YAESU
The radio

**HF/VHF/UHF
ALL MODE TRANSCEIVER**

FT-818

OPERATING MANUAL

Contents

The **FT-818** is a compact, innovative multiband, multimode portable transceiver for the amateur radio MF/HF/VHF/UHF bands. Providing coverage of the 160-10 meter bands (include the 60 m band: USA version) plus the 6 m, 2 m, and 70 cm bands, the **FT-818** includes operation on the SSB, CW, AM, FM, and Digital modes, yielding the most comprehensive performance package available for portable operation.

Designed for use either from an external DC power source or internal batteries, the **FT-818** provides five watts of power output from a 13.8-Volt external power supply. When using the **SBR-32MH** Ni-MH Battery Pack or 8 "AA" Alkaline Cells (not supplied), the **FT-818** automatically switches to 2.5 Watts of output power. Via the Menu system, "High" power may be selected during battery operation, providing as much as 6 Watts of output, depending on the operating frequency.

The multi-function Liquid-Crystal Display includes Blue, Amber, and Violet backlighting, which may be disabled for battery conservation. The display includes bar-graph indication of power output, ALC voltage, SWR, and modulation level. Also include are a number of operating status icons, as well as the function displays for the three operating function keys (A , B , and C).

Among the advanced features of the **FT-818** are many incorporated only in large base-station transceivers. These include Dual VFOs; Split-Frequency operation; IF Shift; Clarifier ("R.I.T."); IF Noise Blanker; AGC Fast/Slow/Auto/Off selection; RF Gain and Squelch control; IPO (Intercept Point Optimization) and a receiver front-end Attenuator; AM Aircraft reception; AM and FM Broadcast reception; VOX; Built-in Electronic Keyer; Adjustable CW Pitch; Automatic FM Repeater Shift (ARS); Built-in CTCSS Encoder/Decoders; ARTS™ (Auto-Range Transponder System); Smart Search™ Automatic Memory Loading System; Spectrum Scope; 200 Memories plus Home Channels and Band-limiting Memories; Alpha-Numeric Labeling of Memories; Automatic Power-Off (APO) and Time-Out Timer (TOT) functions; Computer Interface capability; and Cloning capability.

We urge you to read this manual in its entirety, so as to gain a full understanding of the amazing capability of the exciting **FT-818** Portable Transceiver.

Accessories & Options

SUPPLIED ACCESSORIES

MH-31A8J	Hand Microphone
SBR-32MH	Ni-MH Battery Pack (9.6 V, 1900 mAh)
PA-48B/C/U$^※$	Battery Charger
FBA-28	Battery Case (holds 8 "AA" size Alkaline cells [not supplied])
YHA-63	Whip Antenna for (50/144/430 MHz)
E-DC-6	DC Cable
Shoulder Strap	
Ferrite Core	
Rubber Foot	
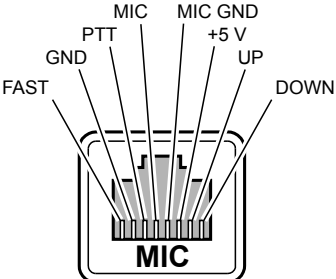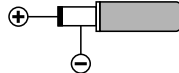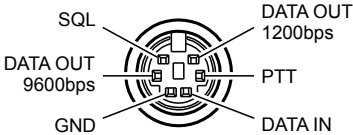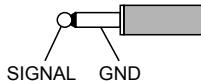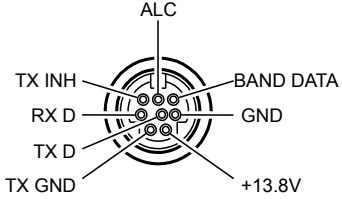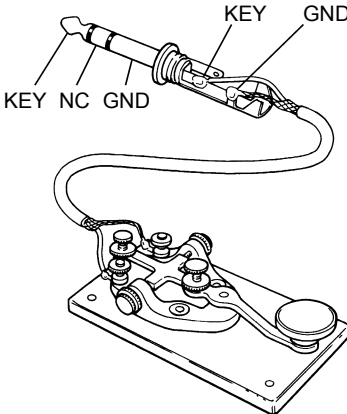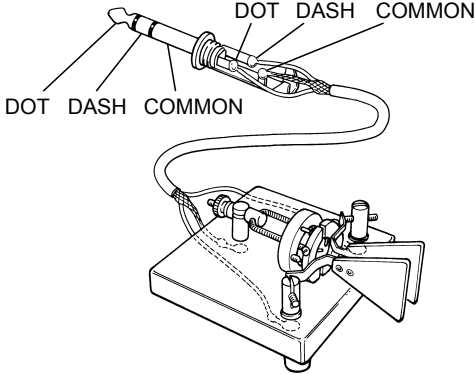
AVAILABLE OPTIONS

SBR-32MH	Ni-MH Battery Pack (9.6 V, 1900 mAh)
PA-48B/C/U$^※$	Battery Charger
YF-122S	Collins SSB Filter (2.3 kHz/4.7 kHz: –6 dB/–66 dB)
YF-122C	Collins CW Filter (500 Hz/2 kHz: –6 dB/–60 dB)
YF-122CN	Collins CW Filter (300 Hz/1 kHz: –6 dB/–60 dB)
MH-36E8J	DTMF Microphone
CT-62	CAT Interface Cable
CT-39A	Packet Cable

※: Depends on the transceiver version.

MIC

MIC
MIC GND
PTT
+5 V
GND
UP
FAST
DOWN

MIC

INPUT DC13.8V

$\oplus$
$\ominus$

SP/PH

SIGNAL   GND

DATA

SQL
DATA OUT 1200bps
DATA OUT 9600bps
PTT
GND
DATA IN

ACC

ALC
TX INH
BAND DATA
RX D
GND
TX D
TX GND
+13.8V

KEY

KEY   GND
KEY NC GND

DOT DASH COMMON
DOT DASH COMMON

Installation

CONNECTING THE SUPPLIED YHA-63 ANTENNA

Your **FT-818** is supplied with a three-section antenna, model **YHA-63** which is designed for optimum performance on the 50 MHz, 144 MHz, and 430 MHz. It also works well on the FM broadcast and other VHF bands. This antenna is intended for connection to the front panel's BNC-type antenna connector.

For HF and/or 50 MHz operation, most hikers carry their own dipole or collapsible vertical antenna, fed by a small-diameter coaxial cable terminated in a type "**M**" (PL-259) plug, and these kinds of antennas may be connected to the rear panel's antenna connector.

The **YHA-63** should be connected to the top panel's "**BNC**" connector, using the following guidelines:

❍ For 144/430 MHz operation (only), connect the shorter cap section to the screw post on the top of the main antenna shaft, then screw the assembled **YHA-63** onto the BNC connector, twisting it 1/4 turn clockwise to secure the antenna.

❍ For 50 MHz operation, unscrew the short cap section, and replace it with the long cap section. The long cap section will provide good results on 144/430 MHz, as well, but those owners not using 50 MHz may prefer the shorter total length of the **YHA-63** when using the short cap on 144/430 MHz.

❍ For shortwave listening using a random-length wire antenna for reception only, you may wish to consider connection of the wire between the main **YHA-63** shaft and the cap, using a "spade lug" or similar lug on the end of the wire to provide a secure connection between the cap and the rest of the antenna.

❍ Menu #07 ("ANTENNA") allows you to define which connector ("Front" or "Rear") is used on a particular band. See page 58 for details.
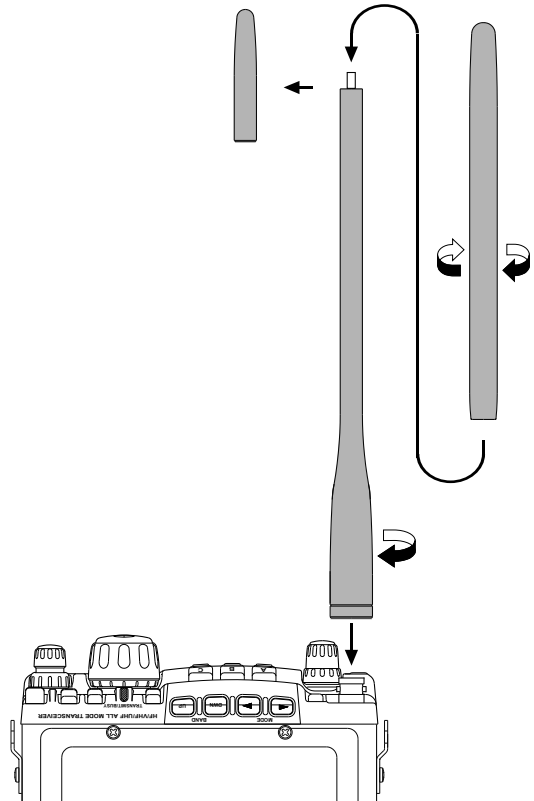
CONNECTING THE MICROPHONE

❍ To connect the microphone, plug its connector (latch side UP) into the **MIC** jack on the right side of the transceiver. Press it gently inward until you hear the "click" of the latch.

❍ To disconnect the microphone, press gently on the "**PUSH ▼**" label on top of the microphone connector's rubber boot. While pressing on this spot, gently pull the connector outward from the body of the transceiver.
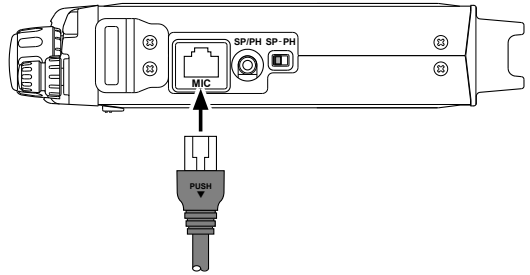
Note: During "Digital" or "Packet" operation, it is not necessary to disconnect the microphone, as activation of the PTT line from the **DATA** connector automatically cuts off the audio input from the **MIC** jack.

SHOULDER STRAP INSTALLATION

The convenient Shoulder Strap is designed for maximum comfort and security for your **FT-818** transceiver.

❍ Refer to the illustration, and connect the shoulder strap to the attachment tabs just behind the front panel of the **FT-818**. Be sure to have the shoulder strap aligned correctly, without twists in the straps.

❍ A convenient microphone hanger is located on one end of the padded top section of the Shoulder Strap. When not in use, the microphone may be affixed here, freeing both of your hands for other tasks.
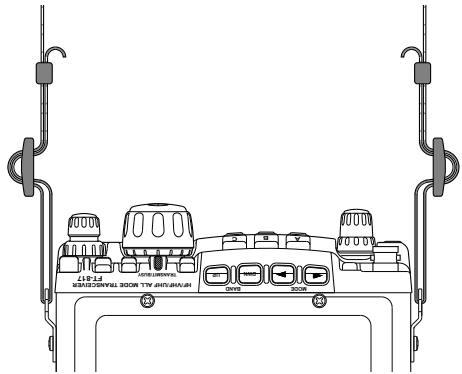
RUBBER FOOT INSTALLATION

Four Rubber Feet are provided with your **FT-818**, for ease of use when operating from a base station or camp table.

Refer to the illustration, and affix the Rubber Feet in the appropriate locations.
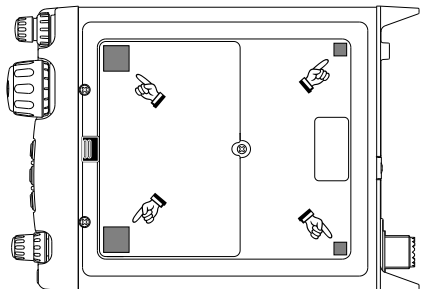
Installation

ALKALINE BATTERY INSTALLATION AND USE

The **FT-818** is supplied with the **FBA-28** holder for Alkaline "AA" cells. A fresh set of Alkaline cells should provide approximately 5.5 hours of reception under typical conditions.

1. To install or replace the AA cells, first remove the battery cover from the bottom side of the transceiver. Slide the battery cover latch forward, as shown in the illustration, then fold the battery cover upward and set it aside temporarily.
2. Install the Alkaline AA cells as shown in the illustration, paying particular attention to the correct polarity of the batteries.
3. When all batteries have been successfully installed, replace the battery cover.
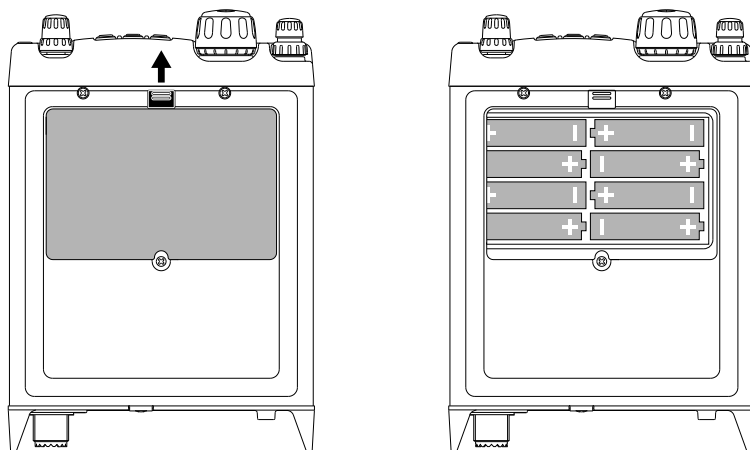
Important Notes

❍ When the transceiver is to be stored for a long period of time without use (longer than ten days), remove the batteries from the **FBA-28** holder, to avoid the possibility of battery leaking causing damage to the transceiver. Inspect the **FBA-28** battery holder occasionally for signs of corrosion or battery leakage, and remove the batteries immediately if any such damage is observed.

❍ The **FBA-28** battery holder is designed for use solely with Alkaline type "AA" cells. Do not attempt to use Ni-Cd or other rechargeable cells in the **FBA-28**, because it does not contain the protection circuitry required when using rechargeable cells.

❍ When replacing batteries, replace all eight AA cells simultaneously with fresh batteries.

❍ When the battery voltage is approaching the value which indicates depletion is near, the small "⎓" will blink, indicating it is time to replace the batteries.

EXTERNAL POWER CONNECTIONS

The **FT-818** may be connected to an external 13.8 Volt DC power source providing at least 3 Amps of continuous-duty current.. The supplied **E-DC-6** DC cable may be used for DC connections.

While connected to an external DC source, if you have installed the supplied **SBR-32MH** Ni-MH Battery Pack, the **E-DC-6** connection to the external DC power source will allow operation of the **FT-818** while charging of the **SBR-32MH** is in progress.

When making DC power connections, be absolutely certain to follow the markings on the **E-DC-6** so as to ensure proper polarity of the connection to the power supply. Connect the RED AND BLACK or WHITE AND BLACK wire to the Positive (+) power supply terminal, and connect the SOLID BLACK wire to the Negative (-) power supply terminal.
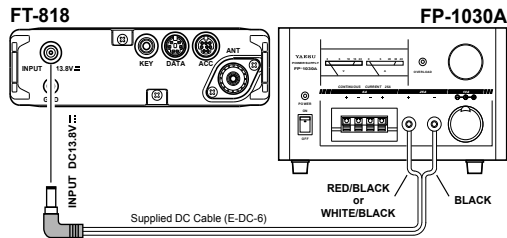
Notice

Be extremely careful when making power supply connections. Use only a 13.8 Volt DC Supply, and carefully observe the proper electrical polarity. Serious damage may result if these precautions are not observed.

The Limited Warranty on this product does not cover damage caused by improper power supply connections, or improper power supply voltage.

Important Note

Occasionally, the 430 MHz transmit signal may behave abnormally when the FT-818 is operated using an External Power Supply and the whip antenna, especially with the antenna in close proximity to surrounding metal objects.

If abnormal transmitter operation is experienced, wind one turn of the E-DC-6 DC cable around the supplied ferrite core, and snap its two halves together, per the illustration below. Install the core as close as possible to the DC plug, as shown.
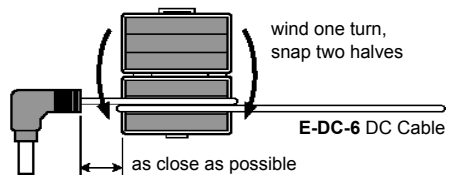
Installation

SBR-32MH Nɪ-MH Bᴀᴛᴛᴇʀʏ Pᴀᴄᴋ Iɴꜱᴛᴀʟʟᴀᴛɪᴏɴ ᴀɴᴅ Uꜱᴇ

The supplied **SBR-32MH** Ni-MH Battery Pack provides 9.6 Volts of DC power for your **FT-818**, with a maximum capacity of 1900 mAh.

Installation

1. To install the **SBR-32MH** Ni-MH Battery Pack, first remove the battery compartment cover, as described previously.
2. Lift out the **FBA-28** battery holder, and disconnect the short cable connected to the **FBA-28**, as shown in the illustration.
3. Connect the short cable to the mating connector on the **SBR-32MH**, and install the **SBR-32MH** in the battery compartment.
4. Replace the battery compartment cover.
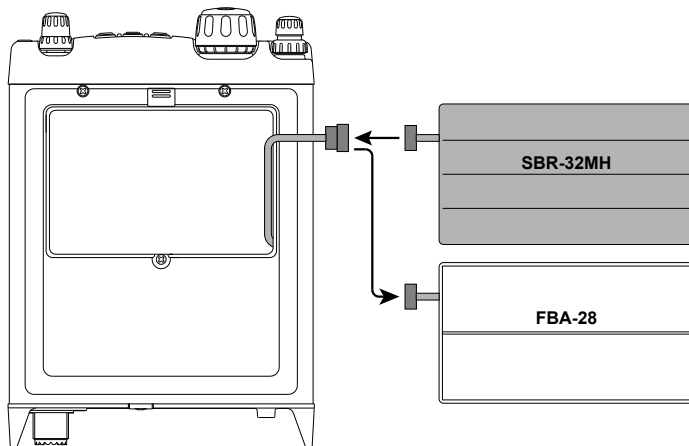
Charging

Charging of the **SBR-32MH** requires the use of either the supplied battery charger (**PA-48B/C/U**), or an external 13.8 Volt (±15%) DC source. If the battery charger is used, the **FT-818** must be turned off during charging; if an external 13.8 Volt DC source is used (connected via the supplied **E-DC-6** cable), then you may operate the **FT-818** while charging is in progress.

1. Turn the **FT-818** off, then connect the supplied battery charger DC connector to the **INPUT: 13.8V ⎓** jack on the rear panel of the **FT-818**.
2. Plug the battery charger into the nearest AC wall outlet.
3. Press the **FT-818**'s **PWR** switch for one second to turn the transceiver on.
4. Press the **F** key momentarily.
5. Rotate the **SEL** knob so that the function row containing "[CHG, VLT, DSP]" appears on the display.
6. Press the **A** key to select the [CHG] option (the display will immediately revert to the regular frequency display).
7. Turn the **FT-818** off. The display will indicate "CHG TIME RMN" and remaining time to indicate the time remaining before a full charge is achieved on the **SBR-32MH**.

```
CHG TIME RMN
        7:59
```

Important Note

☐ The **PA-48** are not designed to power the transceiver for operation (reception or transmission).

☐ Please be advised that the **PA-48** may contribute noise to TV and radio reception in the immediate vicinity, so we do not recommend its use adjacent to such devices.

Front Panel Control & Switches
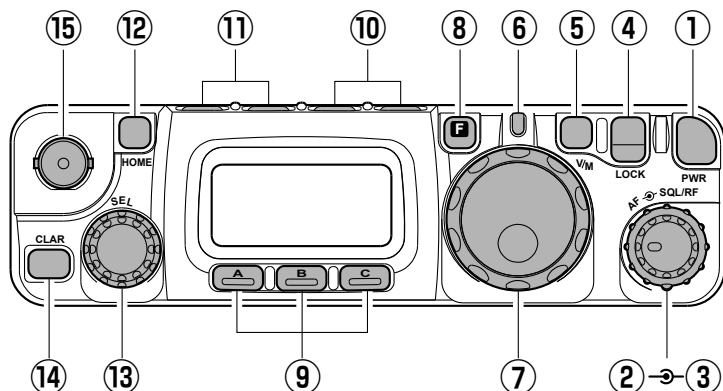
① **PWR** Switch
Press and hold in the **PWR** switch for one second to turn to the transceiver on or off.

② **AF** Knob
The (inner) **AF** knob adjusts the receiver audio volume level presented to the internal or external speaker. Clockwise rotation increases the volume level.

③ **SQL/RF** Knob
In the USA version, this (outer) **SQL/RF** knob adjusts the gain of the receiver's RF and IF stages. Using Menu Selection 45, this control may be changed to function as a Squelch control, which may be used to silence background noise when no signal is present. In the other versions, its default setting is set to "Squelch."

④ **LOCK** Key
Pressing this key locks the front panel keys so as to prevent accidental frequency change.

⑤ **V/M** Key
Pressing this key switches frequency control between the VFO and Memory Systems.

⑥ **TRANSMIT/BUSY** Indicator
This LED glows green when the squelch opens, and turns red during transmit.

⑦ **MAIN** Dial
This is the main tuning dial for the transceiver. It is used both for frequency tuning as well as "Menu" setting in the transceiver.

⑧ **F** Key
Pressing this key momentarily changes the display to show the operating functions available via the **A**, **B**, **C** keys.
Press and hold this key for one second to activate the "Menu" mode.

⑨ **FUNC** Keys

These three keys select many of the most important operating features of the transceiver. When pressing the `F` key, the current function of that key appears above each of the `A`, `B`, `C` keys (along the bottom of the LCD); rotating the `SEL` knob scrolls the display through eleven rows of functions available for use via the `A`, `B`, `C` keys.

The available features are shown in chart on the next page.

⑩ **BAND(DWN)/BAND(UP)** Key

Pressing either of these keys momentarily will cause the frequency to be moved up or down by one frequency band. The selections available are:

1.8 MHz ←→ 3.5 MHz ←→ 7.0 MHz ←→ 10 MHz ←→ 14 MHz ←→ 15 MHz ←→ 18 MHz ←→ 21 MHz
→ 430 MHz ←→ 144 MHz ←→ 108 MHz ←→ 88 MHz ←→ 50 MHz ←→ 28 MHz ←→ 24 MHz ←

Recalling the 5 MHz band (U.S. model) requires different procedure. See page 20 for details.

⑪ **MODE(◄)/MODE(►)** Key

Pressing either of these keys momentarily will change the operating mode. The selections available are:

→ LSB ←→ USB ←→ CW ←→ CWR ←→ AM ←→ FM ←→ DIG ←→ PKT ←

⑫ **HOME** Key

Pressing this key momentarily recalls a favorite "HOME" frequency memory.

⑬ **SEL** Knob

This detented rotary switch is used for tuning, memory selection, and function selection for the `A`, `B`, `C` keys of the transceiver.

⑭ **CLAR** Key

Press this key momentarily to activate the Receiver Clarifier feature. When this feature is activated, the `SEL` knob may be used to set a tuning offset of up to ±9.99 kHz. The transmitter's frequency is not affected by the setting of the Clarifier.

Press and hold this key for 1/2 second to activate the IF Shift feature, which allows you to use the `SEL` knob to adjust the center frequency of the IF filter's passband response.

⑮ **ANT** Jack

Connect the supplied 50/144/430 MHz rubber flex antenna (or another antenna presenting a 50Ω impedance) to this BNC connector.

In its default setting, this jack does not function on the HF bands. If you want to enable this jack on the HF bands, recall and change the setting of Menu #07.

Front Panel Control & Switches

	$\boxed{A}$ **key**	$\boxed{B}$ **key**	$\boxed{C}$ **key**
1	**A/B** Press the $\boxed{A}$ key to switch between VFO-A and VFO-B on the display.	**A=B** Press and hold in the $\boxed{B}$ key for 1/2 second to copy the contents of VFO-A into the VFO-B register, so that the two VFOs' contents will be identical.	**SPL** Press the $\boxed{C}$ key to activate Split frequency operation between VFO-A and VFO-B.
2	**MW** Press and hold in the $\boxed{A}$ key for 1/2 second to transfer the contents of the VFO into a Memory register.	**MC** Press the $\boxed{B}$ key to designate the current Memory channel to be "skipped" during scanning.	**TAG** Press the $\boxed{C}$ key to select the display type (Frequency or Alpha-numeric Tag) during Memory operation.
3	**STO** Press the $\boxed{A}$ key to store the contents of the VFO into the QMB (Quick Memory Bank) register.	**RCL** Press the $\boxed{B}$ key to recall the QMB Memory.	**PMS** Press the $\boxed{C}$ key to activate the Programmable Memory Scan feature.
4	**RPT** Press the $\boxed{A}$ key to select the direction of the uplink frequency shift ("–," "+," or Simplex) during FM repeater operation. Press and hold in the $\boxed{A}$ key for 1/2 second to recall Menu #42 (for setting the shift frequency offset).	**REV** Press the $\boxed{B}$ key to reverse the transmit and receive frequencies while working through a repeater.	**TON** Press the $\boxed{C}$ key to activate CTCSS or DCS operation. Press and hold in the $\boxed{C}$ key for 1/2 second to recall Menu #48 (for selecting the CTCSS tone frequency).
5	**SCN** Press the $\boxed{A}$ key to initiate scanning (in the direction of *higher* frequencies).	**PRI** Press the $\boxed{B}$ key to activate the Priority Scan feature.	**DW** Press the $\boxed{C}$ key to activate the Dual Watch system.
6	**SSM** Press the $\boxed{A}$ key to activate the Spectrum Scope Monitor feature. Press and hold in the $\boxed{A}$ key for 1/2 second to recall Menu #43 (for selecting the SSM sweep mode).	**SCH** Press the $\boxed{B}$ key to activate Smart Search™ operation.	**ART** Press the $\boxed{C}$ key to initiate the Auto-Range Transponder mode. Press and hold in the $\boxed{C}$ key for 1/2 second to recall Menu #09 (for selecting the ARTS "Beep" option).
7	**IPO** Press the $\boxed{A}$ key to bypass the receiver preamplifier, thereby activating Intercept Point Optimization for improved overload characteristics. The IPO feature does not function on 144/430 MHz.	**ATT** Press the $\boxed{B}$ key to engage the receiver front-end attenuator, which will reduce all signals and noise by approximately 10 dB. The ATT feature does not function on 144/430 MHz.	**NAR** Press the $\boxed{C}$ key to activate the "Narrow" filter mode in the CW (optional **YF-122C** or **YF-122CN** required) mode. On the FM mode, it also selects the low-deviation mode required for HF FM operation on 29 MHz. Press and hold in the $\boxed{C}$ key for 1/2 second to recall Menu #38 (to Enable/Disable the optional filter during installation).

	ⒶA key	ⒷB key	ⒸC key
8	**NB** Press the ⒶA key to activate the receiver's IF Noise Blanker.	**AGC** Press the ⒷB key to select the recovery time (**Fᴀsᴛ**, **Sʟᴏᴡ**, **Aᴜᴛᴏ**, or **Oғғ**) for the receiver's AGC system.	**–** No function
9	**PWR** Press the ⒶA key to select the transmitter power output level (**Low 1**, **Low 2**, **Low 3**, or **Hɪɢʜ**).	**MTR** Press the ⒷB key to select the display function of the meter in the transmit mode (Power, ALC, SWR, or MOD indication).	**–** No function
10	**VOX** Press the ⒶA key to enable the VOX (voice-operated transmitter switching system) in the SSB, AM, and FM modes. Press and hold in the ⒶA key for 1/2 second to recall Menu #51 (for setting the VOX Gain level).	**BK** Press the ⒷB key to activate CW "Semi" Break-in operation. Press and hold in the ⒷB key for 1/2 second to recall Menu #17 (for setting the CW Delay time). At a setting of 10 ms, operation emulates full QSK performance.	**KYR** Press the ⒸC key to activate the built-in Electronic Keyer. Press and hold in the ⒸC key for 1/2 second to recall Menu #21 (for setting the Keyer speed).
11	**CHG** Press the ⒶA key to initiate Battery Charging. Press and hold in the ⒶA key for 1/2 second to recall Menu #11 (for selecting the Charging period).	**VLT** Press the ⒷB key to display the current battery voltage.	**DSP** Press the ⒸC key to switch the display between the *Large* Character and *Small* Character modes.
12	**TCH** Press the ⒶA key to initiate Tone Search.	**DCH** Press the ⒷB key to initiate DCS Search.	**–** No function

* The Operating Function number in this column does not appear on the LCD.

Display Icons

VFOa   LSB
  7.000.00 R

S
DW ▪▪ ▪▪ T SQ DCS ⏱ L ▮▮ 🔋

- **Operating Mode**
- **Rear Panel Antenna** Selected (page 58)
- **LOCK Feature** Active (page 10)
- [FST] **Button** (**MH-31ᴀ8ᴊ**) Active
- **Low Battery!**
- **Split Frequency Operation** Active (page 40)
- **Low TX Power Selected** (page 26)
- **Automatic Power-Off** Active (page 25)
- **Digital Coded Squelch** Active (page 34)
- **CTCSS Decoder** Active (page 32)
- **CTCSS Encoder** Active (page 32)
- **Repeater Shift Direction** (page 31)
- **Dual Watch** Active (page 54)

S: S-Meter※   **SW:** SWR Meter
PO: TX Power Meter   **MO:** Deviation Meter
AL: ACL Meter

※: This operation does not function in the FM Broadcast frequencies.