









## Controls & Connections

Icon	Description of operation
	Lights when a function key is pressed (Secondary Keypad Active)
	AMS(Automatic Mode Select) Feature Active
<b>LOW</b>	TX Power Level Indicator (LOW/MID TX Power Selected) <b>TX POWER</b> <b>ICON</b> <b>TX Power Meter during</b> HIGH (5 W) :      (disappear) <b>1 1 1 1 5 1 1 1 9</b> MID (2 W) : <b>LOW</b> <b>1 1 1 1 5</b> LOW (0.5 W) : <b>LOW</b> <b>1 1 1</b>
<b>DW</b>	Dual Watch Active
	APO (Automatic Power-Off) Active
	Bell Ringer Active
	Locking the key and knobs
<b>R</b>	GM Feature Communication range indicator  :Stations within your communication range  :Stations outside of your communication range (blnk)
<b>DN</b>	V/D mode (simultaneous voice and data communication mode)
<b>VW</b>	Voice FR mode (Voice full-rate mode)
<b>FM</b>	Analog FM mode
<b>AM</b>	AM mode (Receive only)
	DTMF Autodialer Active

## Preparation

### Installing the Antenna

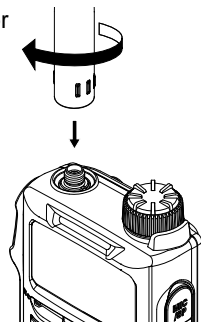
1. Align the bottom side of the antenna with the antenna connector on the transceiver.

**Caution** Be sure to hold the thick base of the antenna when installing it.

2. Turn the antenna clockwise until it is secured.

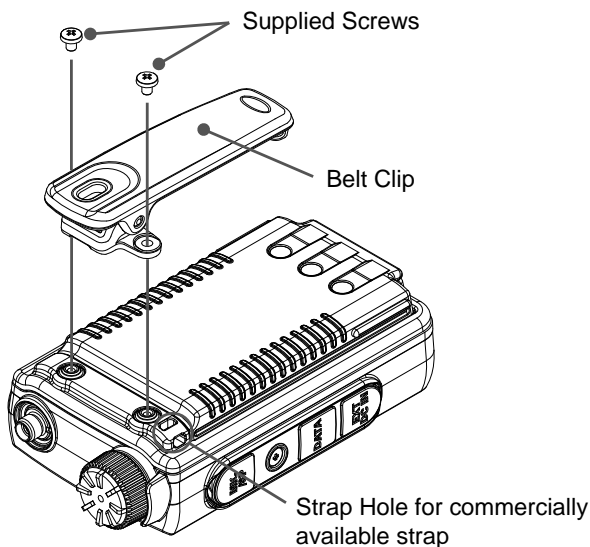


- Do not hold or twist the upper part of the antenna when installing or removing it. To do so may break the conductors inside the antenna.
- Do not key the transmit without installing the antenna. The transmitter components may be damaged.
- When using an antenna other than the one supplied, or connecting to an external antenna, ensure that the SWR is adjusted to 1.5 or lower.



### Attaching the Belt Clip

1. Attach the belt clip on the back of transceiver using the supplied screws (two).

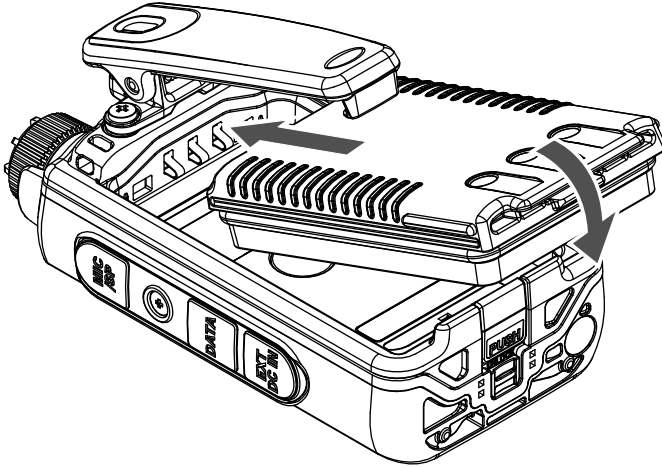


Use a hand strap which can withstand the weight of the transceiver. If you use a hand strap which is not strong enough, the hand strap can break and the transceiver may fall down, causing injury, breakage and other troubles.

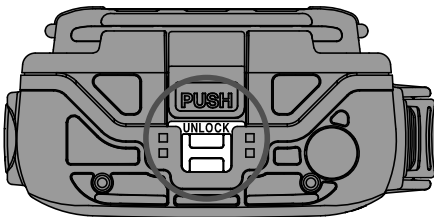
## Preparation

### Installing the Battery Pack

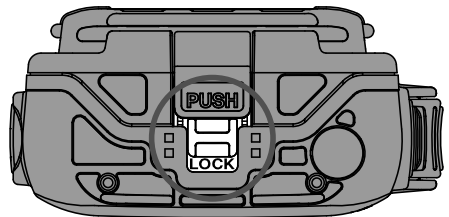
1. Insert the battery pack into the battery compartment on the back of the radio while tilting the Belt Clip outward.
2. Push the battery pack in until the battery latch clicks securely.



3. Slide the battery pack lock plate to the “UNLOCK” position beside the battery latch until the entire “LOCK” appears.



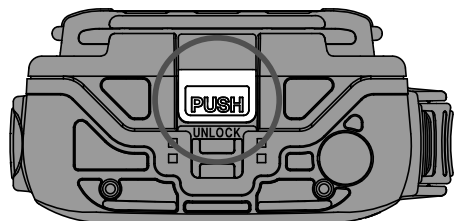
**Unlock**



**Lock**

### Removing the Battery Pack

1. To remove the battery pack, turn the radio off and remove any protective cases. Slide the battery pack lock plate to the “UNLOCK” position.
2. Push the release button (PUSH) while tilting the Belt Clip outward.
3. Slide the battery downward and out from the radio while tilting the Belt Clip out of the way.



## Charging the Battery Pack

If the battery has never been used, or its charge is depleted, it may be charged by connecting the SAD-11 or SAD-18B Battery Charger, as shown in the illustration, to the EXT DC jack. It takes about 6 hours to charge the SBR-24LI battery pack fully. The optional Rapid Charger Cradle (SBH-28) requires about 2.5 hours to charge the SBR-24LI battery pack.

### Charging the Battery Pack using the Battery Charger

1. Install the battery pack to the transceiver.
2. Turn the transceiver off.
3. Insert the plug of the battery charger (SAD-11 or SAD-18B) into the EXT DC IN jack of the transceiver.

Charging starts.

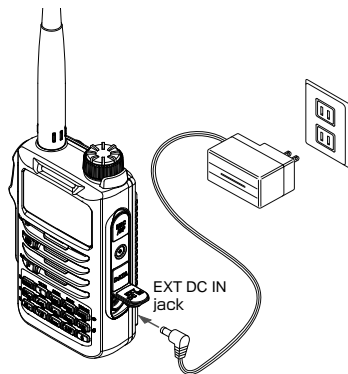
While the battery is being charged, the Mode/Status Indicator lights red, and the display indicates "CHGING".

The charge level is indicated by bar graph.

It takes about 6 hours to charge the battery pack fully.

When charging is completed, the display will change to indicate "CHGFUL" and the lamp will glow green.

4. When charging is complete, remove the plug of the battery charger from the jack of the transceiver.



- The supplied SAD-11 or SAD-18B battery charger is not adequate to operate the transmit and receive while charging the battery pack.
- Charging may cause noise in a nearby TV or radio.
- Charge the battery pack with the battery charger as far away as possible from a TV or radio.
- If "CHGERR" appears on the LCD and the battery pack is not charged after a lapse of 11 or more hours, stop charging the battery pack immediately.
- If the same message appears again, the battery pack is presumed to be at the end of its service life, or defective. In this case, replace the battery pack with a new one.
- While charging the battery pack, protect the transceiver from water.
- Charge the battery pack in a place where the ambient temperature is +5 °C to +35 °C (+41 °F to +95 °F).
- If the terminal or electrode of the battery case is dirty, this transceiver can malfunction due to poor contact, resulting in overheating or rupture. If the terminal or electrode gets dirty, clean it using a dry cloth or cotton swab.

## Charging the Battery Pack

### Charging the Battery Pack using the Rapid Charger

1. Insert the plug of the battery charger (SAD-11 or SAD-18B) into the DC IN jack of the rapid charger (SBH-28).
2. Install the battery pack to the transceiver.



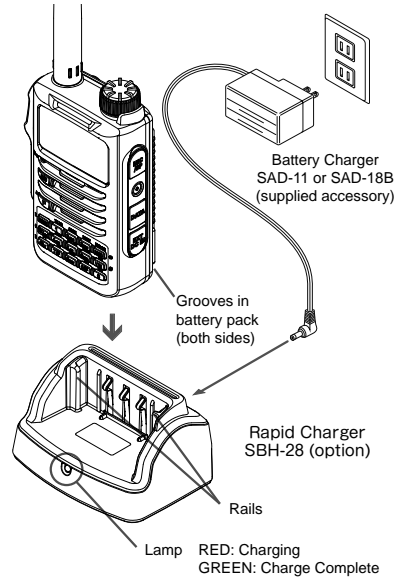
You can charge the battery pack alone (not attached to the transceiver), by inserting it into the rapid charger.

3. Turn the transceiver off.
4. Place the transceiver in the rapid charger.

Charging starts.

While the battery is being charged, the lamp glow red. It takes about 2.5 hours to charge the battery pack fully.

When charging is completed, the lamp will glow green.



- The battery pack is rechargeable about 300 times. However, improper use such as overcharge or over-discharge can shorten its service life.
- The battery pack is a consumable item. Recharging the battery pack repeatedly will gradually reduce the charge capacity and duration of its use.
- If the transceiver is not used for a long period of time with the battery pack installed, deterioration of the battery pack can accelerate.
- If the transceiver is unused for a long period of time, be sure to store it with the battery pack removed.
- When the transceiver and battery are stored for an extended period, install the battery pack biannually and recharge the battery pack about 50% to prevent it from over-discharging.
- Storing the battery pack in a high-temperature environment can accelerate deterioration. Store the battery pack in a place where the ambient temperature is  $-20\text{ }^{\circ}\text{C}$  to  $+50\text{ }^{\circ}\text{C}$  ( $-4\text{ }^{\circ}\text{F}$  to  $+122\text{ }^{\circ}\text{F}$ ).
- Be careful not to drop or strongly impact the battery pack. It can break.

### Approximate Operating Time

Approximate operating time for the transceiver with the fully charged battery pack.

Band in Use		Battery Pack (SBR-24LI)
144 MHz band	Digital Mode	Approx. 10 hours
	Analog Mode	Approx. 9 hours
430 MHz band	Digital Mode	Approx. 8 hours
	Analog Mode	Approx. 7 hours

Transmission 6 seconds (5 W): Reception 6 seconds (VOL Level 16): Stand By 48 seconds (RX SAVE 1:5)

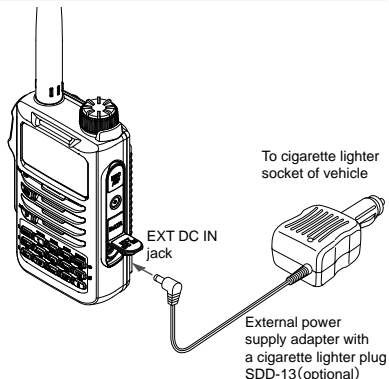
The operation time that this transceiver can be actually used varies depending on use conditions, ambient temperature, etc.

## Charging the Battery Pack

### Connecting an External Power Supply for Use in Vehicle

The optional external power supply adapter with a cigarette lighter plug (SDD-13) allows the transceiver to be used in a vehicle.

1. Turn off the transceiver.
2. Insert the plug of the external powersupply adapter with a cigarette lighter plug (SDD-13) in the EXT DC IN jack of the transceiver.
3. Insert the cigarette lighter plug of theexternal power supply adapter in the cigarette lighter socket of the vehicle.



- The SBR-24LI battery pack can be charged in approximately 6 hours using the external power supply. If the transceiver is turned on while the battery pack is charging, the charging time will increase slightly.
- Charging stops automatically when the battery pack has been fully charged.
- If the transceiver is connected to the external power supply with the transceiver turned off, "EXT DC" appears on the LCD and the display disappears after about 1 minute.



- The SDD-13 is compatible with a 12 V DC cigarette lighter socket. Do not connect the SDD-13 to a 24 V DC cigarette lighter socket.
- Use the transceiver at the minimum required transmit power level to prevent overheating.
- Do not continue transmitting for a prolonged period of time. The transceiver may overheat, resulting in malfunction or burns.
- Recharging the fully-charged battery pack repeatedly can shorten its service life. Be extremely careful not to continually recharge the battery when operating the transceiver using an external power supply.
- While charging the battery pack, protect the transceiver from water.
- Charge the battery pack in a place where the ambient temperature is +5 °C to +35 °C (+41 °F to +95 °F).
- If the terminal or electrode of the battery pack is dirty, the transceiver can malfunction due to poor contact, resulting in overheating or rupture. If the terminal or electrode gets dirty, clean it using a dry cloth or cotton swab.

## Charging the Battery Pack

### Connecting to an External Power Supply Using a Power Cable

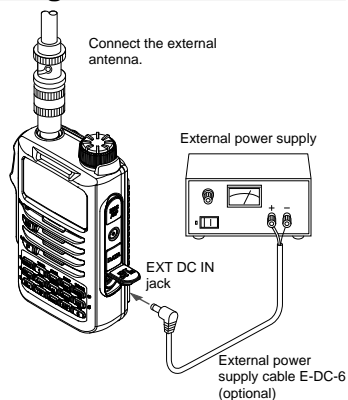
The optional power cable (E-DC-6) allows the transceiver to be connected to an external power supply.

1. Turn off the transceiver.
2. Connect the optional external power supply cable (E-DC-6) to an external power supply.



- Connect the red/black wire or white/red wire to the positive (+) terminal of the external power supply and the black wire to the negative (-) terminal.
- Set the voltage of the external power supply at 12 to 14 V.

3. Insert the plug of the external power supply into the EXT DC IN jack of the transceiver.



- The SBR-24LI battery pack can be charged in approximately 6 hours using the external power supply. If the transceiver is turned on while the battery pack is charging, the charging time will increase slightly.
- Charging stops automatically when the battery pack has been fully charged.
- If the transceiver is connected to the external power supply with the transceiver turned off, "EXT DC" appears on the LCD and the display disappears after about 1 minute.



- When using the transceiver with the external power supply cable (E-DC-6) connected to an external power supply, pay attention to the following:
  - The power supply voltage must be between 12 V and 14 V.  
If the voltage exceeds 16 V, malfunctions and damage to the electric circuits of the transceiver may result. Take extra care.
  - Connect the red/black wire or white/black wire of the external power supply cable (E-DC-6) to the positive (+) terminal of the external power supply and the black wire to the negative (-) terminal.
  - Use an external power supply having sufficient current capacity (3 A or more).
  - If the transceiver is used with the supplied antenna connected, the transmit RF may interfere with the external power supply, resulting in malfunction or failure. When using an external power supply, remove the supplied antenna and connect an external antenna. Place the external power supply sufficiently away from the transceiver to avoid RF interference.
- Use the transceiver at the minimum required transmission power level to prevent overheating.
- Do not continue transmitting for a prolonged period. The transceiver may overheat, resulting in malfunction or a burn injury.
- Recharging the fully-charged battery pack repeatedly can shorten its service life. Be extremely careful not to continually recharge the battery when operating the transceiver using an external power supply.
- While charging the battery pack, protect the transceiver from water.
- Charge the battery pack in a place where the ambient temperature is +5 °C to +35 °C (+41 °F to +95 °F).
- If the terminals or electrodes of the battery pack are dirty, the transceiver may malfunction due to poor contact, resulting in overheating or rupture. If the terminals or electrodes get dirty, clean them using a dry cloth or cotton swab.

## Basic Operation

### Turning on the Transceiver

1. Press and hold **[POWER]** switch.

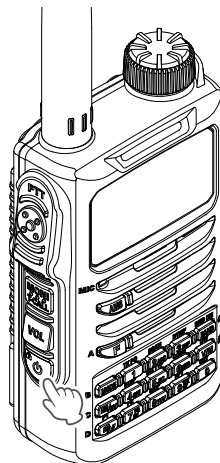
When the transceiver is turned on for the first time after purchase, the call sign input message appears on the LCD.

The next time, the frequency screen will appear after the opening screen.

When the transceiver is turned on the second time, and subsequently, the frequency screen appears.



- Be sure to set the call sign ID using the FT-70DR/DE.
- The Call Sign ID can be changed using the set mode [76 MYCALL].



### Turning off the Transceiver

To turn the transceiver OFF, press and hold **[POWER]** switch.

### Inputting the call sign

1. Input a callsign for your transceiver.

Input the callsign with the ten key or **DIAL** knob.

#### Example 1:

Press the **[2]** key repeatedly to toggle among the four available characters associated with that key:

A → B → C → 2 → A → ...

#### Example 2:

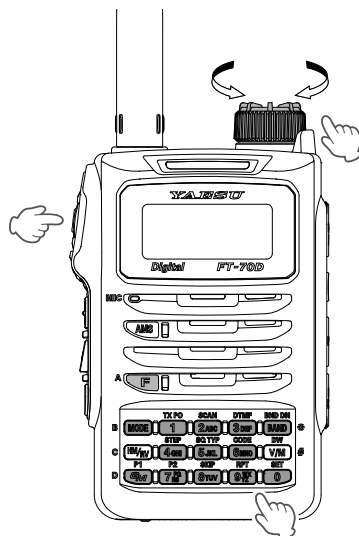
Rotate the **DIAL** knob to select any of the 38 available characters.

0~9 ↔ A~Z ↔ (space) ↔ ← ↔ / ↔ ...

2. Press **[F]** key or **[PTT]** switch to save the inputted call sign.



- Up to 10 characters (letters, numbers, a hyphen and a slash) can be entered.
- Press **[MODE]** key / **[BAND]** key to move the cursor to left / right in the text input area.
- Press and hold **[GM]** key to delete all characters after the cursor.





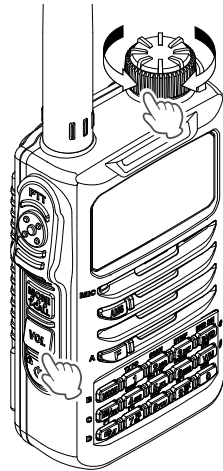
## Basic Operation

### Adjusting the Volume Level

1. Rotate the DIAL knob while pressing and holding the key to set the desired audio level. Clockwise rotation increases the volume level.

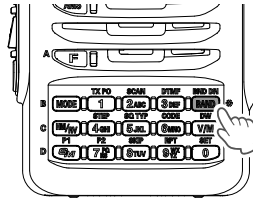


- If no sound is heard from the speaker, press and then adjust the volume level while listening to white noise.
- Press **[F]** key, then press the **[MONI]** (**T-CALL**) Key to adjust the squelch level.

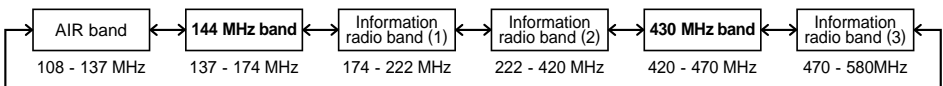


### Selecting a Frequency Band

1. Press the **[BAND]** key to select the desired frequency band.



#### Frequency bands



- Press **[F]** key, then press the **[BAND]** key to switch the frequency bands in reverse order.
- To recall the HOME channel of each frequency band touch **[HM/RV]** key.

### Tuning to a Frequency

Tune in to your desired frequency using either of the following methods:

#### ● Rotate the DIAL to tune to the desired frequency

1. Press the **[V/M]** key to switch the transceiver to VFO mode.
2. Rotate the **[DIAL]** knob to tune to the desired frequency.

Rotate clockwise: The frequency increases.

Rotate counterclockwise: The frequency decreases.

By pressing **[F]** key and rotating the **[DIAL]** knob, the frequency will change in 1 MHz steps Entering.

## Basic Operation



- In factory settings, Auto Step mode is set so that the transceiver is automatically switched to the optimal frequency steps for the receiver frequency.
- In factory settings, turning the **[DIAL]** knob beyond the selected frequency band causes the transceiver to switch to the next frequency band.  
 To change the tuning so the frequency will move repeatedly through the selected band, enter the Set mode, then select [74 VFO.MOD] and select "BAND".

### ● Entering the frequency directly using the numeric keys

1. Press the **[V/M]** key to switch the transceiver to VFO mode.
2. Enter the desired frequency using numeric keys.

#### Examples:

To enter 145.520 MHz, press **[1]** → **[4]** → **[5]** → **[5]** → **[2]**

To enter 430.000 MHz, press **[4]** → **[3]** → **[V/M]** (or press and hold **[0]**)



- If a wrong digit is entered when entering a frequency using the numeric keys, it may be canceled by pressing **[PTT]** switch.

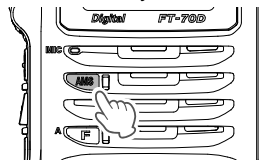
## Selecting the Communication Mode

### Using AMS (Automatic Mode Select)

The FT-70DR/DE transceiver is equipped with the AMS (Automatic Mode Select) function which automatically selects from two modes of transmission corresponding to the signal being received.

The transmit mode is selected according to the received signal so that C4FM digital signals, and analog signals are received and transmitted automatically.

1. Press **[AMS]** key to display "**AMS**" icon on the LCD.

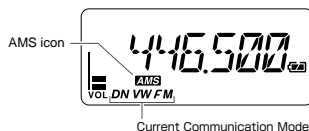


Displays the communication mode (radio wave type).

DN : V/D Mode (Voice/Data simultaneous transmission mode)

VW : Voice FR Mode (Voice Full Rate Mode)

FM : Analog FM Mode



### ● Setting the transmission mode when using the AMS function

1. Press the **[AMS]** key to active the AMS function.
2. Press and hold **[AMS]** key.
3. Rotate the **[DIAL]** knob to tune to the desired communication mode as follows.