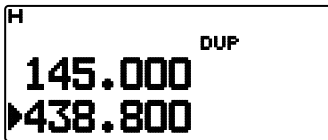


## OTHER OPERATIONS

### FULL DUPLEX

This transceiver is also capable of simultaneously transmitting and receiving signals. So, it is possible to transmit audio on the current band while receiving packet data on another band (data band).

- 1 Set the operation band to Band B.
- 2 Press [F], [DUP] to enter Full Duplex mode.
  - “DUP” appears.



To exit Full Duplex mode, press [F], [DUP] again.

#### Note:

- ◆ When the operating band is Band A, you cannot change to Full Duplex mode.
- ◆ When in single band mode, and Band A/B is set to VHF/VHF or UHF/UHF, you cannot change to Full Duplex mode.
- ◆ When using the Full Duplex function, connect an earphone to the SP jack. Using an earphone will prevent feedback that can cause the transceiver to emit a howling sound.

**ATTENTION:** Use only after verifying that there is no reception disruption during communications.

### POWER ON MESSAGE

Each time you switch the transceiver on, “HELLO” (default) appears on the display for approximately 2 seconds. You can program your favorite message in place of the default message.

- 1 Enter Menu mode and access Menu 100.



- 2 Enter your desired message.
  - Press [A/B] to clear the entire message, if necessary.

### DISPLAY ILLUMINATION

You can manually change the display illumination to suit the lighting conditions where you are operating.

#### ■ Illumination Timer

Set the duration that the display illumination remains on.

- 1 Enter Menu mode and access Menu 101.



- 2 Select a time (in sec) from the available list: 2 ~ 10.

#### ■ Lamp Control

The display illumination will light either when any key is pressed or only when the [LAMP] key is pressed, depending on the setting.

- 1 Enter Menu mode and access Menu 102.



- 2 Set the Lamp Control Type to “Manual” or “Auto”.

**Manual:** The backlight turns on when the [LAMP] key is pressed.

**Auto:** The backlight turns on when operating any key or when turning the Tuning control.

The backlight will turn off according to the Illumination Timer setting, or when the [LAMP] key is pressed.

#### ■ Display Contrast

The display visibility changes depending on the ambient conditions, for example between daytime and night. When you find the display is not clear, use this function to select the optimum display contrast.

- 1 Enter Menu mode and access Menu 103.



- 2 Set your desired contrast level from 1 to 8.

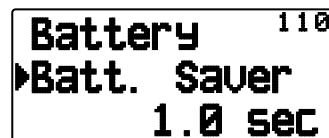
**Note:** The display contrast may be affected by a change in temperature. Adjust the contrast as necessary.

### BATTERY SAVER

The Battery Saver extends the operating time of the transceiver. It automatically activates when the squelch is closed and no key is pressed for more than 10 seconds. To reduce battery consumption, this function shuts the receiver circuit OFF for the programmed time, then momentarily turn it back ON to detect a signal.

To program the receiver shut-off period for the battery saver:

- 1 Enter Menu mode and access Menu 110.



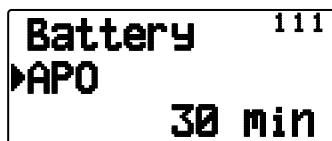
- 2 Set the receiver shut-off period time to 0.03, 0.2, 0.4, 0.6, 0.8, 1.0, 2.0, 3.0, 4.0, 5.0 seconds, or “Off”.

**Note:** To prevent Packet miss-decoding while using APRS, set the Battery Saver to “Off” or “0.03”.

## AUTO POWER OFF (APO)

Automatic Power off is a background function that monitors whether or not any operations have been performed (keys pressed, **Tuning** control turned, etc.), and turns the transceiver power off if it has not been in use.

- 1 Enter Menu mode and access Menu 111.



- 2 Set the APO time limit to 15, 30, 60 minutes, or "Off".
  - After the time limit passes with no operations (default is "Off"), APO turns the transceiver power off. However, 1 minute before the power turns off, "APO" appears on the display and blinks, and a warning tone sounds.



### Note:

- ◆ If any settings are changed during while APO is ON, the timer resets. When you stop changing the settings, the timer begins counting again from 0.
- ◆ When the APRS beacon is automatically transmitted (other than Manual/PTT), the APO timer will not be extended.

## BATTERY TYPE

Depending on the type of batteries you are using in the transceiver, adjust the battery type to match. The battery indicator can only accurately read out the remaining battery power if this value is set correctly.

- 1 Enter Menu mode and access Menu 112.



- 2 Set the Battery Type to "Lithium" or "Alkaline".

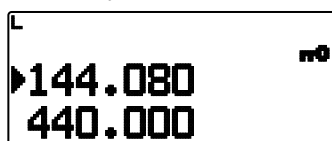
## KEY LOCK

The Key Lock function ensures that your transceiver settings will remain unchanged if you accidentally press a key. When activated, the following functions can still be used:

[**⏏**]/ [PTT]/ [LAMP]/ [SQL]/ [F] (1s)/ [F] + [LAMP]

To turn Key Lock On or Off, press [F] (1s).

- When Key Lock is activated, the "LK" icon will appear on the display.



## Key Lock Type

Select a Lock type.

- 1 Enter Menu mode and access Menu 180.



- 2 Set the Key Lock type to "Key Lock", "F.Lock", or "Key & F.Lock".

**Key Lock:** Locks all the front panel keys. (Press [F] (1s) to unlock the keys.)

**F.Lock:** Locks the frequency or the memory channel. (The [MHz], [ENT], [MR], [BAND], Scan, [PF] (Group Up and WX) keys/functions cannot be used.)

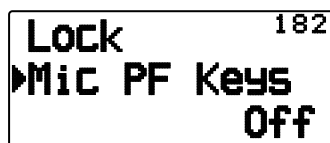
**Key & F.Lock:** Locks all the front panel keys along with the Tuning control. (Press [F](1s) to unlock the keys.)

- The [LAMP], [MONI], [PTT], [**⏏**], and VOL control knob cannot be locked.

## Microphone Key Lock

The Microphone Key Lock function will lock the microphone PF (Programmable Function) keys.

- 1 Enter Menu mode and access Menu 182.



- 2 Set the Microphone Key Lock function "On" or "Off".

## VOLUME BALANCE (BAND A/B)

You can regulate the volume balance between the A band (upper indicator) and the B band (lower indicator).

- 1 Enter Menu mode and access Menu 120.



- 2 Adjust the volume balance.

---

## KEY BEEP

---

You can turn the transceiver beep function “Off”, “RADIO & GPS”, “RADIO Only” or “GPS Only as desired.

- 1 Enter Menu mode and access Menu 121.



Audio 121  
▶Key Beep  
RADIO & GPS

- 2 Set the beep function to “Off”, “RADIO & GPS”, “RADIO Only” or “GPS Only”.
  - Even with the beep function turned off, the transceiver will emit a beep tone under the following conditions:
    - 1) When Auto Power off is activated, the transceiver will beep 1 minute before the power turns off.
    - 2) After transmitting for the maximum time duration according to the Time-out Timer, the transceiver will beep.

---

**Note:** The APRS-related beeps comply with the settings of the APRS menu, rather than from this setting.

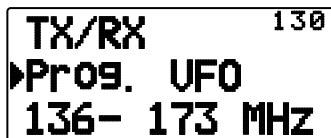
---

## PROGRAMMABLE VFO

---

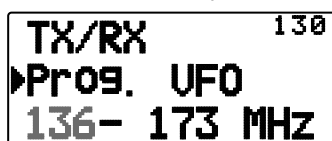
If you always check frequencies within a certain range, you can set upper and lower limits for frequencies that are selectable. For example, if you select 144 MHz for the lower limit and 145 MHz for the upper limit, the tunable range will be from 144.000 MHz to 145.995 MHz.

- 1 Select your desired VFO frequency.
- 2 Enter Menu mode and access Menu 130.



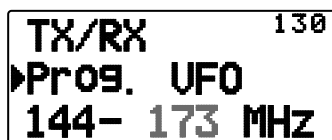
TX/RX 130  
▶Prog. UFO  
136- 173 MHz

- 3 Press [▶OK].
  - The lower frequency limit blinks.



TX/RX 130  
▶Prog. UFO  
136- 173 MHz

- 4 Press [▲]/[▼] or rotate the **Tuning** control to select your desired lower frequency limit, then press [▶OK] to set the selected value.
  - The upper frequency limit blinks.



TX/RX 130  
▶Prog. UFO  
144- 173 MHz

- 5 Press [▲]/[▼] or rotate the **Tuning** control to select your desired upper frequency limit, then press [▶OK] to set the selected value.
- 6 Press [ESC ◀] to exit Menu mode.

---

**Note:** You cannot program the 100 kHz and subsequent digits. The exact 100 kHz and subsequent digits of the upper limit depend on the frequency step size you are using.

---

---

## CHANGING THE FREQUENCY STEP SIZE

---

Choosing the correct frequency step size is essential in selecting your exact frequency. The default step size on the 144 MHz band is 5 kHz (TH-D72A) or 12.5 kHz (TH-D72E). The default on the 430/440 MHz band is 25 kHz.

Each band can have a separate selectable step frequency.

- 1 Press [A/B] to select band A or B, then press [VFO].
- 2 Press [F], [ENT].



F-#  
STEP  
5.0 kHz

- 3 Set the step size to 5.0, 6.25, 8.33, 10.0, 12.5, 15.0, 20.0, 25.0, 30.0, 50.0, or 100.0 kHz.

---

**Note:**

- ◆ Each band can have a separate selectable step frequency.
  - ◆ Changing between step sizes may correct the displayed frequency. For example, if 144.995 MHz is displayed with a 5 kHz step size selected, changing to a 12.5 kHz step size corrects the displayed frequency to 144.9875 MHz.
- 

---

## PROGRAMMABLE FUNCTION KEYS

---

### ■ Transceiver PF Key

This is [PF] (Programmable Function) key on the transceiver front panel. You can assign your own desired functions to this key.

- 1 Enter Menu mode and access Menu 190.



Auxiliary 190  
▶PF Key  
GPS

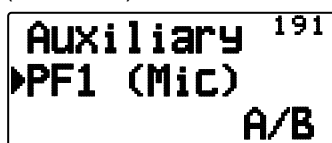
- 2 Set your desired function for the key. Programmable functions available are:

WX (Weather Channel)/ GROUP UP (Memory group up)/ MR.Name ⇄FREQ (Memory name ⇄ Frequency)/ VOX/ MR GRP NAME (Memory group name)/ BAL (Balance)/ GPS/ LOG/ SQL/ SHIFT/ DUP (Full duplex)/ BAND/ STEP/ LOW/ LOCK M>V (Memory to VFO Copy)/ M.IN/ C.IN/ T.SEL/ NEW/ VA/ DX/ WXI

## Microphone Keys

There are 3 microphone PF (Programmable Function) keys: [PF1], [PF2], and [PF3]. You can assign your own desired functions to these 3 keys.

- 1 Enter Menu mode and access Menu 191 (MIC. PF1) and/or Menu 192 (MIC. PF2) and/or Menu 193 (MIC. PF3).



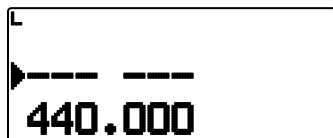
- 2 Set your desired function for the key. Programmable functions available are:

WX (Weather Channel)/ GROUP UP/ MR.Name <> /FREQ/ VOX/ MR GRP (Memory group up)/ NAME/ BAL/ GPS/ LOG/ SQL/ SHIFT (Shift)/ DUP/ BAND/ STEP/ LOW/ LOCK/ M>V/ M.IN/ C.IN/ T.SEL/ NEW/ VA/ DX/ WXI/ A/B (Band Select A/ Band Select B)/ MENU (Menu mode)/ MARK/ TNC/ POS /MSG/ LIST/ BCON/ VFO/ REV (Reverse)/ TONE/ MR/ MHz/ DUAL (Dual Mode)/ ENT/ CALL/ LAMP/ MONI (Monitor)

## FREQUENCY DIRECT ENTRY

If the desired operating frequency is far from the current frequency, using the keypad is the quickest way to change the frequency.

- 1 Press [A/B] to select band A or B, then press [VFO] or [CALL].
- 2 Press [ENT].
  - The Direct Frequency Entry display appears.



- 3 Press the keys ([0] ~ [9]) to enter your desired frequency.
- 4 To set the entered frequency, press [ENT] or [VFO].
  - Pressing [ENT] before entering all of the digits will set the remaining digits to 0.
  - Pressing [VFO] before entering all of the digits will leave the remaining digits at their previous values.
  - Entering all digits for a frequency will automatically set the frequency without pressing [ENT] or [VFO].
  - In step 3, after entering 1 ~ 3 digits, pressing [MHz] will set the digits above the MHz value.

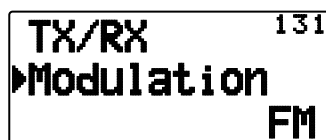
For example, when the displayed frequency is 432.250:

- 1 Press [ENT] ⇒ -----
- 2 Press [4] ⇒ 4-----
- 3 Press [MHz] ⇒ 4 3 4.---

## SWITCHING FM/AM MODE

This transceiver is also capable of receiving (not transmitting) in AM on band B. The default mode on the 118 MHz band is AM while the default on the 144, 300, or 430/440 MHz band is FM.

- 1 Enter Menu mode and access Menu 131.



- 2 Set the mode to AM, FM, or NFM.

**Note:** You cannot switch between FM and AM to receive on band A.

## ADVANCED INTERCEPT POINT (AIP)

The VHF/UHF band is often crowded in urban areas. AIP helps eliminate interference and reduce audio distortion caused by inter modulation. You can use this function only while operating on the VHF/UHF band.

- 1 Enter Menu mode and access Menu 132 (VHF AIP) and/or Menu 133 (UHF AIP).



- 2 Set the AIP to "On" or "Off".

## BEAT SHIFT

Since the transceiver uses a microprocessor to control various transceiver functions, the CPU clock oscillator's harmonics or image may appear on some spots of the reception frequencies. Select a Beat Shift setting from Type 1 ~ Type 8, which does not cause interference. The default is Type 1 (Off).

- 1 Enter Menu mode and access Menu 138.



- 2 Set the Beat Shift to "Type 1" ~ "Type 8".

## TX INHIBIT

You can inhibit the transmission to prevent unauthorized individuals from transmitting, or to eliminate accidental transmissions while carrying the transceiver.

- 1 Enter Menu mode and access Menu 139.



- 2 Set the TX inhibit to "On" or "Off".

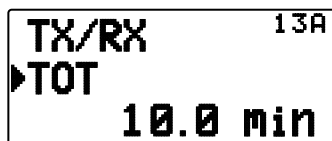
- "TX Inhibit" appears and an error beep sounds if the transceiver tries to transmit while TX Inhibit is ON.



## TIME-OUT TIMER

The Time-out Timer limits the duration you transmit. Just before the transceiver stops the transmitting, a warning beep sounds. This function is necessary to protect the transceiver from thermal damage and can therefore not be turned OFF.

- 1 Enter Menu mode and access Menu 13A.



- 2 Set the desired time to 0.5/ 1.0/ 1.5/ 2.0/ 2.5/ 3.0/ 3.5/ 4.0/ 4.5/ 5.0/ 10.0 (default) minutes.

## SELECTING AN OUTPUT POWER

It is a good idea to select lower transmit power if communications is still reliable. This lowers the risk of interfering with others on the band. When operating from battery power, you will enjoy more operating time before a recharge is necessary.

Press [F], [MENU] to select high (H), low (L), or economic low (EL) power.

- You can program different power settings for bands A and B.

**Note:** When the transceiver overheats because of ambient high temperature or continuous transmission, the protective circuit may function to lower transmit output power.

## VOX (VOICE-OPERATED TRANSMISSION)

VOX eliminates the necessity of manually switching to Transmit mode each time you want to transmit.

The transceiver automatically switches to Transmit mode when the VOX circuitry senses that you have begun speaking into the microphone.

When you operate the VOX function, you must use an optional Headset; the internal speaker and microphone are too close to each other to be used for the VOX function.

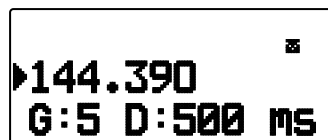
To turn the VOX function ON:

- 1 Enter Menu mode and access Menu 134.



- 2 Set it to "On".

- When VOX is activated, the "☒" icon, gain level, and delay time will appear on the display.



### Note:

- ◆ While in Menu mode, the VOX function is temporarily disabled.
- ◆ Since the VOX circuit must detect the presence of your voice, you may notice a slight delay in transmission; the very first part of your message may not be transmitted.
- ◆ When the VOX function is ON, the ASC function turns OFF.
- ◆ VOX cannot be used with an optional Speaker/ Microphone.

## VOX Gain

To enjoy the VOX function, take the time to properly adjust the VOX Gain level. This level controls the VOX circuit to detect the presence or absence of your voice.

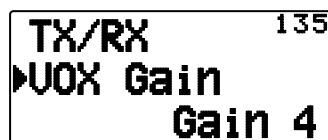
There are 2 ways to adjust the VOX Gain.

### While the VOX function is ON:

- 1 Speak into the headset microphone using your normal tone of voice to transmit.
  - If the transmission does not begin, you must readjust the VOX Gain so that transceiver transmits while you are speaking. To readjust the gain, press and hold [PTT] then press [▲]/[▼] to select a more sensitive gain level.
  - While readjusting the gain, you can release [PTT]. The transceiver will remain in Adjustment Mode for approximately 5 seconds.
- 2 Adjust the VOX Gain by pressing [▲]/[▼] until the transceiver reliably switches to transmission mode each time you speak while the transceiver is transmitting.

### From the Menu:

- 1 Enter Menu mode and access Menu 135.



- 2 Select the desired VOX gain level.

## ■ VOX Delay Time

If the transceiver returns to reception mode too quickly after you stop speaking, the end of your transmission may not be sent. To avoid this, select an appropriate delay time that allows your entire transmission to be sent, before Transmit mode ends. However, do not make the delay overly long.

- 1 Enter Menu mode and access Menu 136.



TX/RX 136  
▶VOX Delay  
500 ms

- 2 Set the desired delay time to 250, 500 (default), 750, 1000, 1500, 2000, or 3000 ms.

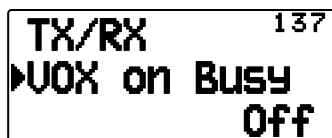
### Note:

- ◆ If you press [PTT] while the VOX function is ON, the VOX Delay Time is not reflected to the transmission.
- ◆ If you press [CALL] (if 1750 Hz is programmed) to transmit a 1750 Hz tone, the VOX Delay Time is not reflected.
- ◆ If the DCS function is ON, the transceiver remains in Transmit mode for the duration set by the VOX Delay Time. It then sends a Turn-Off Code to close the receiving party's squelch.

## ■ VOX on Busy

You can configure the transceiver to force VOX transmission even if the transceiver is receiving a signal.

- 1 Enter Menu mode and access Menu 137.



TX/RX 137  
▶VOX on Busy  
Off

- 2 Set it to "On" or "Off".

**Note:** You can press [PTT] or [CALL] (if 1750 Hz is programmed) to transmit, regardless of the setting in Menu No. 137.

## MASKING BANDS

If you have no plans to use a certain frequency band, you can hide the frequency display on the unused band. This allows for easier reading of the frequency band.

- 1 Turn the transceiver power off.
- 2 Press [A/B] + Power ON.
  - The band mask display appears.



B Band Mask  
▶Band 118 MHz  
Use

- 3 Press [▲]/[▼] or rotate the **Tuning** control to select the band you want to hide (or return to normal).
- 4 Press [▶OK] to set the selected band.
- 5 Press [▲]/[▼] or rotate the **Tuning** control to set the band to select "Use" or "Mask".
  - "Use" allows you to see and use the band as normal.
  - "Mask" hides the band on the display.



B Band Mask  
▶Band 118 MHz  
Mask

- 6 Press [▶OK] control to set the selection.
- 7 Press the [ESC ◀] to exit.

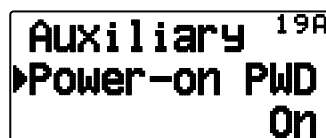
### Note:

- ◆ You cannot operate the masked band nor use it to receive or transmit.
- ◆ You cannot mask all frequency bands.

## POWER ON PASSWORD

If power on password is activated, you cannot operate the transceiver without first entering your password, after turning the transceiver power on. Your password can be changed using the MCP-4A software, and can contain up to 6 digits.

- 1 Enter Menu mode and access Menu 19A.



Auxiliary 19A  
▶Power-on PWD  
On

- 2 Set the power on password to "On" or "Off".
  - When set to "On", "PASSWORD" appears on the display.



PASSWORD  
-----

- 3 Enter your password.



PASSWORD  
\*\*-----

- 4 After entering up to 6 digits, press [▶OK] to set the password.

**Note:** Even with Menu 19A turned on, the power on password function will not be activated unless you first program a password using the MCP-4A software.