KEY [►](LOW)**
➥ During programming state for call signs, repeater list, memory name, etc., push to move the cursor right.
➥ During menu screen operation, push to select the lower layer. (p. 113)

❹ **ENTER KEY [↵](MONI)** (p. 48)
➥ During menu screen operation, push to enter or exit to/from the selected set items, etc. (p. 113)
➥ During programming state for call signs, repeater list, etc., push to set or store the setting.

■ **Microphone** (HM-133*)

Mic element

➡ Push and hold either key for 1 sec. to start scanning. (p. 75)

❹ACTIVITY INDICATOR
➡ Lights red while any key, except [FUNC] and [DTMF-S], is pushed, or while transmitting.
➡ Lights green while the one-touch PTT function is in use.

❺KEYPAD (pgs. 12, 13)

❻FUNCTION INDICATOR
➡ Lights orange while [FUNC] is activated—indicates the secondary function of keys can be accessed.
➡ Lights green when [DTMF-S] is activated—DTMF signals can be transmitted with the keypad.

❼2nd FUNCTION KEY [FUNC]

❽DTMF SELECT KEY [DTMF-S] (p. 84)

❾FUNCTION KEYS [F-1]/[F-2] (p. 115)
Program and recall your desired transceiver configuration.

❿BAND KEY [BAND] (p. 15)
Push to select main band between left and right bands.

⓫MEMORY/CALL KEY [MR/CALL]
➡ Push to select memory mode. (p. 61)
➡ Push and hold for 1 sec. to select call channel. (p. 72)

❶VFO/LOCK KEY [VFO/LOCK]
➡ Push to select VFO mode. (p. 16)
➡ Push and hold for 1 sec. to turn the lock function ON and OFF. (p. 19)

❷PTT SWITCH
➡ Push and hold to transmit; release to receive.
➡ Switches between transmitting and receiving while the one-touch PTT function is in use. (p. 26)

❸UP/DOWN KEYS [▲]/[▼]
➡ Push either key to change operating frequency, memory channel, set mode setting, etc. (pgs. 17, 61, 98)

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1 PANEL DESCRIPTION

■ Microphone keypad

KEY	FUNCTION	SECONDARY FUNCTION ((FUNC) +key)	OTHER FUNCTIONS
BANK MONI 1	Switches between opening and closing the squelch. (p. 24)	In VFO mode enters operating band selection. In memory mode enters bank selection. (p. 64)	After pushing (DTMF-S): Transmits the appropriate DTMF code. (pgs. 33, 84) When the DTMF memory encoder is activated, push [0] to [9] to transmit the appropriate DTMF memory contents . (p. 84)
T-SCAN SCAN 2	Starts and stops scanning. (p. 75)	Starts and stops tone scanning. (p. 90)	
PTT-M PRIO 3	Starts and stops priority watch. (p. 81)	Turns the one-touch PTT function ON and OFF. (p. 26)	
DTCS HIGH 4	Selects high output power. (p. 21)	Turns the DTCS squelch ON. (p. 86)	
DTCS((•)) MID 5	Selects mid. output power. (p. 21)	Turns the DTCS pocket beep function ON. (p. 86)	
DTMF LOW 6	Selects low output power. (p. 21)	Turns the DTMF memory encoder function ON. (p. 83)	
TONE DUP- 7	Selects minus duplex operation. (p. 31)	Turns the subaudible tone encoder ON. (p. 31)	
TSQL((•)) DUP+ 8	Selects plus duplex operation. (p. 31)	Turns the CTCSS pocket beep function ON. (p. 86)	
TSQL SIMP 9	Selects simplex operation. (p. 31)	Turns the tone squelch function ON. (p. 86)	
TONE-2 VOL▲ 0	Increases audio output level. (p. 20)	Sends a 1750 Hz tone signal while pushing and holding. (p. 33)	

KEY	FUNCTION	SECONDARY FUNCTION ((FUNC) +key)	OTHER FUNCTIONS
MW CLR A	➥ Cancels frequency entry. (p. 17) ➥ Cancels the scan or priority watch. (pgs. 75, 81) ➥ Exit set mode. (p. 98)	➥ Stores the set frequency, etc., into the selected memory channel when pushed and held. (p. 63) ➥ Advances the memory channel number when continuously pushed after programming is completed. (p. 63)	After pushing (DTMF-S): Transmits the appropriate DTMF code. (pgs. 33, 84)
D-OFF SET B	➥ Enters MENU screen. (p. 98) ➥ Enters selected set mode. (p. 98) ➥ Enters programmable condition after selecting a set mode item. (p. 98)	DTMF memory encoder function OFF. (p. 83)	
T-OFF ENT C	➥ Sets the keypad for numeral input. (p. 17) ➥ Returns to the previous indication after entering set mode. (p. 98)	Turns the subaudible tone encoder, pocket beep or CTCSS/DTCS tone squelch OFF. (pgs. 31, 86)	
MUTE SQL▲D	Adjusts the squelch level increments. (p. 20)	Mutes the audio. (p. 27) • Mute function is released when any operation is performed.	
TONE-1 VOL▼✳	Decreases audio output level. (p. 20)	Sends a 1750 Hz tone signal for 0.5 sec. (p. 33)	
16KEY-L SQL▼#	Adjusts the squelch level decrement. (p. 20)	Locks the digit keys on the keypad (including the A to D, # and ✳ keys. (p. 19)	

9

■ **Optional Microphone** (HM-154)
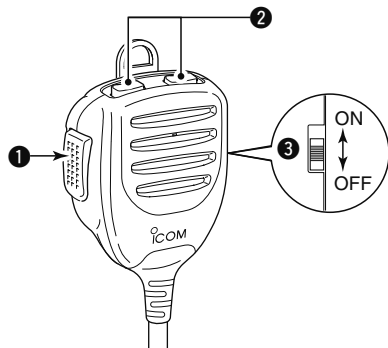
❶**PTT SWITCH**
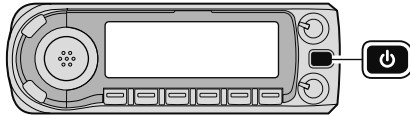 Push and hold to transmit; release to receive.

❷**UP/DOWN KEYS [UP]/[DN]**
  ➥ Push either key to change operating frequency, memory channel, set mode setting, etc. (pgs. 17, 61, 98)
  ➥ Push and hold either key for 1 sec. to start scanning. (p. 75)

❸**UP/DN LOCK SWITCH**
  Slide to toggle [UP]/[DN] keys function ON and OFF.

■ Preparation

◇ Turning power ON/OFF

➡ Push and hold **[⏻]** for 1 sec. to turn power ON and OFF.

◇ Operating frequency band selection

The ID-880H has 2 m and 70 cm bands for transmission and reception. In addition, extra frequency bands 127, 220, 350, 500 and 900 MHz band are available for wide-band receiver capability (depending on versions, see p. ?? for details).

[BAND]   [DIAL]
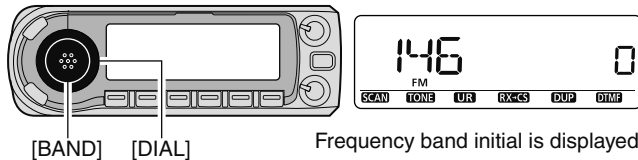
Frequency band initial is displayed.

① Push **[BAND]** and rotate **[DIAL]** to select the desired frequency band.
  • Pushing [▲]/[▼] on the microphone also selects the band.
② Push **[BAND]** to return to frequency indication in the selected frequency band.

BAND

[1] Push [BAND] to enter frequency band selection.
  • The frequency band is displayed.
[2] Push [▲]/[▼] to select the desired frequency band.
[3] Push [CLR A(MW)] (or [BAND]) to exit the condition, and return to frequency indication.

Note that in this manual, sections beginning with a microphone icon (as at left), designate operation via the HM-133 microphone.

2 BASIC OPERATION

◇ VFO mode

VFO mode is used to set the desired frequency.

➥ Push **[VFO/MHz]** to select VFO mode.
  • When VFO mode is already selected, the digits to the right of the 10 MHz or 1 MHz digits will disappear depending on version. In this case, push **[VFO/MHz]** again (or twice depending on version).

• VFO mode indication

[VFO/MHz]

VFO/LOCK   ➥ Push [VFO/LOCK] to select VFO mode.

What is VFO?

VFO is an abbreviation of Variable Frequency Oscillator. Frequencies for both transmitting and receiving are generated and controlled by the VFO.

◇ Memory mode

Memory mode is used for operation on memory channels which store programmed frequencies.

① Push **[M/CALL]** to select memory mode.
  • Push [M/CALL] several times to select Memory/Call/Weather* channels in sequence. * Weather channels are available for the U.S.A. version only.
  • "MR" indicator appears when memory mode is selected.

• Memory mode indication

Appears

[M/CALL]

② Rotate **[DIAL]** to select the desired memory channel.
  • Only programmed memory channels can be selected.
  • See p. 92 for memory programming details.

MR/CALL   ① Push [MR/CALL] to select memory mode.
▲/▼   ② Push **[▲]** or **[▼]** to select the desired memory channel.

12

◇ Call/Weather* channels

Call channels are used for quick recall of most-often used frequencies. *Weather channels are available for the U.S.A. version only.

① Push **[M/CALL]** several times to select call channels/ Weather channels.
• Memory/Call/Weather channels can be selected in sequence.
• "C0" or "C1" appears when call channel is selected.
② Rotate **[DIAL]** to select the desired channel.

[M/CALL]

• **Call channel indication**

• **Weather channel indication**

MR/CALL

▲/▼

① Push and hold [MR/CALL] for 1 sec. to select call channels.
• Whether channels cannot be selected by the HM-133.
② Push **[▲]** or **[▼]** to select the desired call channel.

◇ DR (D-STAR Repeater) mode

DR (D-STAR Repeater) mode is used for the D-STAR repeater operation. In this mode, you can select the pre-programmed repeaters and UR (your) call sign easily.

① Push **[DR]** to select DR mode.
• "DR" appears when call channel is selected.

• **DR mode indication**
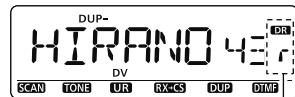
[DR]   Appear

② Rotate **[DIAL]** to select the desired access repeater.
• While rotating **[DIAL]**, S/RF-meter indicates group number.
• Only programmed access repeaters in RPT-L menu can be selected. See p. 40 for RPT-L (repeter lists) programming details.

MENU ➪ RPT-L ➪ **ADD-L** (p. 40)

■ Using the tuning dial

① Rotate **[DIAL]** to set the frequency.
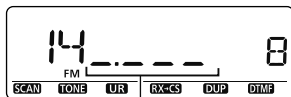- If VFO mode is not selected, push **[VFO/MHz]** to select VFO mode.
- The frequency changes in the selected tuning steps. (p. 18)

[DIAL] [VFO/MHz]

While 10 MHz tuning step is selected, the digit below 1 MHz disappear.
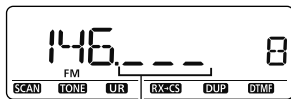
While 1 MHz tuning step is selected, the digit below 100kHz disappear.

② To change the frequency in 1 MHz (10 MHz for some versions) steps, push **[VFO/MHz]**, then rotate **[DIAL]**.
- Pushing and holding **[VFO/MHz]** for 1 sec. starts scan function. If scan starts, push **[VFO/MHz]** again to cancel it.

■ Using the [▲]/[▼] keys

➥ Push [▲] or [▼] to select the desired frequency.
- Pushing and holding [▲]/[▼] for 1 sec. activates a scan. If scan starts, push [▲]/[▼] or [CLR A(MW)] to cancel it.

■ Using the keypad

The frequency can be directly set via numeral keys on the microphone.

⎡ENT⎤
⎣ C ⎦

1 Push [BAND] to select the desired band (left or right) as the main band.
  • Push [VFO/LOCK] to select VFO mode, if necessary.
2 Push [ENT C(T-OFF)] to activate the keypad for digit input.
3 Push 6 keys to input a frequency.
  • When a digit is mistakenly input, push [ENT C(T-OFF)] to clear the input, then repeat input from the 1st digit.
  • Pushing [CLR A(MW)] clears input digits and retrieves the frequency.

[EXAMPLE]: Setting frequency to 145.3625 MHz.

Push (VFO/LOCK)

Push (T-OFF ENT C)

Push (BANK MONI 1) (DTCS HIGH 4) (DTCS•ø MID 5)
     (PTT•M PRIO 3) (DTMF LOW 6)

Push (T-SCAN SCAN 2)

■ Tuning step selection

Tuning steps are the minimum frequency change increments when you rotate **[DIAL]** or push [▲]/[▼] on the microphone. Independent tuning steps for the left and right bands, as well as each frequency band can be set for individual tuning convenience. The following tuning steps are available.

• 5 kHz*	• 6.25 kHz*	• 10 kHz	• 12.5 kHz
• 15 kHz*	• 20 kHz	• 25 kHz	• 30 kHz
• 50 kHz	• 100 kHz	• 125 kHz	• 200 kHz

*Not selectable in 900 MHz band.

※ **NOTE:** For convenience, select a tuning step that matches the frequency intervals of repeaters in your area.

① Enter "TS" in MENU screen.

MENU ➪ **TS** (p. 63)
(Push **[MENU ⊙┅]**), (Rotate **[DIAL]**, then push **[↵]**(MONI).)

• Push **[VFO/MHz]** to select VFO mode, if necessary.

[MENU ⊙┅]

[DIAL]   [↵]

② Rotate **[DIAL]** to select the desired tuning step.
③ Push **[MENU ⊙┅]** to exit the set mode.

■ Lock functions

To prevent accidental frequency changes and unnecessary function access, use the lock function. The transceiver has 2 different lock functions.

◇ Frequency lock

This function locks **[DIAL]** and keys electronically and can be used together with the microphone lock function.

[MENU 🔒]   Appears

➡ Push and hold **[MENU 🔒]** for 1 sec. to turn the lock function ON and OFF.
  • **[PTT]**, **[MONI]** (monitor function only), **[VOL]** and **[SQL]** can be used while the channel lock function is in use. Also, TONE-1, TONE-2, DTMF tones or DTMF memory contents can be transmitted from the microphone.

VFO/LOCK

➡ Push and hold [VFO/LOCK] for 1 sec. to turn the lock function ON and OFF.

◇ Microphone keypad lock

This function locks the microphone keypad.

16KEY-L

➡ Push [FUNC] then [SQL▼ D(16KEY-L)] to turn the microphone keypad lock function ON and OFF.
  • [PTT], [VFO/LOCK], [MR/CALL], [BAND], [▲], [▼], [F-1], [F-2], [DTMF-S] and [FUNC] on the microphone can be used.
  • All keys on the transceiver can be used.
  • The keypad lock function is released when the power is turned OFF then ON again.

■ Receiving

① Set the audio level.
➥ Push **[MONI]** to open the squelch.
➥ Rotate **[VOL]** to adjust the audio level.
➥ Push **[MONI]** to close the squelch.
② Set the squelch level.
➥ Rotate **[SQL]** fully counterclockwise in advance, then rotate **[SQL]** clockwise until the noise just disappears.
   • When interference due to strong signals is received, rotate **[SQL]** clockwise past 12 o'clock for attenuator operation. (p. 22)
③ Set the operating frequency. (pgs. 15–17)
④ When receiving a signal on the selected frequency, squelch opens and the transceiver emits audio.

• "BUSY" appears and the S/RF indicator shows the relative signal strength for the received signal.

Appears when receiving a signal.

✔ CONVENIENT!

The audio and squelch level can also be adjusted with [VOL▲(TONE-1)]/[VOL▼ 0(TONE-2)] and [SQL▲ D(MUTE)]/[SQL▼ #(16KEY-L)], respectively.
• "VOL" for audio or "SQL" for squelch appears during set.

Show set level

■ Transmitting

CAUTION: Transmitting without an antenna may damage the transceiver.

NOTE: To prevent interference, listen on the channel before transmitting by pushing **[MONI]**, or [MONI 1(BANK)] on the microphone.

① Set the operating frequency. (pgs. 15–17)
   • Select output power if desired. See section at right for details.
② Push and hold **[PTT]** to transmit.
   • " T X " appears.
   • The S/RF indicator shows the output power selection.
   • A one-touch PTT function is available. See p. 26 for details.
③ Speak into the microphone using your normal voice level.
   • DO NOT hold the microphone too close to your mouth or speak too loudly. This may distort the signal.
④ Release **[PTT]** to return to receive.

IMPORTANT! *(for 50 W transmission):-*
The ID-880H is equipped with protection circuits to protect the power amplifier circuit from high temperature. When the transceiver temperature becomes extremely high, the transceiver reduces transmit output power to 5 W (approx.) automatically.

■ Selecting output power

The transceiver has 3 output power levels to suit your operating requirements. Low output powers during short-distance communications may reduce the possibility of interference to other stations and will reduce current consumption.

➥ Push **[LOW]** several times to select the output power.

*approx.

• The output power can be changed while transmitting.

The microphone can also be used to select output power.

HIGH
4

MID
5

LOW
6

➥ Push [HIGH 4(DTCS)] for high output power; [MID 5(DTCS (•))] for middle output power; and [LOW 6(DTMF)] for low output power.
  • The output power can be changed via the microphone during receive only.

■ Operating mode selection

Operating modes are determined by the modulation of the radio signals. The transceiver has total 5 operating modes (FM, FM-N, AM, AM-N and DV* modes). The mode selection is stored independently for each band and memory channel.
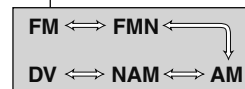
Typically, AM mode is used for the air band (118–136.995 MHz), and receive is only available.

① Select the desired frequency band in VFO mode, or the desired memory channel.
② Push and hold **[MODE]**(BAND) for 1 sec., then rotate **[DIAL]** to select the desired operating mode from FM, FMN, AM, NAM and DV.

[MODE]

[DIAL]

FM

SCAN   RX-CS   DUP   DTMF

FM ⟷ FMN

DV ⟷ NAM ⟷ AM

Selected operating mode is displayed.

■ Squelch attenuator

The transceiver has an RF attenuator related to the squelch level setting. Approx. 10 dB attenuation is obtained at maximum setting.

The squelch attenuator allows you to set the minimum signal level needed to open the squelch. The attenuator function can be deactivated in set mode.

➡ Rotate **[SQL]** clockwise past the 13 o'clock position to activate the squelch attenuator.
  • Attenuation level can be adjusted up to 10 dB (approx.) between 13 o'clock and fully clockwise position.

Noise squelch
Squelch threshold
Squelch is open.
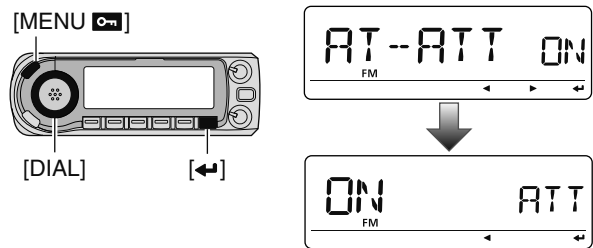Squelch attenuator
Shallow
Deep
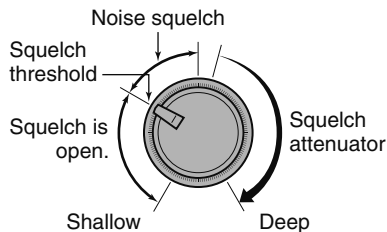
NOTE: The squelch attenuator functions even when the monitor function is in use. Thus it is recommended to set the **[SQL]** control between the 10 and 13 o'clock positions when using the monitor function.

◇ **Squelch attenuator setting**

① Enter "AT-ATT" in FUNC set mode (SET).

MENU ➪ SET ➪ FUNC ➪ *AT-ATT* (p. 63)
(Push **[MENU 🔒]**), (Rotate **[DIAL]**, then push **[◄┘]**(MONI).)

[MENU 🔒]

[DIAL]   [◄┘]

②Rotate **[DIAL]** to turn the squelch attenuator function ON and OFF.
  • Select "OFF" to deactivate the squelch attenuator function.

③Push **[MENU 🔒]** to exit the set mode.

■ Monitor function

This function is used to listen to weak signals without disturbing the squelch setting.

[MONI]

➡ Push **[MONI]** to open the squelch.
• "BUSY" blinks.
• Push **[MONI]** again to cancel the function.

MONI
1

➡ Push [MONI 1(BANK)] to open the squelch.
• Push [BAND] to select the desired band (left or right) as the main band in advance.
• Push [MONI 1(BANK)] again to cancel the function.

NOTE: When the **[SQL]** adjustment is set too far clockwise, (13–17 o'clock position) the squelch attenuator is activated. To monitor weak signals on the operating frequency, deactivate the squelch attenuator function. See page 22 for details.

■ Audio mute function

This function temporarily mutes the audio without disturbing the volume setting. (microphone only)

MUTE

➡ Push [FUNC] then [SQL▲ D(MUTE)] to mute audio signals.
• Push [CLR A(MW)] (or any other key) to cancel the function.
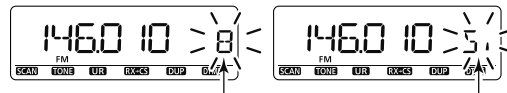
Shows above indications alternately