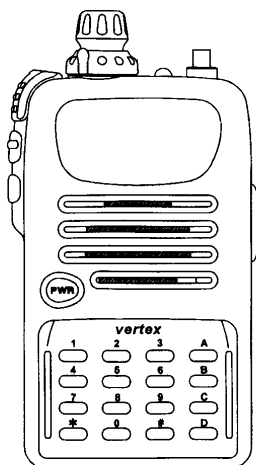


***vertex***<sup>®</sup>

# VX-10



Shown with optional FTT-15 installed

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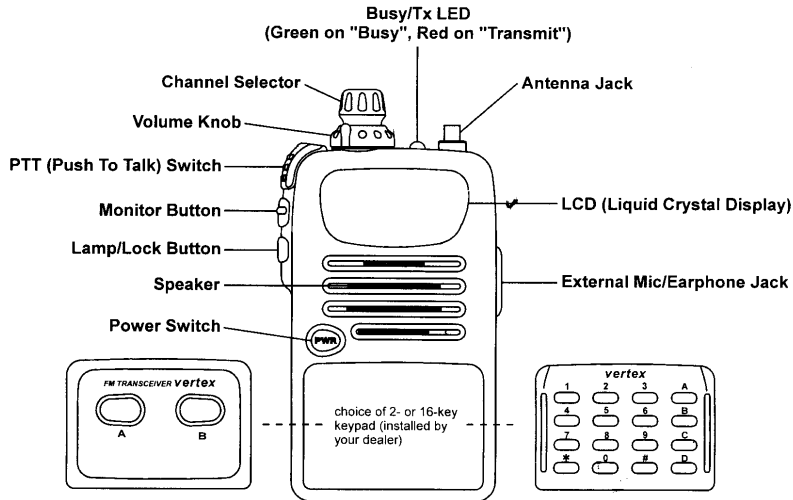
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## Controls & Connectors



### Before You Begin

#### Battery Installation and Removal

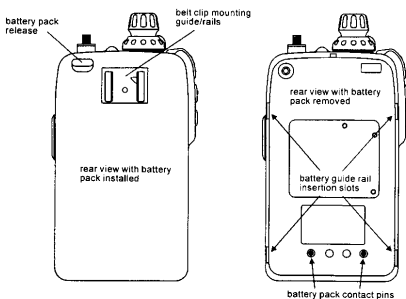
Refer to the illustration below showing the rear panel of the VX-10 and its battery pack.

- Lay the battery pack loosely onto the rear panel of the transceiver, and carefully mate the four small alignment tabs on the battery with their corresponding insertion slots on the transceiver case. Proper alignment occurs with the battery pack offset about 1/2" from the top of the case.

- Guide the pack into the slots with a slight inward pressure, then slide the battery pack upward, until it locks in place with a "Click".
- To remove the battery, turn the radio off and remove any protective cases. Press in the Battery Release button (behind the Antenna jack) while sliding the battery down 1/2". Then lift the battery away.



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



#### Low Battery Indication

- As the battery discharges during use, the voltage gradually becomes lower. When the battery voltage reaches 6.0 Volts, the battery pack should be recharged and another battery should be installed in its place. The "🔋" icon will blink in the display when battery voltage is low.

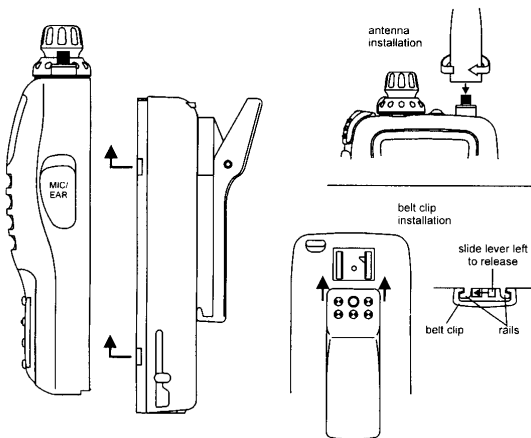
# Operating Manual Reprint

- ❑ Avoid recharging Ni-Cd batteries often with little use between charges, as this can degrade the charge capacity. Yaesu recommends that you carry an extra, fully-charged pack with you so the operational battery may be utilized until depletion (this "Deep Cycling" promotes better long-term battery capacity).

## Operation

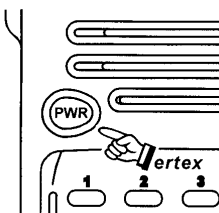
### Before You Begin

- ❑ Install a charged battery pack onto the transceiver, as described previously.
- ❑ Screw the supplied antenna onto the Antenna jack. Never operate this transceiver without an antenna connected.
- ❑ If you have a Speaker/Mic, we recommend that it not be connected until you are familiar with the basic operation of the VX-10.

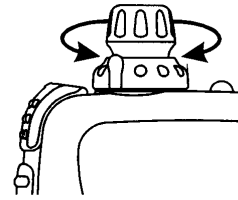


### Operating the VX-10

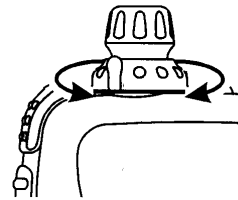
- ❑ To turn the radio on, push and hold in the orange [PWR] button for 1/2 second.



- ❑ Turn the top panel Channel Selector to choose the desired operating channel. A channel number or channel name will appear on the LCD.

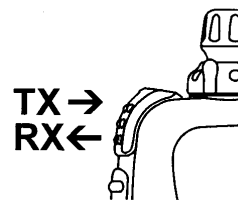


- ❑ Rotate the lower, outer ring of the Channel Selector knob to set the Volume level. If no signals are being received, you can preset the Volume level on background noise by the following procedure.



- ① Press the Monitor button (the middle button on the left side) *once* to activate the "M" icon, then press *and hold in* the Monitor Button for one second to open the Squelch manually.
- ② Rotate the Volume control for a comfortable Volume level on the noise.
- ③ Press the Monitor button once again to reactivate the Squelch.

- ❑ To transmit, press and hold in the [PTT] switch. Speak into the microphone area of the front panel grille (lower right-hand corner) in a normal voice. To return to the Receive mode, release the [PTT] switch.



- ❑ If a Speaker/Mic is available, it may be plugged into its jack on the right side of the transceiver. Hold the speaker grille up next to your ear in the Receive mode. To transmit,

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press the Speaker/Mic's [PTT] switch, just as you would on the main transceiver body.

- Press one of the "Soft Keys" ("A" or "B" in the Two-Key transceiver version, or "A" ~ "D" on the 16-Key version), or press downward momentarily on the Channel Selector knob, to activate one of the "Pre-Programmed Functions" which may have been provided at the time of programming by the Dealer. See the "Appendix" for a listing of available features.

## Appendix

### A. Pre-Programmed Functions

One or more of the following functions may have been activated by your Dealer at the time of programming of the radio. The functions will have been assigned to the "A" and "B" keys in the Two-Channel transceiver version, the "A" through "D" keys on the Four-Channel version, and/or the Channel Selector Knob (hereafter referred to as "The Knob").

- *Scanning* <<This section subject to **changere USR SCAN**>>  
Scanning rapidly steps through each of your assigned channels, looking for incoming calls. If a call is detected, Scanning stops on that channel, then resumes a few seconds after the incoming transmission ends.  
Two Scanning modes are available: "User" Scan and "Dealer" Scan. The "USR SCAN" display means that the User can edit the channel scan list, while "DLR SCAN" means that only the Dealer can edit the scan list.  
To start Scanning, momentarily press the assigned button (A, B, C, or D) or the Knob. To cancel Scanning, press the same button.

- *Dual Watch*

Dual Watch automatically checks for activity on a priority channel, while operating on another channel ("Priority" is assigned to the *first channel* of the currently-selected *Group*). A small "DW" is displayed at the top of the LCD when Dual Watch is active.

To start Dual Watch operation, press the Dealer-designated button (A, B, C, or D) or the Knob momentarily. About every 1½ seconds, the receiver will briefly check the Priority channel, looking for an incoming call.

When a signal is received on the Priority channel, Dual Watch will pause and the channel number or name tag for the Priority channel will be displayed. Dual Watch will resume after the station on the Priority channel stops transmitting.

To cancel Dual Watch, press the Dealer-designated button (A, B, C, or D) or the Knob momentarily again.

- *LOW Transmit Power*

Pressing the Dealer-designated button switches the radio's transmitter to a "Low Power" mode, thus allowing greater battery life.

The "L" icon will be illuminated in this case.

- *Talk Around*

In *duplex* channel systems (separate receive and transmit frequencies, utilizing a "repeater" station), Talk-Around allows you to bypass the repeater station and talk *directly* to a station that is nearby. This feature has no effect when operating on "simplex" channels, where the receive and transmit frequencies are the same).

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- *Channel Group Selection*

The VX-10 is capable of separating its 102 memory channels into any of nine groups. There is no limit to the number of channels in each group.

Pressing the assigned button (A, B, C, or D) or the Knob allows the operator to toggle between the available groups. Channels *within* the selected group may then be selected using the Channel Selector Knob.

- *TX Save Off*

This feature, if selected, disables the Transmit Battery Saver, which reduces transmit power when a very strong signal from an apparently nearby station is being received.

Press the assigned button (A, B, C, or D) or the Knob to disable the Transmit Battery Saver, if you are operating in a location where high power is almost always needed.

- *Set Function (Menu)*

The "Set Function" allows the user to customize certain performance parameters as needed.

- *Squelch Call (16-Key Pad Type Only)*

This feature allows the user to change the 3-digit Squelch Call code, used to call other similarly-equipped stations.

Press the assigned button (A, B, C, or D) or the Knob, followed by the three digits of the Squelch Call code of the station you wish to call. Three tones will be heard after the last key

is pressed (the code will now be transmitted). The receiver squelch of the other station will be opened, and you can commence talking.

## *B. Set Function (Menu)*

The user-accessible "Set Function" allows the operator to customize certain performance features of the VX-10.

Two methods of activating the Set Function are available:

- ① If the Dealer has assigned "Set Function Access" to one of the "Pre-Programmed Function" keys, pressing the assigned key (A, B, C, or D) will activate the feature.
- ② If the Dealer has assigned "Set Function Access" to the Channel Selector Knob, pressing downward on the Knob will activate the Set Function.

Once the Set Function is active, the following procedure is used to recall the desired Menu item for editing:

- One the Set Function is activated, rotate the Channel Selector Knob to step through each of the available 16 functions; once the desired function is found (see the Table below), push the **[A]** button to view the current setting of that function.
- Rotate the Channel Selector Knob to select a different setting (or to enable/disable it), then press the **[B]** button to save the new setting.
- Press the assigned button (A, B, C, or D) or the Channel Selector Knob to exit the Set Function mode.

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<b>Knob/Button</b>	<b>Function</b>
[A] button	Scanning Dual Watch Low Transmit Power Talk Around Channel Group Code Squelch Call TX Save Off Set-Function

[B] button	Scanning Dual Watch Low Transmit Power Talk Around Channel Group Code Squelch Call TX Save Off Set-Function
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[C] button (on 16-key version)	Scanning Dual Watch Low Transmit Power Talk Around Channel Group Code Squelch Call TX Save Off Set-Function
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[D] button (on 16-key version)	Scanning Dual Watch Low Transmit Power Talk Around Channel Group Code Squelch Call TX Save Off Set-Function
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<b>Knob</b>	Scanning Dual Watch Low Transmit Power Talk Around Channel Group Code Squelch Call TX Save Off Set-Function
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## Set Function List

The table below outlines the various functions that are available for user editing via the Set Function (described above).

Display	Description	Selections
S01 SQL	Squelch Level	Level 0* ~ 12 *0 = SQL open
S02 LIST	Scan Mode	Dealer/User
S03 BEEP	Keypad Beeper	On/Off
S04 BELL	CTCSS/DCS Bell	On/Off
S05 LITE	TX/BUSY LED	On/Off
S06 LOCK	Locks Controls	Key, PTT, or Knob
S07 TAG	Channel Name Tag	On/Off
S08 GRP	Channel Groups	Groups 1 ~ 9
S09 SCAN	Scan Mode	On/Off
S10 DW	Dual Watch	On/Off
S11 TXPO	Transmitter Power	High/Low
S12 TA	Talk Around	On/Off
S13 ENCR	Encryption	On/Off
Display	Description	Selections
S14 TEL	Telephone Number Memory Recall	Channel 1 ~ 10, Off
S15 TSAV	Transmit Battery Saver	On/Off
S16 DTMF	DTMF Code Memory Select	Channel 1 ~ 10

### C. ARTS (Auto Range Transpond System)

This system is designed to inform you when you *and another ARTS-equipped station* are within communication range. If you move out of range for more than two minutes, your radio senses that no signal has been received, a ringing beeper sounds, and “⊗” appears on the LCD. If you subsequently move back into range, as soon as the other station transmits, your radio’s beeper will sound, and “⊙” will appear.

During ARTS operation, your radio automatically transmits for about 1 second every 25 seconds (the interval is programmed by the Dealer) in an attempt to “shake hands” with the other station.

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## D. DTMF ANI System

This system is a standard ANI (Automatic Numeric Identification) sequence that may be programmed, by the Dealer, to be sent whenever the PTT switch is pressed or released.

## E. DTMF Paging System

This system allows paging and selective calling, using transmitted DTMF (Dual Tone, Multi-Frequency) sequences. Your receiver remains silent until it receives DTMF digits that match those stored in a special "DTMF Code" memory in your transceiver. The squelch then opens so the caller is heard, and an alert ringer sounds.

When a "DTMF Paging" call opens your radio's squelch, you can begin your operation as usual. DTMF Paging "hangs" open for about three seconds after the received carrier drops, to give you time to respond; thereafter, it resets the system.

Each time you transmit, you will hear DTMF tones; remember to pause a moment before speaking, as the code is being sent on *your* signal at the beginning of each transmission. You will

not hear the other station's DTMF tones the first time you receive a call, as your squelch does not open until after the tones are decoded. Afterwards, however, you will hear the DTMF tones so long as your radio's squelch remains open.

## F. Alpha-Numeric Channel Names ("Channel Nametags")

The Dealer may program Alpha-Numeric designators to each channel, to aid in the user's recognition of each channel. These "Channel Nametags" may be activated, in lieu of the standard "CHAN 1" type display.

To enable or disable the Channel Nametags:

- Enter the Set Function, and select Menu item S07 ("TAG").
- Push the **[A]** button momentarily to view the current selection.
- Now rotate the Channel Selector knob to change the setting to the desired state (Tags *On* or *Off*).
- Press the **[B]** button to save the new setting, then press downward on the Channel Selector knob momentarily to exit the Set Function.

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# Operating Manual Reprint

## Specifications

### General

<b>Frequency range:</b>	400 ~ 430, 450 ~ 485, 485 ~ 512 MHz
<b>Number of channels:</b>	40 (FTT-14) or 102 (FTT-15)
<b>Channel spacing:</b>	12.5/25 kHz
<b>Battery voltage:</b>	7.2 V DC
<b>Temperature range:</b>	- 30 °C to + 60 °C
<b>Case size (WHD):</b>	57 × 99 × 46 mm (w/FNB-V47)
<b>Weight (approx.):</b>	380 grams with FNB-V47, antenna, belt clip

### Receiver

<b>Circuit type:</b>	Double-conversion superheterodyne
<b>IFs:</b>	44.3 MHz & 455 kHz
<b>12-dB SINAD Sensitivity:</b>	< 0.25 $\mu$ V
<b>Squelch Sensitivity:</b>	< 0.25 $\mu$ V
<b>Selectivity:</b>	< 60 dB (12.5 kHz), < 70dB (25 kHz)
<b>Intermodulation:</b>	> 65 dB
<b>Spurious rejection:</b>	> 70 dB
<b>Image rejection:</b>	> 70 dB ( $\frac{1}{2}$ IF > 60 dB)
<b>Channel frequency spread:</b>	35 MHz
<b>AF output:</b>	0.5 W @ 4 $\Omega$ ( $\pm$ 5% THD)

### Transmitter

<b>Power output:</b>	5.0/2.5/1.0/0.1 W (Selectable, 0.1 W to 5.0 W Adjustable)
<b>Frequency stability:</b>	better than $\pm$ 5 ppm
<b>Modulation system:</b>	Direct FM
<b>Maximum deviation:</b>	( $\pm$ 2.5 kHz or) $\pm$ 5 kHz
<b>FM Noise (@ 1 kHz):</b>	better than -40 dB
<b>Spurious emissions:</b>	> 65 dB below carrier
<b>AF distortion (@ 1 kHz):</b>	< 5%
<b>Microphone type:</b>	2-k $\Omega$ condenser

*Specifications are subject to change without notice.*

*Frequency ranges and channel spacing vary according to transceiver version; check with your dealer.*