

Introduction

The **VX-150** is an ultra compact FM hand-held providing up to five watts of RF power and a wealth of new features for the 2m amateur band. The **VX-150** accepts the same battery packs, and has rubber gasket seals around all external controls and connectors keep out dust and rain or spray, assuring years of reliable operation even in harsh environments.

Sixteen multi-function keys provide the ultimate in programmability of 199 freely tunable memories and two VFOs. All memories store repeater shifts or separate tx/rx frequencies, CTCSS (Continuous Tone Controlled Squelch System) tone frequencies and tone encode/decode selections with one instant-recall call channel memory and two special purpose memories for limited subband tuning/scanning. Busy channel band or selective memory scanning is provided along with priority channel monitoring; 1 MHz up/down stepping; ARS (automatic repeater shift) when tuned to repeater subbands, plus a top panel rotary dial for memory and frequency selection. The keypad serves as a DTMF encoder during transmission, and up to 9 DTMF memories can store 16 digits each for quick playback of commonly used numbers.

The liquid crystal display shows seven frequency digits, memory selection, CTCSS tone frequency while setting*, page-received status when paged by a CTCSS tone, and includes a bargraph S/PO meter. Yaesu's power saver system can be set by the operator for optimum sampling/standby ratio, or can be turned off for packet operation. And our new APO (Automatic Power Off) system shuts off the transceiver to avoid dead batteries if you doze off or are called away unexpectedly.

Operation under difficult conditions is simplified by a lamp button illuminating the display and backlit translucent keypad, diatonically assigned function-dependent keypad beeps.

Please read this manual carefully to gain a clear understanding of the features of the **VX-150**.

*: Paging features require optional FVP-25.

Controls & Connectors

TOP PANEL

① ANTENNA Jack

This SMC jack accepts the supplied YHA-?? rubber flex antenna, or any other antenna designed to provide 50-ohm impedance on the 2m band.

② VOL/OFF Control

This control adjusts the volume of the receiver. Turn this control to the fully counterclockwise position (into the click stop) to turn the transceiver OFF.

③ DIAL Rotary Selector

This 20-position detented rotary switch tunes the operating (or CTCSS tone) frequency or selects the memory channels, according to which function is selected by the keys on the front panel. This knob duplicates some of the functions of the up and down arrow keys for operating convenience.

④ SQL Control

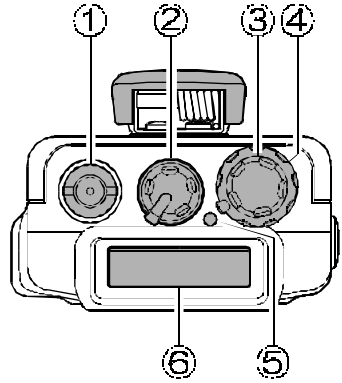
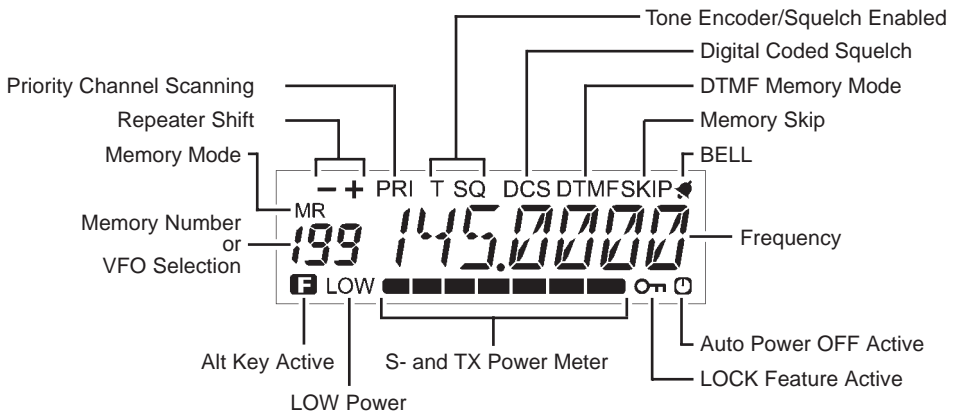
This control sets the threshold level at which received signals (or noise) open the noise squelch. Set this control from counterclockwise just to the point where noise is silenced (and the BUSY/TX indicator on the front panel is off) when the channel is clear.

⑤ BUSY/TX Indicator Lamp

This LED indicator glows green when the noise squelch is open during reception, and red when transmitting.

⑥ LCD (Liquid Crystal Display)

The display shows the selected operating conditions as indicated in the following diagram:



Controls & Connectors

SIDE PANELS

① **PTT** Button

Press and hold this (Push-to-Talk) button to transmit. The BUSY/TX indicator glows red while transmitting.

② **Monitor** (Burst) Button

In the USA version, this button opens the squelch momentarily without disturbing the setting of the SQL control. In the European version, this button activates the 1750 Hz Burst tone generator.

③ **LAMP** Button

Press this button to illuminate the display and keypad when necessary.

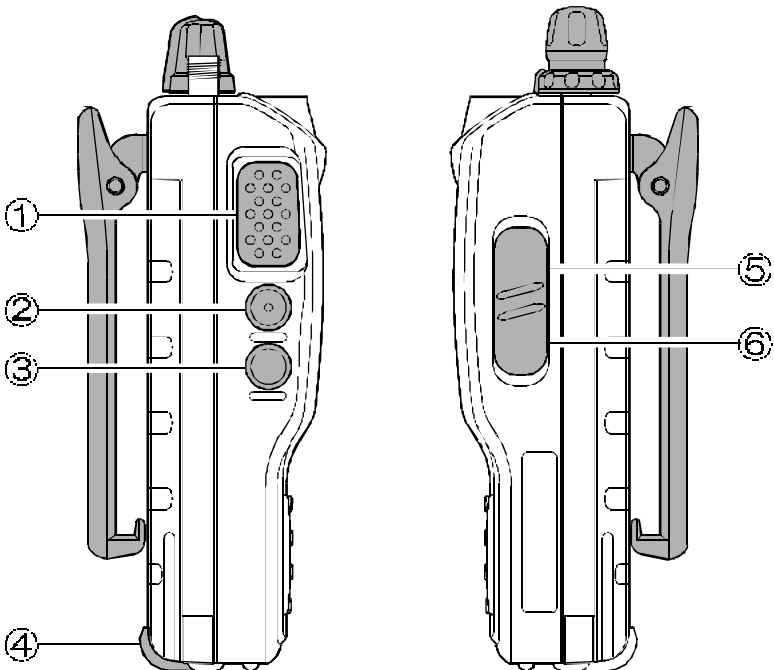
⑤ **MIC/EAR** Jack

This four-conductor miniature jack provides connection points for microphone audio, earphone audio, PTT, and ground.

⑥ **EXT DC**

This coaxial DC jack allows connection to an external DC power source (6.0-16V DC).

The center pin of this jack is the Positive (+) line.



Controls & Connectors

FRONT PANELS

① Speaker

The internal speaker is located directly below the display.

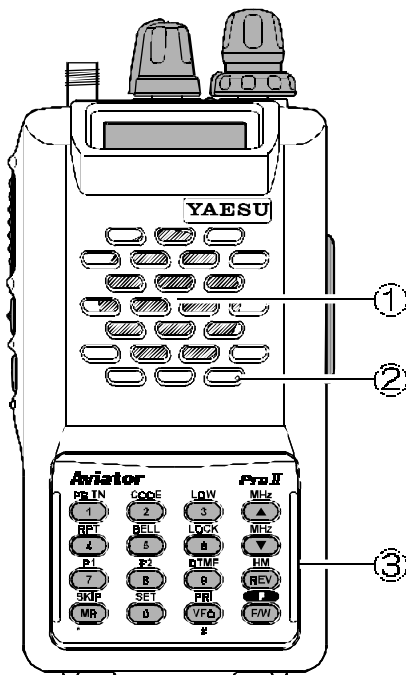
② Mic

The internal microphone is located at the bottom right-hand corner of the speaker.

③ Keypad

These sixteen keys select the various operating features of the transceiver during reception, and generate DTMF (Dual Tone Multi Frequency) tone pairs during transmission. One or two beeps will sound whenever one of the keys is pressed (if the beeper is active). The labels on the faces of the keys indicate their primary functions, while the labels above fifteen of the keys indicate alternate functions, which are activated by pressing the [F/W] key first, and then another key within five seconds. When referring to alternate key functions in this manual, we show the alternate key label followed by the primary label in parentheses (). Primary key functions are referred to by the labels on the keyfaces.

Remember to press the [F/W] key first (momentarily, unless otherwise indicated) when you want to use an alternate key function. All key functions are described in the “Operation” section, and summarized on the “VX-150 Operator’s Quick Reference Card.”



Accessories & Options

ACCESSORIES SUPPLIED WITH THE VX-150

FNB-V57	7.2 V, 1100 mAh Ni-Cd Battery Pack
FC-72A/B/C/F/U	Battery Chareger
Belt Clip	
Hand Strap	
Antenna	
Operating Manual	
Warranty Card	

AVAILABLE OPTIONS FOR YOUR VX-150

FNB-V57	7.2 V, 1100 mAh Ni-Cd Battery Pack
FNB-62	7.2 V, 700 mAh Ni-Cd Battery Pack
FBA-25	Compact Dry Cell Battery Case for 6 AA-size cells
NC-72A	117 VAC Compact Wall Charger for FNB-14
NC-72B	220-234 VAC Compact Wall Charger for FNB-14
NC-72C	117 VAC Compact Wall Charger for FNB
NC-72U	220-234 VAC Compact Wall Charger for FNB
NC-73	Desktop Quick Charger
MH-34_{B4B}	External Hand Speaker/Microphone
MH-37_{A4B}	Earpiece/Microphone
VC-25	VOX Headset
E-DC-5B	DC Cable w/Noise Filter
E-DC-6	DC Cable; plug and wire only
CSC-73	Soft Case
CN-3	BNC-to-SMA Adapter
CT-44	Microphone Adapter
YHA-??	Rubber flex antenna

Availability of accessories may vary: some accessories are supplied as standard per local regulations and requirements, others may be unavailable in some regions. Check with your Yaesu dealer for additions to the above list.

Installation & Accessories

ANTENNA INSTALLATION

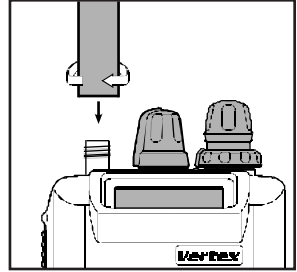
The supplied antenna provides good results over the entire frequency range of the transceiver. However, for enhanced base station medium-wave and shortwave reception, you may wish to connect an external (outside) antenna.

To install the supplied antenna

Hold the bottom end of the antenna, then screw it onto the mating connector on the transceiver until it is snug. Do not over-tighten by use of extreme force.

Notes:

- Never transmit without having an antenna connected.
- When installing the supplied antenna, never hold the upper part of the antenna while screwing it onto the mating connector on the transceiver.
- If using an external antenna for transmission, ensure that the SWR presented to the transceiver is 1.5:1 or lower.



BATTERY PACKS AND CASES

The following rechargeable Ni-Cd battery packs are recommended for use with the **VX-150**:

FNB-V57	7.2V 1100 mAh
FNB-62	7.2V 700 mAh

The following battery cases are also available for operating the **VX-150** with non-rechargeable dry cell batteries (not supplied):

FBA-25	Battery Cases for 6 'AA' (UM-3) batteries
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The Ni-Cd packs above may be recharged either while attached to the transceiver or separately, using the battery chargers described on the following pages. Each Ni-Cd pack should be fully charged before it is used with the transceiver for the first time. Note that most of these packs require different wall chargers: **NC-72A/B/C/U** for **FNB-V57**. Make certain that you use the correct charger for each pack. The **NC-73** Desktop Quick charger may be used with all of these Ni-Cd packs.

BATTERY PACK INSTALLATION AND REMOVAL

To install the battery, hold the transceiver with your left hand, so your palm is over the speaker and your thumb is on the top of the belt clip. Insert the battery pack into the battery compartment on the back of the radio while tilting the Belt Clip outward, then close the Battery Pack Latch until it locks in place with a "Click."

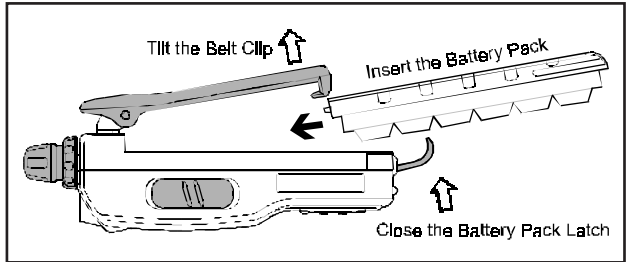
Installation & Accessories

To remove the battery, turn the radio off and remove any protective cases. Open the Battery Pack latch on the bottom of the radio, then slide the battery downward and out from the radio while unfolding the Belt Clip.

Do not attempt to open any of the rechargeable Ni-Cd packs, as they could explode if accidentally short-circuited.

If the battery has never been used, or its charge is depleted, it may be charged by connecting the **NC-72A/B/C/F/U** Battery Charger, as shown in the illustration, to the **EXT DC** jack. If only 12 ~ 16 Volt DC power is available, the optional **E-DC-5B** or **E-DC-6** DC Adapter (with its cigarette lighter plug) may

also be used for charging the battery, as shown in the illustration.



INSTALLATION OF FBA-25 (Option) ALKALINE BATTERY CASE

The optional **FBA-25** Battery Case allows receive monitoring using six “AA” size Alkaline batteries. Alkaline batteries can also be used for transmission in an emergency, but power output will only be **300** mW, and battery life will be shortened dramatically.

To Install Alkaline Batteries into the **FBA-25**

- Slide the batteries into the **FBA-25** as shown in the illustration, with the Negative [-] side of the batteries touching the spring connections inside the **FBA-25**.
- Unlock the bottom plate by pushing the latch in the “Open” direction.
- Install the **FBA-25** as shown in the illustration, with the [+] side facing the bottom of the transceiver.
- Re-lock the bottom plate by carefully pressing the latch cover back into its normal operating position.

The **FBA-25** does not provide connections for charging, since Alkaline cells cannot be recharged. Therefore, the **NC-72A/B/C/F/U**, **E-DC-5B**, or **E-DC-6** may safely be connected to the EXT DC jack when the **FBA-25** is installed.

Notes:

- The **FBA-25** is designed for use only with AA-type Alkaline cells.
- If you do not use the **VX-150** for a long time, remove the Alkaline batteries from the **FBA-25**, as battery leakage could cause damage to the **FBA-25** and/or the transceiver.

Operation

PRELIMINARY OPERATING INFORMATION

Before operating the transceiver for the first time, charge the battery pack completely (if using Ni-Cd batteries) as described on pages **6** and **7**. If using the **FBA-25** battery case, install the batteries as described on page **7**.

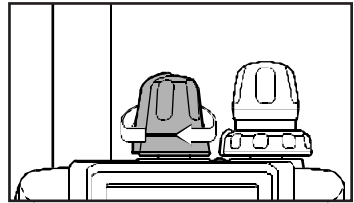
Connect the **YHA-??** rubber flex antenna to the antenna jack on the top of the transceiver. Never operate the transceiver without an antenna connected.

Before proceeding, please read the Controls and Connectors chapter if you have not already, to familiarize yourself with the controls. Note especially item **??** on page **??**, which describes the terminology used in this chapter when referring to the keys.

Except for certain special cases mentioned later, the keypad functions as a DTMF (**D**ual **T**one **M**ulti **F**requency) tone generator during transmission.

SWITCHING POWER ON AND OFF

- ① Be sure the battery pack is installed.
- ② Connect the antenna to the top panel **ANTENNA** jack.
- ③ Switch on the transceiver by rotating the **VOL** control clockwise out of the click-stop (a momentary beep will sound).



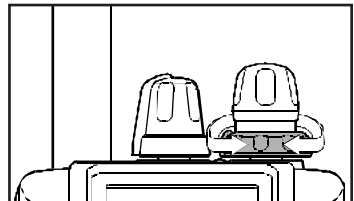
*If you don't hear the two "Beep" tones when the radio comes on, the Beeper may have been disabled via the Menu system. See page **??**, which tells you how to reactivate the Beeper.*

ADJUSTING THE VOLUME LEVEL

Rotate the **VOL** control (immediately to the right of the Antenna) to set the desired audio level. Clockwise rotation increases the volume level.

SQUELCH SETUP

Set the **SQL** control fully counterclockwise, rotate the **VOL** control out of the click-stop and adjust for a comfortable volume on the noise or received signal. The **BUSY/TX** indicator LED should glow green. If a signal is present, rotate the **DIAL** selector on the top panel to a channel where only noise is heard.



Adjust the **SQL** control just to the point where the noise is silenced and the LED is extinguished. If the **SQL** control is set further clockwise, sensitivity to weak signals will be reduced. Now, whenever a signal reaches the receiver that is strong enough to open the squelch, the indicator will glow green.

Note that while receiving, one or more bargraph segments may appear along the bottom of the display, indicating signal strength on the receiving frequency. This indication is not affected by the squelch setting, so even squelched signals may have some indication. If you notice more than one or two bargraph segments appearing while the squelch is still closed, try reducing the squelch control setting (if you want to hear weak signals).

The Monitor switch on the USA versions (just above the PTT switch) allows you to check for channel activity beneath the squelch level and to adjust the volume without having to adjust the squelch: just press the Monitor switch and the squelch will open.

FREQUENCY NAVIGATION

Press the [**VFO(PRI)**] button, if necessary, to select the VFO mode. The **VX-150** has two vfos, labelled “**A**” and “**B**” either of which can be used for all of the procedures described in this manual. You can change vfos with the [**VFO(PRI)**] button at any time.

You have several ways to tune the **VX-150**: in selectable channel steps or 1 MHz steps with the [**▲**] / [**▼**] keys or **DIAL** knob, and direct keypad frequency entry.

Use the **DIAL** knob to tune the displayed VFO frequency at the current channel step rate. You can also press the [**▲**] / [**▼**] keys momentarily to do this, but if you press an [**▲**] or [**▼**] key for more than 1/2-second scanning will start. This is described later, so for now, just press an [**▲**] / [**▼**] key again to stop (if you have to).

To change the MHz range of the VFO, you can press the [**F/W**] key followed by an [**▲**] or [**▼**] key (or turn the **DIAL** knob). Note the beeps when using the [**▲**] / [**▼**] keys: when moving up, and when moving down. When done press [**F/W**] again, or just wait five seconds.

You can also enter a frequency directly just by keying in the 1 MHz and the kHz digits. If you are using 5 or 10 kHz steps enter five digits. Otherwise just four digits will do. Partial entries can be cancelled with the [**VFO(PRI)**] key.

Examples:

To enter 146.5200 MHz, press     

To enter 146.5000 MHz, press    

Operation

TRANSMITTING

When you wish to transmit, wait until the channel is clear (**BUSY/TX** lamp off), and squeeze the **PTT** switch. During transmission the **BUSY/TX** lamp glows red, and relative transmitter power output is indicated graphically along the bottom of the display. Release the **PTT** switch to receive.

If using a version B (in Europe), press the **T-CALL** switch (above the **PTT** switch) to transmit a 1750 Hz tone to access repeaters that require it.

CHANGING THE CHANNEL STEPS

Tuning steps are factory preset to 20 kHz. To change a frequency step, follow the procedure below:

- ① Press the **[F/W]** key, then immediately press the **[0(SET)]** key to enter the Set mode.
- ② Rotate the **DIAL** to select Menu Item #7 (“STEP”).
- ③ Press the **[F/W]** key to enable modification of the current setting.
- ④ Now rotate the **DIAL** knob to select 5, 10, 12.5, 15, 20, 25 or 50 kHz steps.
- ⑤ Press the **PTT** key to save the new setting and exit to normal operation.

KEYPAD/LCD ILLUMINATION

Your **VX-150** includes a reddish illumination lamp which aids in nighttime operation. The red illumination yields clear viewing of the display in a dark environment, with minimal degradation of your night vision. Three options for activating the lamp are provided:

KEY Mode: Pressing any key causes the lamp to provide illumination for 5 seconds, after which the lamp will automatically shut off.

5SEC Mode: Pressing the **LAMP** switch momentarily causes the lamp to provide illumination for 5 seconds, after which the lamp will automatically shut off.

TOGGLE Mode: Pressing the **LAMP** switch momentarily “Toggles” the lamp on and off. The lamp will stay illuminated until you press the **LAMP** switch once more.

Here is the procedure for setting up the Lamp mode:

- ① You first need to enter the “**Set**” (menu) mode. Press the [**F/W**] key, then immediately press the [**0(SET)**] key (just below the [**F/W**] key) to activate the Set mode.
- ② Now rotate the **DIAL** to select Menu Item #21 (“**LMP MODE**”).
- ③ Press the [**F/W**] key to enable modification of the current setting.
- ④ Next, rotate the **DIAL** to select one of the three modes described above.
- ⑤ When you have made your choice, press the **PTT** key to save the new setting for Menu Item #21. The transceiver will now return to normal operation.

*The 5SEC mode provides the greatest battery conservation, as it allows activation of the lamp only when you press the **LAMP** switch.*

*If you press and hold in the **LAMP** key for one second, the lamp will remain illuminated until you press the **LAMP** switch once more (no time limit).*

Advanced Operation

REPEATER OPERATION

The ARS (Automatic Repeater Shift) feature in the **VX-150** provides repeater shift of the transmit frequency whenever you are tuned to a standard repeater subband (see diagram below). When enabled, a small “-” or “+” displayed above the upper left-hand corner of the display that repeater shift is active, and closing the push-to-talk switch changes the display to the (shifted) transmit frequency.

Automatic Repeater Shift (ARS)

The **VX-150** provides a convenient Automatic Repeater Shift feature, which causes the appropriate repeater shift to be automatically applied whenever you tune into the designated repeater sub-bands in your country. These sub-bands are shown below.

If the ARS feature does not appear to be working, you may have accidentally disabled it. To re-enable ARS:

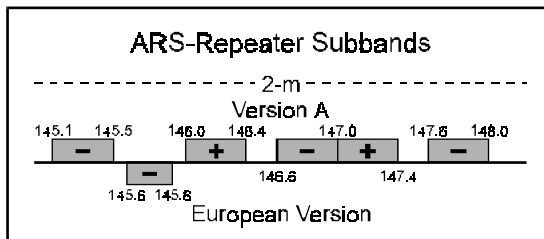
- ① Press the **[F/W]** key, then immediately press the **[0(SET)]** key to enter the Set mode.
- ② Rotate the **DIAL** to select Menu Item #2 (“**ARS**”).
- ③ Press the **[F/W]** key to enable modification of the current setting.
- ④ Now rotate the **DIAL** to select “ON” (to enable Automatic Repeater Shift).
- ⑤ Press the **PTT** key to save the new setting and exit to normal operation.

Manual Repeater Shift Activation

If the ARS feature has been disabled, or if you need to set a repeater shift other than that established by the ARS, you may set the direction of the repeater shift manually.

To do this, press the **[F/W]** key, then press the **[4(RPT)]** key. This provides a “Shortcut” to Menu #3 (“**RPT**”). Rotate the **DIAL**, and you will see that the “-” or “+” icon appears at the upper of the LCD (when no icon is present, “Simplex” operation - transmit and receive on the same frequency - has been selected, and the LCD will indicate “**SIMP**” in this case).

When the desired shift direction has been selected, press the **PTT** key momentarily to save your new setting and exit.



Changing the Default Repeater Shifts

If you travel to a different country, you may need to change the default repeater shift so as to ensure compatibility with local operating requirements.

To do this, follow the procedure below:

- ① Press the **[F/W]** key, then immediately press the **[0(SET)]** key to enter the Set mode.
- ② Rotate the **DIAL** to select Menu Item #3 (“**RPT**”).
- ③ Press the **[F/W]** key to enable modification of the current setting.
- ④ Now rotate the **DIAL** knob to select the new repeater shift magnitude.
- ⑤ Press the **PTT** key momentarily to save the new setting and exit.

Checking the Repeater Uplink (Input) Frequency

It often is helpful to be able to check the uplink (input) frequency of a repeater, to see if the calling station is within direct (“Simplex”) range.

To do this, just press the **[REV(HM)]** key momentarily. If Menu Item #20 (“**REV/HM**”) has been set to “**HM**” you may press the **[F/W]** key, and then **[REV(HM)]** key. To return to the normal uplink/downlink frequency relationship, repeat this step.

Advanced Operation

CTCSS OPERATION

Many repeater systems require that a very-low-frequency audio tone be superimposed on your FM carrier in order to activate the repeater. This helps prevent false activation of the repeater by radar or spurious signals from other transmitters. This tone system, called “CTCSS” (Continuous Tone Coded Squelch System), is included in your **VX-150**, and is very easy to activate.

CTCSS setup involves two actions: setting the Tone Frequency and then setting of the Tone Mode. These actions are set up by using the [1(SQ TYP)] and [2(CODE)] keys, or Menu Items #25 and #26.

- ① Press the **[F/W]** key, then immediately press the **[1(SQ TYP)]** key. This provides a “Short-cut” to Menu #25 (“**SQL TYP**”).
- ② Rotate the **DIAL** so that “**T**” appears on the display; this activates the CTCSS Encoder, which allows repeater access.
- ③ You may notice an additional “**DCS**” icon appearing while you rotate the **DIAL** in this step. We’ll discuss the Digital Code Squelch system shortly.
- ④ Rotation of the **DIAL** in step ② above will occasionally cause “**SQ**” to appear adjacent to the “**T**” icon. When “**TONE SQL**” appears, this means that the Tone Squelch system is active, which mutes your **VX-150**’s receiver until it receives a call from another radio sending out a matching CTCSS tone. This can help keep your radio quiet until a specific call is received, which may be helpful while operating in congested areas.
- ⑤ When you have made your selection of the CTCSS tone mode, press the **PTT**.
- ⑥ Press the **[F/W]** key, then immediately press the **[2(CODE)]** key. This provides a “Short-cut” to Menu #26 (“**TN SET**”).
- ⑦ This Menu selection allows setting of the CTCSS tone frequency to be used.
- ⑧ Rotate the **DIAL** until the display indicates the Tone Frequency you need to be using (ask the repeater owner/operator if you don’t know the tone frequency).
- ⑨ Press the **[F/W]** key to save the new settings and exit to normal operation.

CTCSS TONE FREQUENCY (Hz)							
67.0	69.3	71.9	74.4	77.0	79.7	82.5	85.4
88.5	91.5	94.8	97.4	100.0	103.5	107.2	110.9
114.8	118.8	123.0	127.3	131.8	136.5	141.3	146.2
151.4	156.7	162.2	167.9	173.8	179.9	186.2	192.8
203.5	210.7	218.1	225.7	233.6	241.8	250.3	-

DCS OPERATION

Another form of tone access control is Digital Code Squelch, or DCS. It is a newer, more advanced tone system which generally provides more immunity from false paging than does CTCSS. The DCS Encoder/Decoder is built into your **VX-150**, and operation is very similar to that just described for CTCSS. Your repeater system may be configured for DCS; if not, it is frequently quite useful in Simplex operation if your friend(s) use transceivers equipped with this advanced feature.

Just as in CTCSS operation, DCS requires that you set the Tone Mode to DCS and that you select a tone code.

- ① Press the **[F/W]** key, then immediately press the **[1(SQ TYP)]** key. This provides a “Short-cut” to Menu #25 (“**SQL TYP**”).
- ② Rotate the **DIAL** until “**DCS**” appears on the display; this activates the DCS Encoder/Decoder.
- ③ When you have made your selection of the DCS mode, press the **PTT**.
- ④ Press the **[F/W]** key, then immediately press the **[2(CODE)]** key. This provides a “Short-cut” to Menu #26 (“**TN SET**”).
- ⑤ Rotate the **DIAL** to select the desired DCS Code (a three-digit number). Ask the repeater owner/operator if you don’t know DCS Code; if you are working simplex, just set up the DCS Code to be the same as that used by your friend(s).
- ⑥ When you have made your selection, press the **[F/W]** key to save the new settings and exit to normal operation.

Remember that the DCS is an Encode/Decode system, so your receiver will remain muted until a matching DCS code is received on an incoming transmission. Switch the DCS off when you’re just tuning around the band!

DCS CODE																			
023	025	026	031	032	036	043	047	051	053	054	065	071	072	073	074	114	115	116	
122	125	131	132	134	143	145	152	155	156	162	165	172	174	205	212	223	225	226	
243	244	245	246	251	252	255	261	263	265	266	271	274	306	311	315	325	331	332	
343	346	351	356	364	365	371	411	412	413	423	431	432	445	446	452	454	455	462	
464	465	466	503	506	516	523	526	532	546	565	606	612	624	627	631	632	654	662	
664	703	712	723	731	732	734	743	754											

Advanced Operation

TONE SEARCH SCANNING

In operating situations where you don't know the CTCSS or DCS tone being used by another station or stations, you can command the radio to listen to the incoming signal and scan in search of the tone being used. Two things must be remembered in this regard:

- You must be sure that your repeater uses the same tone type (CTCSS vs. DCS).
- Some repeaters do not pass the CTCSS tone; you may have to listen to the station(s) transmitting on the repeater *uplink* (input) frequency in order to allow Tone Search Scanning to work.

To scan for the tone in use:

- ① Set the radio up for either CTCSS or DCS Decoder operation (see the previous discussion). In the case of CTCSS, “**T SQ**” will appear on the display; in the case of DCS, “**DCS**” will appear on the display.
- ② Press the **[F/W]** key, then immediately press the **[2(CODE)]** key to select the “**TN SET**” Menu item (when TONE SQL is selected) or “**DCS SET**” (during DCS operation).
- ③ Press and hold in the **[▲]** or **[▼]** key to start scanning for the incoming CTCSS or DCS tone/code.
- ④ When the radio detects the correct tone or code, it will halt on that tone/code, and audio will be allowed to pass. Press the **[F/W]** key to lock in that tone/code, and exit to normal operation.

If the Tone Scan feature does not detect a tone or code, it will continue to scan indefinitely. When this happens, it may be that the other station is not sending any tone. You can press the PTT switch to halt the scan at any time.

*You also can press the **MONI** key during Tone Scanning to listen to the (muted) signal from the other station. When you release the **MONI** key, Tone Scanning will resume after about a second.*

Tone Scanning works either in the VFO or Memory modes.

CTCSS/DCS BELL OPERATION

During CTCSS Decode or DCS operation, you may set the **VX-150** up such that a ringing “Bell” sound alerts you to the fact that a call is coming in. Here is the procedure for activating the Bell will ring in accordance with this programming.

- ① Set the transceiver up for CTCSS Decode (“TONE SQL” or DCS operation, as described previously).
- ② Adjust the operating frequency to the desired channel.
- ③ Press the **[F/W]** key, then press the **[0(SET)]** key to activate the Set mode.
- ④ Rotate the **DIAL** to select Menu Item #18 (“**BELL**”).
- ⑤ Press the **[F/W]** key to enable adjustment of the Bell ringer.
- ⑥ Rotate the **DIAL** to set the desired number of rings of the Bell. The available choices are 1, 3, 5, or 8 rings, REPEAT (continuous ringing), or OFF.
- ⑦ Press the **PTT** key momentarily to save the new setting and exit to normal operation.

When a station calls you whose transceiver is sending a CTCSS tone or DCS code which matches that set into your Decoder, the Bell will ring in accordance to this programming.

TONE CALLING (1750 Hz)

If the repeaters in your country require a 1750-Hz burst tone for access (typically in Europe), you can set the **MONI** key to serve as a “**TONE CALL**” switch instead. To change the configuration of this switch, we again use the Menu to help us.

- ① Press the **[F/W]** key, then press the **[0(SET)]** key to enter the Set mode.
- ② Rotate the **DIAL** to select Menu Item #19 (“**MON/TCL**”).
- ③ Press the **[F/W]** key to enable adjustment of this Menu item.
- ④ Rotate the **DIAL** to select “**T.CALL**” on the display.
- ⑤ Press the **PTT** key to save the new setting and exit.
- ⑥ To access a repeater, press and hold in the **MONI** key for the amount of time specified by the repeater owner/operator. The transmitter will automatically be activated, and a 1750-Hz audio tone will be superimposed on the carrier. Once access to the repeater has been gained, you may release the **MONI** key, and use the **PTT** key for activating the transmitter.

Advanced Operation

CHANGING THE TRANSMITTER POWER LEVEL

You can select between a total of three transmitter power levels on your **VX-150**. The exact power output will vary somewhat, depending on the voltage supplied to the transceiver. With the standard **FNB-V57** Battery Pack, the power output levels available are:

HIGH: ?? W MID: ?? W LOW: ?? W

To change the power level:

- ① Press the **[F/W]** key, then immediately press the **[3(LOW)]** key.
- ② Now rotate the **DIAL** knob to select “**LOW**”, “**MID**” or “**HIGH**”.
- ③ Press the **PTT** key to save the new setting and exit to normal operation.

TRANSMITTER TIME-OUT TIMER (TOT)

The TOT feature provides a safety switch which limits transmission to a pre-programmed value. This will promote battery conservation by not allowing you to make excessively-long transmissions, and in the event of a stuck **PTT** switch (perhaps if the radio or a Speaker/Mic is wedged between car seats) it can prevent interference to other users as well as battery depletion. As configured at the factory the TOT feature is set to OFF, and here is the procedure for activating it:

- ① Press the **[F/W]** key, then press the **[0(SET)]** key to enter the Set mode.
- ② Rotate the **DIAL** to select Menu Item #22 (“**TOT**”).
- ③ Press the **[F/W]** key to enable adjustment of this Menu item.
- ④ Rotate the **DIAL** to set the Time-Out Timer to the desired “Maximum TX” time (1 minute, 2.5 minutes, 5 minutes, or 10 minutes).
- ⑤ Once you’ve made the selection you wish to use, press the **PTT** key to save the new setting and exit to normal operation.

Since brief transmissions are the mark of a good operator, try setting up your radio’s TOT feature for a maximum transmission time of 1 minute. This will significantly improve battery life, too!

RECEIVE BATTERY SAVER SETUP

An important feature of the **VX-150** is its Receive Battery Saver, which “puts the radio to sleep” for a time interval, periodically “waking it up” to check for activity. If somebody is talking on the channel, the **VX-150** will remain in the “active” mode, then resume its “sleep” cycles. This feature significantly reduces quiescent battery drain, and you may change the amount of “sleep” time between activity checks using the Menu System:

- ① Press the **[F/W]** key, then press the **[0(SET)]** key to enter the Set mode.
- ② Rotate the **DIAL** to select Menu Item #9 (“**RX SAVE**”).
- ③ Press the **[F/W]** key to enable adjustment of this Menu item.
- ④ Rotate the **DIAL** to select the desired “Sleep” duration. The selections available are 200 ms, 300 ms, 500 ms, 1 second, and 2 seconds, or OFF. The default value is 200 ms.
- ⑤ When you have made your selection, press the **PTT** key to save the new setting and exit to normal operation.

When you are operating on Packet, switch the Receive Battery Saver OFF, as the sleep cycle may “Collide” with the beginning of an incoming Packet transmission, causing your TNC not to receive the full data burst.

When the battery saving function is working, the beginning of the companion voice breaks off and it is sometimes possible to hear it.

TX BATTERY SAVER

The **VX-150** also includes a useful Transmit Battery Saver, which will automatically lower the power output level when the last signal received was very strong. For example, when you are in the immediate vicinity of a repeater station, there generally is no reason to use the full **5?** Watts of power output in order to achieve full-quieting access to the repeater. With the Transmit Battery Saver, the automatic selection of Low Power operation conserves battery drain significantly.

To activate the Transmit Battery Saver:

- ① Press the **[F/W]** key, then press the **[0(SET)]** key to enter the Set mode.
- ② Rotate the **DIAL** to select Menu Item #10 (“**TX SAVE**”).
- ③ Press the **[F/W]** key to enable adjustment of this Menu item.
- ④ Rotate the **DIAL** so as to select ON (thus activating the Transmit Battery Saver).
- ⑤ When you have completed your selection, press the **PTT** key to save the new setting and exit to normal operation.

Advanced Operation

DISABLING THE BUSY/TX LED

Further battery conservation may be accomplished by disabling the **BUSY/TX** LED. Use the following procedure:

- ① Press the **[F/W]** key, then press the **[0(SET)]** key to enter the Set mode.
 - ② Rotate the **DIAL** to select Menu Item #12 (“**BSY LED**”).
 - ③ Press the **[F/W]** key to enable adjustment of this Menu item.
 - ④ Rotate the **DIAL** to set this Menu item to OFF (thus disabling the **BUSY/TX** LED).
 - ⑤ Press the **PTT** key to save the new setting and exit to normal operation.
-

BUSY CHANNEL LOCK-OUT (BCLO)

The BCLO feature prevents the radio’s transmitter from being activated if a signal strong enough to break through the “Noise” squelch is present. On a frequency where stations using different CTCSS or DCS codes may be active, BCLO prevents you from disrupting their communications accidentally (because your radio may be muted by its own Tone Decoder). The default setting for the BCLO is OFF, and here is how to change that setting:

- ① Press the **[F/W]** key, then press the **[0(SET)]** key to enter the Set mode.
 - ② Rotate the **DIAL** to select Menu Item #23 (“**BCLO**”).
 - ③ Press the **[F/W]** key to enable adjustment of this Menu item.
 - ④ Rotate the **DIAL** to set the BCLO feature to the “ON” position.
 - ⑤ Press the **PTT** key to save the new setting and resume normal operation.
-

AUTOMATIC POWER-OFF (APO) FEATURE

The APO feature helps conserve battery life by automatically turning the radio off after a user-defined period of time within which there has been no dial or key activity. The available selections for the time before power-off are 0.5/1/3/5/8 hours, as well as APO Off. The default condition for the APO is OFF, and here is the procedure for activating it:

- ① Press the **[F/W]** key, then press the **[0(SET)]** key to enter the Set mode.
 - ② Rotate the **DIAL** to select Menu Item #11 (“**APO**”).
 - ③ Rotate the **DIAL** to select the desired time period after which the radio will automatically shut down.
 - ④ Once you have made your selection, press the **PTT** key to save the new setting and exit to normal operation.
-

CHECKING THE BATTERY VOLTAGE

The **VX-150**’s measure the current battery voltage.

- ① Press the **[F/W]** key, then press the **[0(SET)]** key to enter the Set mode.
 - ② Rotate the **DIAL** to select Menu Item #37 (“**BATT**”).
 - ③ Press the **[F/W]** key to check the battery condition.
 - ④ To return to normal operation, press the **[F/W]** key, then press the **PTT**.
-

KEYBOARD LOCKING

In order to prevent accidental frequency change or inadvertent transmission, various aspects of the **VX-150**'s keys and switches may be locked out. The possible lockout combinations are:

- KEY:** Just the front panel keys are locked out
DIAL: Just the top panel **DIAL** is locked out
KEY + DIAL: Both the **DIAL** and Keys are locked out
PTT: The PTT switch is locked (TX not possible)
KEY + PTT: Both the keys and **PTT** switch are locked out
DIAL + PTT: Both the **DIAL** and **PTT** switch are locked out
ALL: All of the above are locked out

To lock out some or all of the keys:

- ① Press the **[F/W]** key, then press the **[0(SET)]** key to enter the Set mode.
- ② Rotate the **DIAL** to select Menu Item #32 (“**LK MODE**”).
- ③ Press the **[F/W]** key to enable setting of the Lock mode (which defines which keys/functions are to be locked out).
- ④ Rotate the **DIAL** to choose between one of the locking schemes as outlined above.
- ⑤ Once you have made your selection, press the **PTT** key momentarily to save the new setting and resume normal operation.
- ⑥ To activate the locking feature, press the **[F/W]** key, then press the **[6(LOCK)]** key. The “**??**” icon will lower on the LCD. To cancel keyboard locking, again press **[F/W]** key, followed by **[6(LOCK)]** key.

DISABLING THE KEYPAD BEEPER

If the keypad's Beeper creates an inconvenience (particularly when operating in a quiet room), it may easily be disabled.

- ① Press the **[F/W]** key, then press the **[0(SET)]** key to enter the Set mode.
- ② Rotate the **DIAL** to select Menu Item #16 (“**KEY BP**”).
- ③ Press the **[F/W]** key to enable adjustment of this Menu item.
- ④ Rotate the **DIAL** to change the setting from ON to OFF.
- ⑤ When you have made your selection, press the **PTT** key to save the new setting and exit to normal operation.
- ⑥ If you wish to re-enable the Beeper, just repeat the above procedure, rotating the **DIAL** to select ON in step ② above.

Advanced Operation

DTMF OPERATION

The **VX-150**'s 16-button keypad allows easy DTMF dialing for Autopatch or repeater control purposes. Besides numerical digits [0] through [9], the keypad includes the [*] and [#] digits, plus the [A], [B], [C], and [D] tones often used for repeater control.

Manual DTMF Tone Generation

You can generate DTMF tones during transmission manually.

- ① Press the **PTT** switch to begin transmission.
- ② While transmitting, press the desired numbers on the keypad.
- ③ When you have sent all the digits desired, release the **PTT** key.

DTMF Autodialer

Nine DTMF Autodial memories are provided, allowing you to store telephone numbers for autopatch use. You can also store short autopatch access code streams so as to avoid having to send them manually.

Here is the DTMF Autodial storage procedure:

- ① Press the [**F/W**] key, then press the [**0(SET)**] key to enter the Set mode.
- ② Rotate the **DIAL** to select Menu Item #28 ("**DTMF**").
- ③ Press the [**F/W**] key to enable adjustment of this Menu item.
- ④ Rotate the **DIAL** to select the DTMF Memory register into which you wish to store this DTMF string.
- ⑤ Press the [**F/W**] key, then press the [**F/W**] key to begin DTMF Memory entry into the selected register.
- ⑥ Rotate the **DIAL** to select the first digit of the desired label. When you have made your selection, press the [**▲**] key momentarily to move to the next digit.
- ⑦ Repeat the previous step to program the remaining letters, numbers of the desired label. A total of 16 digits may be used in the creation of a label.
- ⑧ Press the **PTT** switch to save the setting. To store other numbers, repeat this process, using a different DTMF memory register.

To send the telephone number:

- ① Press [**F/W**], then the [**9(DTMF)**] key to activate the DTMF Autodialer function.
- ② Press the **PTT** switch to begin transmission.
- ③ Press the numerical key ([1] through [9]) corresponding to the DTMF memory string you wish to send. Once the string begins, you may release the **PTT** key, as the transmitter will be held "on the air" until the DTMF string is completed.

DTMF CODE SQUELCH (REQUIRES OPTIONAL FVP-25)

The code squelch system use 3-digit numeric codes (**000 ~ 999**), transmitted as DTMF (dual, audible) tone pairs.

There are twelve code memories numbered [**1**] ~ [**9**], [**A**] and [**D**], which store 3-digit DTMF paging codes (these are independent and unrelated to the channel memories and the VFOs).

The code squelch mode is very simple: both you and the other station communicate using the same 3-digit DTMF sequence, sent automatically at the start of every transmission. Your receiver normally remains silent to all signals that are not prefixed by your selected 3-digit code. When you receive the matching tone sequence, your squelch opens and stays open until a few seconds after the end of their transmission.

In the code squelch mode, you must first store and then manually select the one Code Memory holding the 3-digit DTMF code required to open your squelch (as described on the following pages). Also, in the code squelch mode, Code Memories [**1**] ~ [**9**] always function the same.

Codes of up to nine other stations can be stored in these memories. These are stations you expect to frequently contact, and whose page calls you also want to receive. Members of a common group or club usually share a common 3-digit paging code so that they can be paged simultaneously.

Remember, with Code Squelch operation (but not with DTMF Paging), you can only receive a call on the currently selected Code Memory, and the display does not change when a call is received. So for code squelch, as mentioned before, the Code Memory distinction does not apply (although you must still store the 3-digit Code Memories).

Storing Code Memories

The first thing to do before using Code Squelch is to store 3-digit code in Code Memory:

- ① Press the [**F/W**] key, then press the [**0(SET)**] key to enter the Set mode.
- ② Rotate the **DIAL** to select Menu Item #40 (“**PG CODE**”).
- ③ Press the [**F/W**] key to enable adjustment of this Menu item.
- ④ Rotate the **DIAL** to select the Code Memories register into which you wish to store this code string.
- ⑤ Press the [**F/W**] key, then press the [**F/W**] key to begin Code Memories entry into the selected register.
- ⑥ Rotate the **DIAL** to select Key in the DTMF digits you wish to store into this register.
- ⑦ Press the **PTT** switch to save the setting. To store other numbers, repeat this process, using a different DTMF memory register.

Advanced Operation

You can use the same procedure to store the Memory Codes of other individuals or groups in Code Memories [1] ~ [9].

Although up to nine Code Memories can be stored, you might only need a few of them to call your friends or a specific group. Likewise, you'll probably only want your radio to respond to pages directed to you (or maybe your group or club's code). The following explains how to temporarily inhibit unused Code Memories.

Page Code Inhibit

During the Code Memory storage procedure above, when storing Code Memories [1] ~ [9], you have an opportunity to decide whether your transceiver should respond to incoming paging calls on a particular Memory Code.

To activate Code setting:

- ① Press the [F/W] key, then press the [0(SET)] key, to enter the Set mode.
- ② Rotate the **DIAL** to select Menu #40 ("PG CODE").
- ③ Press the [F/W] key, then rotate the **DIAL** to select the Code Memories register into which you wish to this code string.
- ④ Press the [F/W] key, rotate the **DIAL** to set the function ON.
- ⑤ When you have made your selection, press the **PTT** key to save the new setting and exit to Set mode.

DTMF Code Squelch Operation

As described earlier, with DTMF code squelch activated (CODE displayed), your squelch will not open until you receive the proper 3-digit DTMF code according to the selected code memory. Likewise, each time you press the PTT, the same 3-digit code is automatically sent to open the other station's DTMF coded squelch.

With the Code Squelch activated in this manner, you will hear three DTMF code digits transmitted when you press your **PTT** switch. These are the digits stored in the Code Memory currently selected, and they will open the squelch of the other station.

Therefore, at the start of each transmission, you must wait a second or two after pressing the **PTT** switch for the DTMF code to be sent (you will hear it in your speaker).

When you finish your conversation, if you need to reactivate DTMF Code Paging, press CODE (PAGE) until PAGE is again displayed.

PAGING TX DELAY

When calling other stations using Code Squelch, particularly through repeaters, you may find that some stations are unable to receive your calls. This can be caused by their receiver squelch not opening fast enough (after receiving your transmitted carrier) to allow all of the DTMF digits to be received and decoded. To correct this problem, you can set a longer delay (750 ms) between the time your transmitter is keyed and the time the first DTMF digit is sent.

- ① Press the **[F/W]** key, then press the **[0(SET)]** key to enter the Set mode.
- ② Rotate the **DIAL** to select Menu Item #35 (“**DT DLY**”).
- ③ Press the **[F/W]** key to enable adjustment of this Menu item.
- ④ Rotate the **DIAL** to change the setting from 450 to 750.
- ⑤ When you have made your selection, press the **PTT** key to save the new setting and exit to normal operation.

PAGING “ANSWER BACK”

When you press the **PTT** to respond to a page call, the caller’s ID code, followed by a DTMF “*****” and your personal ID code, are transmitted.

This informs the calling station that their page was received. If you prefer, you can have the **VX-150** respond to page calls automatically (transpond).

As mentioned before, the answer-back mode acknowledges a received page by “paging back” the calling station (just as if you manually selected their 3-digit code and pressed the **PTT**).

To activate Paging Answer back:

- ① Press the **[F/W]** key, then press the **[0(SET)]** key, to enter the Set mode.
- ② Rotate the **DIAL** to select Menu #41 (“**PG ASBK**”).
- ③ Press the **[F/W]** key to enable adjustment of this Menu item.
- ④ Rotate the **DIAL** to set the function ON.
- ⑤ When you have made your selection, press the **PTT** key to save the new setting and exit to normal operation.

Advanced Operation

ANI OPERATION (AUTOMATIC NUMBER IDENTIFICATION)

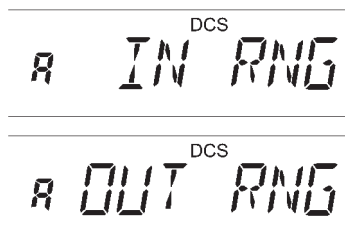
Because it isn't decided, it sends later.

ARTS (AUTOMATIC RANGE TRANSPONDER SYSTEM)

The ARTS feature uses DCS signaling to inform both parties when you and another ARTS-equipped station are within communications range. This may be particularly useful during Search-and-Rescue situations, where it is important to stay in contact with other members of your group.

Both stations must set up their DCS codes to the same code number, then activate their ARTS feature using the command appropriate for their radio. Alert ringers may be activated, if desired.

Whenever you push the **PTT**, or every 25 (or 15) seconds after ARTS is activated, your radio will transmit a signal which includes a (subaudible) DCS signal for about 1 second. If the other radio is in range, the beeper will sound (if enabled) and the display will show “**IN RNG**” as opposed to the out of range display “**OUT RNG**” in which ARTS operation begins.



Whether you talk or not, the polling every 15 or 25 seconds will continue until you deactivate ARTS. Every 10 minutes, moreover, you can have your radio transmit your callsign via CW, so as to comply with identification requirements. When ARTS is de-activated, DCS will also be deactivated (if you were not using it previously in non-ARTS operation).

If you move out of range for more than one minute (four pollings), your radio will sense that no signal has been received, three beeps will sound, and the display will revert to “**OUT RNG**.” If you move back into range, your radio will again beep, and the display will change back to the “**IN RNG**” indication.

You must terminate ARTS in order to resume normal operation. This is a safety feature designed to prevent accidental loss of contact due to channel change, etc.

Here is how to activate ARTS:

Basic ARTS Setup and Operation

- ① Set your radio and the other radio(s) to the same DCS code number, per the discussion on page ??.
- ② Press [**F/W**], then press the [**7(P1)**] key to activate the ARTS operation.
- ③ Press the [**F/W**] key. You will observe the “**OUT RNG**” display on the LCD. ARTS operation has now commenced.
- ④ Every 15 seconds, your radio will transmit a “polling” call to the other station. When that station responds with its own ARTS polling signal, the display will change to “**IN RNG**” to confirm that the other station “polling” code was received in response to yours.
- ⑤ Press the [**F/W**] key again to exit ARTS operation and resume normal functioning of the transceiver.

Advanced Operation

ARTS Polling Time Options

The ARTS feature may be programmed to poll every 15 seconds (default value) or 25 seconds. The default value provides maximum battery conservation, because the polling signal is sent out less frequently. To change the polling interval:

- ① Press the **[F/W]** key, then press the **[0(SET)]** key, to enter the Set mode.
- ② Rotate the **DIAL** to select Menu #15 (“**AR ITVL**”).
- ③ Press the **[F/W]** key to enable changing of this Menu item.
- ④ Rotate the **DIAL** to select the desired polling interval (15 or 25 seconds).
- ⑤ When you have made your selection, press the **PTT** key to save the new setting and exit to normal operation.

ARTS Alert Beep Options

The ARTS feature allows two kinds of alert beeps (with the additional option of turning them off), so as to alert you to the current status of ARTS operation. Depending on your location and the potential annoyance associated with frequent beeps, you may choose the Beep mode which best suits your needs. The choices are:

IN RANGE: The beeps are issued only when the radio first confirms that you are within range, but does not re-confirm with beeps thereafter.

ALWAYS: Every time a polling transmission is received from the other station, the alert beeps will be heard.

ARB OFF: No alert beeps will be heard; you must look at the display to confirm current ARTS status.

To set the ARTS Beep mode, use the following procedure:

- ① Press the **[F/W]** key, then press the **[0(SET)]** key, to enter the Set mode.
- ② Rotate the **DIAL** to select Menu #14 (“**ARTS BP**”).
- ③ Press the **[F/W]** key to enable changing of this Menu item.
- ④ Rotate the **DIAL** to select the desired ARTS Beep mode (see above).
- ⑤ When you have made your selection, press the **PTT** key to save the new setting and exit to normal operation.

CW Identifier Setup

The ARTS feature includes a CW identifier, as discussed previously. Every ten minutes during ARTS operation, the radio can be instructed to send “**DE (your callsign) K**” if this feature is enabled. The callsign field may contain up to 16 characters.

Here’s how to program the CW Identifier:

- ① Press the **[F/W]** key, then press the **[0(SET)]** key, to enter the Set mode.
- ② Rotate the **DIAL** to select Menu #29 (“**CW ID**”).
- ③ Press the **[F/W]** key to enable changing of this Menu item.
- ④ Press the **[F/W]** key, then press the **[F/W]** key, to begin entry of the letters and numbers in your callsign.
- ⑤ Rotate the **DIAL** to select the first letter or number in your callsign. When the correct character has been selected, press the **[▲]** key to move on to the next character.
- ⑥ Repeat step 5 as many times as necessary to complete your callsign, pressing **[F/W]** between each entry. Note that the “slant bar” (–••–•) is among the available characters, should you be a “portable” station.
- ⑦ When you have entered your entire callsign, press the **[F/W]** key.
- ⑧ When you have entered your entire callsign, press the **PTT** key, to save the settings and exit to normal operation.

Note that the “DE” (–•••) preceding your callsign is already programmed; you only need to program your callsign, and the “DE” will be appended at the time of transmission.

To activate CW identifier:

- ① Press the **[F/W]** key, then press the **[0(SET)]** key, to enter the Set mode.
- ② Rotate the **DIAL** to select Menu #29 (“**CW ID**”).
- ③ Press the **[F/W]** key to enable changing of this Menu item.
- ④ Rotate the **DIAL** to set the CW ID function ON.
- ⑤ When you have made your selection, press the **PTT** key to save the new setting and exit to normal operation.

Memory Mode

The **VX-150** provides a wide variety of memory system resources. These include:

- 199 “Standard” memory channels, numbered “1” through “199.”
- A Home channel per band, allowing storage and quick recall of one prime frequency on each band.
- Ten sets of band-edge memories also known as “Programming Memory Scan” channels, labeled “L1/U1” through “L5/U5”

MEMORY STORAGE

- ① Select the desired frequency, while operating in the VFO mode. Be sure to set up any desired CTCSS or DCS tones, as well as any desired repeater offset. The power level may also be set at this time, if you wish to store it.
- ② Press and hold the **[F/W]** key for one second.
- ③ Within five seconds of releasing the **[F/W]** key, rotate the **DIAL** to select the desired memory channel.
- ④ Press the **[F/W]** key once more to store the frequency into memory.
- ⑤ You still will be operating in the “VFO” mode, so you may now enter other frequencies, and store them into additional memory locations, by repeating the above process.

STORING INDEPENDENT TRANSMIT FREQUENCIES (“ODD SPLITS”)

All memories can store an independent transmit frequency, for operation on repeaters with non-standard shift. To do this:

- ① Store the receive frequency using the method already described under **MEMORY STORAGE** (it doesn’t matter if a repeater offset is active).
- ② Turn to the desired transmit frequency, then press and hold the **[F/W]** key for one second.
- ③ Within five seconds of releasing the **[F/W]** key, rotate the **DIAL** to select the same memory channel number as used in step ① above.
- ④ Press and hold the **PTT** switch then press the **[F/W]** key once more momentarily (this does not key the transmitter).

Whenever you recall a memory which contains independently-stored transmit and receive frequencies, the “[+][–]” indication will appear in the display.

MEMORY RECALL

- ① While operating in the VFO mode, press the **[MR(SKIP)]** key. The “MR” indicator will show that you are now in the Memory Recall mode.
- ② Rotate the **DIAL** to select the desired channel.
- ③ To return to the VFO mode, press the **[VFO(PRI)]** key.

*An easy way to recall memories is to key in the memory channel number, then press **[MR(SKIP)]**.*

*For example, to recall memory channel #16, press **[1]-[6]-[MR(SKIP)]**.*

HOME CHANNEL MEMORY

A special one-touch “HOME” channel is available to allow quick recall of a favorite operating frequency. Memory storage is simple to accomplish:

- ① Set Menu Item #20 (“REV/HM”) to “HOME” if it is not already set to that option (see page ??).
- ② Select the desired frequency, while operating in the VFO mode. Be sure to set up any desired CTCSS or DCS tones, as well as any desired repeater offset. The power level may also be set at this time, if you like.
- ③ Press and hold the [F/W] key for 1/2 second.
- ④ While the memory channel number is blinking, just press the [REV(HM)] key. The frequency and other data (if any) will now be stored in the special HOME channel register.
- ⑤ To recall the HOME channel, press the [REV(HM)] key momentarily while operating in the VFO or MR mode.

LABELING MEMORIES

You may wish to append an alpha-numeric “Tag” (label) to a memory or memories, to aid in recollection of the channel’s use (such as a club name, etc.). This is easily accomplished using the Set mode.

- ① Recall the memory channel on which you wish to append a label.
- ② Press the [F/W] key, then press the [0(SET)] key, to enter the Menu mode.
- ③ Rotate the **DIAL** to select Menu #1 (“NAME”).
- ④ Press the [F/W] key to enable changing of this Menu item.
- ⑤ Press the [F/W] key, then press the [F/W] key, to begin entry of the Label.
- ⑥ Rotate the **DIAL** to select the first digit of the desired label. When you have made your selection, press the [▲] key momentarily to move to the next character.
- ⑦ Repeat the previous step to program the remaining letters, numbers, or symbols of the desired label. A total of seven characters may be used in the creation of a label.
- ⑧ When you have completed the creation of the label, press the [F/W] key, then press the **PTT** to save the label and exit.

To activate alphanumeric Tag:

- ① Press the [F/W] key, then press the [0(SET)] key, to enter the Set mode.
- ② Rotate the **DIAL** to select Menu #1 (“NAME”).
- ③ Press the [F/W] key to enable changing of this Menu item.
- ④ Rotate the **DIAL** to set the “ALPHA”.
- ⑤ When you have made your selection, press the **PTT** key to save the new setting and exit to normal operation.

Memory Mode

MEMORY OFFSET TUNING

Once you have recalled a particular memory channel, you may easily tune off that channel, as though you were in the “VFO” mode.

- ① With the **VX-150** in the “**MR**” (Memory Recall) mode, select the desired memory channel.
- ② Now press the [**MR(SKIP)**] key momentarily. The “**MR**” indicator will be blinking.
- ③ Rotate the **DIAL**, as desired, to tune to a new frequency. The synthesizer steps selected for VFO operation on the current band will be the steps used during Memory Tuning.
- ④ If you wish to return to the original memory frequency, press the [**MR(SKIP)**] key momentarily. The “**MR**” indication.
- ⑤ If you wish to store a new frequency set during Memory Tuning, just press and hold in the [**F/W**] key for 1/2 second, per normal memory storage procedure. The microprocessor will automatically set itself to the next-available clear memory location, and you then press [**F/W**] again to lock in the new frequency.

*If you want to replace the original memory contents with those of the new frequency, be sure to rotate the **DIAL** to the original memory channel number!*

Any required CTCSS/DCS changes, or repeater offset modifications, must be done before storing the data into the new (or original) memory channel location.

MASKING MEMORIES

There may be situations where you want to “Mask” memories so they are not visible during memory selection or scanning. For example, several memories used only in a city you visit infrequently may be stored, then “Masked” until you visit that city, at which time you can “Unmask” them for normal use.

- ① Press the [**MR(SKIP)**] key, if needed, to enter the MR mode.
- ② Press and hold in the [**F/W**] key for one second, then rotate the **DIAL** to select the memory channel to be “Masked” from view.
- ③ Press the [**MR(SKIP)**] key. The display will revert to memory channel #1. If you rotate the **DIAL** to the location you just “Masked,” you will observe that it is now invisible.
- ④ To Unmask the hidden memory, repeat the above procedure: press and hold in the [**F/W**] key for one second, rotate the **DIAL** to select the masked memory’s number, then press [**MR(SKIP)**] to restore the memory channel’s data.

Memory Only Mode

This allows operation only on stored memories, which are displayed by name (if any) at the right, and the memory channel number to the left. No frequency is displayed, and only “CH.nn” appear if you haven’t assigned name to a memory.

Repeater shift and tone setting indicators are displayed, although they cannot be changed.

- ① Turn the radio off.
- ② Press and hold the [PTT] and [LAMP] key while turning the radio on.
- ③ Rotate the **DIAL** to select “**MEM.ONLY**”.
- ④ Press the [F/W] key momentarily to initialize the radio.
- ⑤ Repeat the previous step, it returns to normal operation.

Scanning

The **VX-150** allows you to scan just the memory channels, the operating band, or a portion of that band. It will halt on signals encountered, so you can talk to the station(s) on that frequency, if you like.

Scanning operation is basically the same in each of the above modes. Before you begin, take a moment to select the way in which you would like the scanner to resume scanning after it halts on a signal.

Setting the Scan Resume Technique

Three options for the Scan-Resume mode are available:

5 SEC: In this mode, the scanner will halt on a signal it encounters, and will hold there for 5 seconds. If you do not take action to disable the scanner within that time period, the scanner will resume even if the stations are still active.

BUSY: In this mode, the scanner will halt on a signal it encounters. Two seconds after the carrier has dropped because the other station(s) ceased transmission, the scanner will resume. In the case of constant-carrier signals like Weather Station broadcasts, the scanner will likely remain on this frequency indefinitely.

HOLD: In this mode, the scanner will halt on a signal it encounters. It will not restart automatically; you must manually re-initiate scanning if you wish to resume.

To set the Scan-Resume mode

- ① Press the **[F/W]** key, then press the **[0(SET)]** key, to enter the Set mode.
- ② Rotate the **DIAL** to select Menu #7 (“**RESUME**”).
- ③ Press the **[F/W]** key to enable changing of this Menu item.
- ④ Rotate the **DIAL** to select the desired scan-resume mode.
- ⑤ When you have made your selection, press the **PTT** key to save the new setting and exit to normal operation.

The default condition for this Menu Item is “5 SEC”.

VFO SCANNING

This mode allows you to scan the entire current operating band.

- ① Select the VFO mode by pressing the **[VFO(PRI)]** key, if necessary.
- ② Press and hold in the **[▲]** or **[▼]** key for one second to start scanning.
- ③ If and when the scanner encounters a signal strong enough to open the squelch, the scanner will halt temporarily; the decimal point of the frequency display will blink during this “Pause” condition.
- ④ The scanner will then resume according to the Scan Resume selected in the previous section.
- ⑤ To cancel scanning, press the **PTT**, **[MR(SKIP)]**, or **[VFO(PRI)]** key.

*When you press the **[▲]** key to start scanning, the VX-150 will be changing frequency in the upward direction. If you want to change direction of the scan while it is underway, rotate the **DIAL** one click in the opposite direction (in this case, one click counter-clockwise). You'll see the scanner turn around and change frequency downward!*

MEMORY SCANNING

Memory scanning is similarly easy to initiate:

- ① Set the radio to the Memory mode by pressing the **[MR(SKIP)]** key, if necessary.
- ② Press and hold in the **[▲]** / **[▼]** key for one second to initiate scanning.
- ③ As with VFO scanning, the scanner will halt on any signal encountered that is strong enough to open the squelch; it will then resume scanning according to the Scan-Resume mode set previously.
- ④ To cancel scanning, press the **PTT**, **[MR(SKIP)]**, or **[VFO(PRI)]** key.

HOW TO SKIP (OMIT) A CHANNEL DURING MEMORY SCAN OPERATION

When you have some very active channels stored in memories, you may wish to skip them when scanning, but still have them available for manual selection.

Such channels may be “Skipped” during scanning, if you like:

- ① Set the radio to the Memory Mode by pressing the **[MR(SKIP)]** key, if necessary.
- ② Rotate the **DIAL** to select the Memory Channel to be skipped during scanning.
- ③ Press the **[F/W]** key *momentarily* (not for 1/2 second), then press the **[MR(SKIP)]** key (momentarily). A small “SKIP” will appear to the LCD, indicating it is to be ignored during scanning.

To re-institute the channel into the scanning loop, repeat the above three steps (the “Skipped” channel will, of course, still be accessible via manual channel selection methods using the **DIAL** in the MR mode).

Scanning

PROGRAMMABLE (BAND LIMIT) MEMORY SCAN (PMS)

This feature allows you to set sub-band limits for either scanning or manual VFO operation. For example, you might wish to set up a limit (in North America) of 144.300 MHz to 148.000 MHz so as to prevent encroachment into the SSB/CW “Weak Signal” portion of the band below 144.300 MHz. Here’s how to do this:

- ① Set the radio to the VFO mode by pressing the [**VFO(PRI)**] key, if necessary.
- ② Using the techniques learned earlier, store (per the above example) 144.300 MHz into Memory Channel #**L1** (the “**L**” designates the **L**ower sub-band limit).
- ③ Likewise, store 148.000 MHz into Memory Channel #**U1** (the “**U**” designates the **U**pper sub-band limit).
- ④ Switch to the Memory mode by pressing the [**MR(SKIP)**] key once, then rotate the **DIAL** to select Memory Channel # **L1**.
- ⑤ Press the [**MR(SKIP)**] key; the “**MR**” label will be blinking in the left-hand frequency of the display.
- ⑥ You may now rotate the **DIAL**, or begin scanning by pressing the [**▲**] or [**▼**] key for one second. The transceiver will behave as though it is in the standard VFO mode, but operation will be restricted to the range between Memory Channels **L1** and **U1**.

*If you wish to scan, do not press the [**MR(SKIP)**] key, as it is disabled during PMS operation. Press and hold in the [**VFO(PRI)**] key instead.*

- ⑦ Five pairs of Band Limit memories, labeled **L1/U1** through **L5/U5** are available.

PRIORITY CHANNEL SCANNING (DUAL WATCH)

The **VX-150** scanning features include a two-channel scanning capability which allows you to operate on a VFO or Memory channel, while periodically checking a user-selectable Priority Channel for activity. If a station is received on the Priority Channel which is strong enough to open the Squelch, the scanner will pause on that station in accordance with the Scan-Resume mode set via Menu #7 (see page **??**).

Here is the procedure for activating Priority Channel Dual Watch operation:

- ① Recall the memory channel you wish to be the “Priority” Channel.
- ② Set the radio to the VFO mode by pressing the [**VFO(PRI)**] key.
- ③ Press the [**F/W**] key *momentarily* (not for 1/2 second), then press the [**VFO(PRI)**] key (momentarily). A small “**PRI**” will appear to the LCD.

Here is the procedure for activating Two-VFO Dual Watch operation:

- ① Press the [**VFO(PRI)**] key to switch to the VFO mode, if needed.
- ② Press the [**F/W**] key, then press and hold in the [**VFO(PRI)**] key.
The **VX-150** will now periodically change from the VFO-A frequency to the VFO-B frequency, checking for activity on VFO-B for 0.2 second.

AUTOMATIC LAMP ILLUMINATION ON SCAN STOP

The **VX-150** will automatically illuminate the LCD Lamp whenever the scanner stops on a signal; this allows you to see the frequency of the incoming signal better at night. Note that this will, of course, increase the battery consumption, so be sure to switch it off during the day (the default condition for this feature is “ON”).

The procedure for disabling the Scan Lamp is:

- ① Press the **[F/W]** key, then press the **[0(SET)]** key, to enter the Set mode.
- ② Rotate the **DIAL** to select Menu #8 (“**SCN LMP**”).
- ③ Press the **[F/W]** key to enable changing of this Menu item.
- ④ Rotate the **DIAL** to set this Menu item to OFF.
- ⑤ When you have made your selection, press the **PTT** key to save the new setting and exit to normal operation.

BAND EDGE BEEPER

The **VX-150** will automatically “beep” when a band edge is encountered during scanning (either in standard VFO scanning or during PMS operation). You may disable this feature, if it is annoying, without disabling the keypad beeper (the default condition for this feature is “ON”).

The procedure for disabling the Band-Edge Beeper is:

- ① Press the **[F/W]** key, then press the **[0(SET)]** key, to enter the Set mode.
- ② Rotate the **DIAL** to select Menu #17 (“**EDGE BP**”).
- ③ Press the **[F/W]** key to enable changing of this Menu item.
- ④ Rotate the **DIAL** to set this Menu item to OFF.
- ⑤ When you have made your selection, press the **PTT** key to save the new setting and exit to normal operation.

PROGRAMMING THE KEY FUNCTIONS

Default **VX-150** set mode have been assigned (at the factory) to the **[7(P1)]** and **[8(P2)]** keys. These may be changed by the user, if you wish to define another set mode for a keys.

To change the assignment of a key’s set mode:

- ① Press the **[F/W]** key, then press the **[0(SET)]** key, to enter the Set mode.
- ② Rotate the **DIAL** knob to the menu to be assigned a function.
- ③ Press and hold in the **[F/W]** key for 1.5 second.
- ④ Press the **[7(P1)]** or **[8(P2)]** key to the new setting and exit to set mode.

Smart Search Operation

The Smart Search feature allows you to load frequencies automatically according to where activity is encountered by your radio. When Smart Search is engaged, the transceiver will search above and below your current frequency, storing active frequencies as it goes (without stopping on them even momentarily); these frequencies are stored into a special Smart Search memory bank, consisting of 31 memories (15 above the current frequency, 15 below the current frequency, plus the current frequency itself).

Two basic operating modes for Smart Search are available:

SINGLE: In this mode, the transceiver will sweep the current band once in each direction starting on the current frequency. All channels where activity is present will be loaded into the Smart Search memories; whether or not all 31 memories are filled, the search will stop after one sweep in each direction.

CONTINUE: In this mode, the transceiver will make one pass in each direction as with One-Shot searching; if all 31 channels are not filled after the first sweep, however, the radio will continue sweeping until they are all filled.

Setting the Smart Search Mode

- ① Press the **[F/W]** key, then press the **[0(SET)]** key, to enter the Set mode.
- ② Rotate the **DIAL** to select Menu #31 (“**SMT MOD**”).
- ③ Press the **[F/W]** key to enable changing of this Menu item.
- ④ Rotate the **DIAL** to select the desired Smart Search mode (see above).
- ⑤ When you have made your selection, press the **PTT** key to save the new setting and exit to normal operation.

Storing Smart Search Memories

- ① Set the radio to the VFO mode.
- ② Press the **[F/W]** key, then press the **[8(P2)]** key.
- ③ Press the **[▲]** or **[▼]** key to begin the Smart Search scanning.
- ④ As active channels are detected, you will observe the number of “loaded” channels increasing in the regular memory channel window.
- ⑤ Depending on the mode you set for Smart Search operation (SINGLE or CONTINUE), the Smart Search scan will eventually terminate, and the LCD will revert to Smart Search Memory Channel 0.
- ⑥ To recall Smart Search memories, rotate the **DIAL** to choose from among the Smart Search memories.
- ⑦ To return to normal operation, Press the **[VFO(PRI)]** key.

Smart Search is a great tool when visiting a city for the first time. You don't need to spend hours looking up repeater frequencies from a reference guidebook... just ask your VX-150 where the action is!

Interface of Packet TNCs

The **VX-150** may be used for Packet operation, using the optional **CT-44** microphone adapter (available from your Yaesu dealer) for easy interconnection to commonly-available connectors wired to your TNC. You may also build your own cable using a four-conductor miniature phone plug, per the diagram below.

The audio level from the receiver to the TNC may be adjusted by using the **VOL** knob, as with voice operation. The input level to the **VX-150** from the TNC should be adjusted at the TNC side; the optimum input voltage is approximately 5 mV at 2 k-ohm.

Be sure to turn the transceiver and TNC off before connecting the cables, so as to prevent voltage spikes from possibly damaging your transceiver.

When operating a packet, you make battery saving “OFF”.

Reset

MICROPROCESSOR RESETTING

- ① Turn the radio off.
 - ② Press and hold the [PTT] and [LAMP] key while turning the radio on.
 - ③ Rotate the **DIAL** to select “**ALL.RST**”.
 - ④ Press the [F/W] key momentarily to initialize the radio.
-

SET MODE RESETTING

- ① Turn the radio off.
- ② Press and hold the [PTT] and [LAMP] key while turning the radio on.
- ③ Rotate the **DIAL** to select “**SET.RST**”.
- ④ Press the [F/W] key momentarily to initialize the Set mode.

The **VX-150** includes a convenient “Clone” feature, which allows the memory and configuration data from one transceiver to be transferred to another **VX-150**. This can be particularly useful when configuring a number of transceivers for a public service operation. Here is the procedure for Cloning one radio’s data to another:

- ① Turn both radios off.
- ② Connect the optional **CT-27** cloning cable between the **MIC/EAR** jacks of the two radios.
- ③ Press and hold the **[PTT]** and **[LAMP]** key while turning the radio on.
- ④ Rotate the **DIAL** to select “**CLONE**”.
- ⑤ Press the **[F/W]** key, to enter the CLONE mode. “**CLONE**” will appear on the displays of both radios when the Clone mode is successfully activated in this step.
- ⑥ On the Destination radio, press the **[MONI]** key (“**SAVING**” will appear on the LCD).
- ⑦ Press the **[PTT]** key on the Source radio; “**SENDING**” will appear on the Source radio, and the data is transferred.
- ⑧ If there is a problem during the cloning process, “**C-ERROR**” will be displayed. Check your cable connections and battery voltage, and try again.
- ⑨ If the data transfer is successful, the Destination radio will return to normal operation; Turn both radios off and disconnect the **CT-27**. You can then turn the radios back on, and begin normal operation.

Set Mode

The **VX-150** Set (Menu) mode is easy to activate and set. Use the following procedure:

- ① Press the **[F/W]** key, then press the **[0(SET)]** key, to activate the Set mode.
- ② Turn the **DIAL** to select the Menu item number to be adjusted.
- ③ Press the **[F/W]** key momentarily, then rotate the **DIAL** to adjust or select the parameter to be changed on the Menu item selected in above step.
- ④ After completing your selection and adjustment, press the **PTT** switch momentarily to exit the Set mode and exit to normal operation.

Set Mode Summary

Item #	Menu Item	Function	Available Values	Default
1	NAME	Store Alpha-Numeric "Tags"	–	–
2	ARS	Enable/disable the Automatic Repeater Shift	ON/OFF	ON
3	RPT	Set the Repeater Shift Direction	-RPT/SIMP/+RPT	SIMP
4	SHIFT	Set the magnitude of the Repeater Shift	0 - 99.9MHz	0.6MHz
5	V-SPLIT	Enable/disable "VFO Split" Operation	ON/OFF	OFF
6	STEP	Setting of the synthesizer steps	5/10/12.5/15/20/25/50 kHz	?
7	RESUME	Select the Scan Resume mode	5SEC/BUSY/HOLD	5SEC
8	SCN LMP	Enable/disable the Scan lamp	ON/OFF	ON
9	RX SAVE	Select the Rx-mode Battery Saver interval	OFF/200ms/300ms/500ms/1s/2s	200ms
10	TX SAVE	Enable/disable the Transmit Battery Saver	ON/OFF	OFF
11	APO	Set the Automatic Power-Off time	OFF/30min/1h/3h/5h/8h	OFF
12	BSY LED	Enable/disable the BUSY LED	ON/OFF	ON
13	ARTS	Activate the ARTS operation	–	–
14	ARTS BP	Select the Beep option during ARTS operation	OFF/INRANGE/ALWAYS	INRANGE
15	AR ITVL	Select the Polling Interval during ARTS operation	15 SEC/25 SEC	25 SEC
16	KEY BP	Enable/disable the Keypad beeper	ON/OFF	ON
17	EDGE BP	Enable/disable the Band-edge beeper	ON/OFF	OFF
18	BEEL	Select the CTCSS Bell ringer repetitions	OFF/1/3/5/8/REPEAT	OFF
19	MON/TCL	Select the MON key function	MON/T-CALL	•
20	REV/HM	Select the function of [REV(HC)] key	REV/HOME	REV
21	LMP MOD	Select the LCD/Keypad Lamp mode	KEY/5SEC/TOGGLE	KEY
22	TOT	Set the TOT time	OFF/1min/2.5min/5min/10min	OFF
23	BCLO	Enable/disable the Busy Channel Lock-out feature	ON/OFF	OFF
24	CLK SFT	Shifting of the CPU clock frequency	ON/OFF	ON
25	SQL TYP	Select the Tone Encoder and/or Decoder mode	OFF/TONE/TONESQL/DCS	OFF
26	TN SET	Setting of the CTCSS Tone Frequency	39 Standard CTCSS tones	100 Hz
27	DCS SET	Setting of the DCS code	104 standard DCS codes	023
28	DTMF	Programming the DTMF Autodialer	–	–
29	CW ID	Programming and activate the CW Ider	–	–
30	S SRCH	Activate the Smart Search	–	–
31	SMT MOD	Select the Smart Search Sweep mode	SINGLE/CONTINUE	SINGLE
32	LK MODE	Select the Control Locking lockout combination	KEY/DIAL/KEY+DIAL/PTT/ KEY+PTT/DIAL+PTT/ALL	KEY
33	NAR/WID	Select the Operating mode	NARROW/WIDE	WIDE
34	DTMF SP	Select the DTMF Autodialer sending speed	50 ms/100 ms	50 ms

Item #	Menu Item	Function	Available Values	Default
35	DT DIY	Select the DTMF Autodialer delay time	450 ms/750 ms	450 ms
36	ANI	Program and activate the ANI Identifier	–	–
37	BATT	Indication of the Supply Voltage	–	–
38	SKIP	Enable/Disable skipping of a memory during scanning	ON/OFF	OFF
39	PAG MOD			
40	PG CODE	Storing Code Memories	–	–
41	PG ASBK	Enable/disable The Pager Answer Back	ON/OFF	OFF
42	SCRMBLE	Enable/disable The Scrambler	ON/OFF	OFF

• | Depends on the transceiver version

Set Mode Details

Set Item 1 [NAME]

Function: Store Alpha-Numeric “Tags” for the Memory channels.

See page ?? for details.

Set Item 2 [ARS]

Function: Enable/disable the Automatic Repeater Shift function.

Available Values: ON/OFF

Default: ON

Set Item 3 [RPT]

Function: Set the Repeater Shift Direction

Available Values: -RPT/SIMP/+RPT

Default: SIMP

Set Item 4 [SHIFT]

Function: Set the magnitude of the Repeater Shift.

Available Values: 0.00 ~ 99.9 MHz

Default: Depends on the transceiver version, as well as the setting of Menu #2 (ARS).

Set Item 5 [V-SPLIT]

Function: Enable/disable “VFO Split” Operation

Available Values: ON/OFF

Default: OFF

Set Item 6 [STEP]

Function: Setting of the synthesizer steps.

Available Values: 5/10/12.5/15/20/25/50 kHz

Default: Depends on the transceiver version.

Set Mode

Set Item 7 [RESUME]

Function: Select the Scan Resume mode.

Available Values: 5 SEC/BUSY/HOLD

Default: 5 SEC

Set Item 8 [SCN LMP]

Function: Enable/disable the Scan lamp while paused.

Available Values: ON/OFF

Default: ON

Set Item 9 [RX SAVE]

Function: Select the Receive-mode Battery Saver interval (“Sleep” ratio).

Available Values: OFF/200ms(1:1)/300ms(1:1.5)/500ms(1:2.5)/1s(1:5)/2s(1:10)

Default: 200ms(1:1)

Set Item 10 [TX SAVE]

Function: Enable/disable The Transmit Battery Saver.

Available Values: ON/OFF

Default: OFF

Set Item 11 [APO]

Function: Set the Automatic Power-Off time.

Available Values: OFF/30 min/1 hour/3 hour/5 hour/8 hour

Default: OFF

Set Item 12 [BSY LED]

Function: Enable/disable the BUSY LED while the Squelch is open.

Available Values: ON/OFF

Default: ON

Set Item 13 [ARTS]

Function: Activate the ARTS.

See page ?? for details.

Set Item 14 [ARTS BP]

Function: Select the Beep option during ARTS operation.

Available Values: OFF/INRANGE/ALWAYS

Default: INRANGE

Set Item 15 [AR ITVL]

Function: Select the Polling Interval during ARTS operation.

Available Values: 15 SEC/25 SEC

Default: 25 SEC

Set Item 16 [KEY BP]

Function: Enable/disable the Keypad beeper.

Available Values: ON/OFF

Default: ON

Set Item 17 [EDGE BP]

Function: Enable/disable the Band-edge beeper while scanning.

Available Values: ON/OFF

Default: OFF

Set Item 18 [BELL]

Function: Select the CTCSS Bell ringer repetitions.

Available Values: OFF/1/3/5/8/REPEAT

Default: OFF

Set Item 19 [MON/TCL]

Function: Select the MONI key (just below the PTT switch) function.

Available Values: MONI/T-CALL

Default: Depends on the transceiver version.

MONI: Pressing the [**MONI**] key causes the noise/tone Squelch to be over-ridden, allowing you to listen for weak (or non-encoded) signals.

T.CALL: Pressing the [**MONI**] key activates a 1750-Hz burst tone, used for repeater access in many countries.

Set Item 20 [REV/HM]

Function: Select the function of the [**REV(HM)**] key.

Available Values: REV/HOME

Default: REV

Set Item 21 [LMP MOD]

Function: Select the LCD/Keypad Lamp mode.

Available Values: KEY/5SEC/TOGGLE

Default: KEY

Set Item 22 [TOT]

Function: Set the TOT time.

Available Values: OFF/1 min/2.5 min/5 min/10 min

Default: OFF

Set Mode

Set Item 23 [BCLO]

Function: Enable/disable the Busy Channel Lock-Out feature.

Available Values: ON/OFF

Default: OFF

Set Item 24 [CLK SFT]

Function: Shifting of CPU clock frequency.

Available Values: ON/OFF

Default: OFF

This function is only used to move a spurious response “birdie” should it fall on a desired frequency.

Set Item 25 [SQL TYP]

Function: Select the Tone Encoder and/or Decoder mode.

Available Values: OFF/T/TSQ/DCS

Default: OFF

T: CTCSS Encoder

TSQ: CTCSS Encoder/Decoder

DCS: Digital Coded Squelch Encoder/Decoder

Set Item 26 [TN SET]

Function: Setting of the CTCSS Tone Frequency

Available Values: 39 standard CTCSS tones

Default: 100 Hz

In this mode, press the [F/W] key, then press the [PTT] key, to save the new setting and exit to normal operation.

Set Item 27 [DCS SET]

Function: Setting of the DCS code.

Available Values: 104 standard DCS codes.

Default: 023

In this mode, press the [F/W] key, then press the [PTT] key, to save the new setting and exit to normal operation.

Set Item 28 [DTMF]

Function: Programming the DTMF Autodialer.

See page ?? for details.

Set Item 29 [CW ID]

Function: Program and activate the CW Identifier (used during ARTS operation).

See page ?? for details.

Set Item 30 [S SRCH]

Function: Activate the Smart Search.

See page ?? for details.

Set Item 31 [SMT MOD]

Function: Select the Smart Search Sweep mode.

Available Values: SINGLE/CONT

Default: SINGLE

SINGLE: The transceiver sweeps the current band once in each direction starting on the current frequency. All channels where activity is present (up to 15 in each direction) are loaded into the Smart Search memories. Whether or not all 31 memories are filled, the search stops after one sweep in each direction.

CONT: The transceiver makes a sweep in each direction as with the “SINGLE” mode, but if all 31 channels are not filled after the first sweep, the radio continues sweeping until they are all filled.

Set Item 32 [LK MODE]

Function: Select the Control Locking lockout combination.

Available Values: KEY/DIAL/ KEY+DIAL/PTT/KEY+PTT/DIAL+PTT/ALL

Default: KEY

Set Item 33 [NAR/WID]

Function: Select the Operating mode.

Available Values: NARROW/WIDE

Default: WIDE

Set Item 34 [DTMF SP]

Function: Select the DTMF Autodialer sending speed.

Available Values: 50 ms/100 ms

Default: 50 ms (High speed)

Set Item 35 [DT DLY]

Function: Select the DTMF Autodialer delay time.

Available Values: 450 ms/750 ms

Default: 450 ms

Set Mode

Set Item 36 [ANI]

Function: Program and activate the ANI Identifier

See page ?? for details.

Set Item 37 [BATT]

Function: Indication of the Supply Voltage.

In this mode, press the [FW] key, then press the [PTT] key, to exit to normal operation.

Set Item 38 [SKIP]

Function: Enable/disable skipping of a memory during scanning.

Available Values: ON/OFF

Default: OFF (Scanner stops when the channel is busy)

Set Item 39 [PAG MOD] (requires optional FVP-25)

Function:

See page ?? for details.

Set Item 40 [PG CODE] (requires optional FVP-25)

Function: Storing Code Memories

See page ?? for details.

Set Item 41 [PG ASBK] (requires optional FVP-25)

Function: Enable/disable The Pager Answer Back

Available Values: ON/OFF

Default: OFF

Set Item 42 [SCRMBLE] (requires optional FVP-25)

Function: Enable/disable The Scrambler

Available Values: ON/OFF

Default: OFF