Vertex Standard

VX-2500E

OPERATING MANUAL
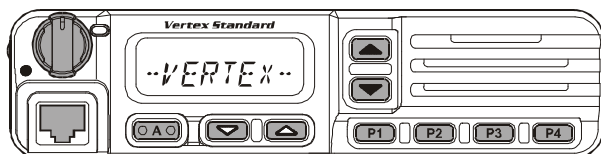
Congratulations!

You now have at your fingertips a valuable communications tool: a VERTEX STANDARD two-way radio! Rugged, reliable and easy to use, your VERTEX STANDARD radio will keep you in constant touch with your colleagues for years to come, with negligible maintenance downtime.

Please take a few minutes to read this manual carefully. The information presented here will allow you to derive maximum performance from your radio, in case questions arise later on.

We're glad you joined the VERTEX STANDARD team. Call on us anytime, because communications is our business. Let us help you get your message across.

NOTICE !

There are no owner-serviceable parts inside the transceiver. All service jobs must be referred to an authorized VERTEX STANDARD Service Representative. Consult your Authorized VERTEX STANDARD Dealer for installation of optional accessories.
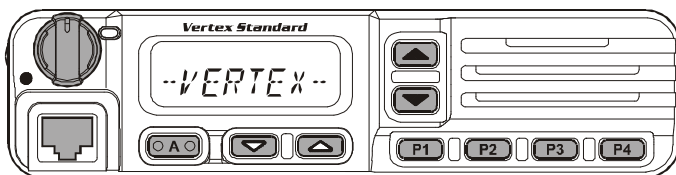
INTRODUCTION

The VX-2500E Series are full-featured FM transceivers designed for flexible mobile and base station business communications in the VHF or UHF Private Mobile Radio bands. These transceiver are designed for reliable business communications in a wide variety of applications with a wide range of operating capability provided by their leading-edge design.

The 32-channel memories can each be programmed with an 8-character channel name.

Important channel frequency data is stored in EEPROM on the CPU, and is easily programmable by dealers using a personal computer and the VERTEX STANDARD VPL-1 Programming Cable and CE63 Software.

The pages which follow will detail the many advanced features provided on the VX-2500E transceiver. After reading this manual, you may wish to consult with your Network Administrator regarding precise details of the configuration of this equipment for use in your application
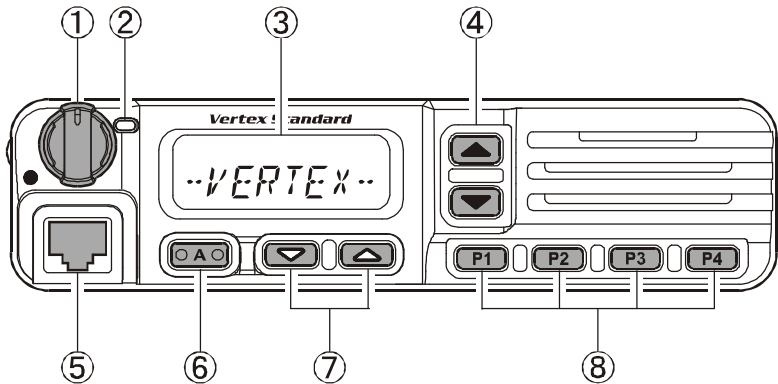
CONTROLS & CONNECTORS

Front Panel

Important! - All buttons located on the Front Panel are **Programmable Function** (**PF**) **Buttons**, configured according to your network requirements and programmed by your VERTEX STANDARD dealer. The instructions below a typically-configured radio.

① **VOL/PWR** Knob

Turn this control clockwise to turn the radio on and to increase the volume. Turn it counterclockwise into the click-stop to turn the radio off.

② **BUSY/TX** Indicator

Indicate transceiver Transmit/Receive Status

Steady Red:	Transmitting in progress
Steady Green:	Tone Squelch monitoring
Blinking Green:	Busy Channel
Steady Orange:	5-Tone Decoded

③ **LCD** (Liquid Crystal Display)

The display includes an 8-character alpha-numeric section showing Group and Channel names, status and identity information, and error messages.

④ [▼]/[▲] **Buttons** (Channel UP/DOWN)

Pressing either button changes the current channel (and displayed channel number or name). Holding a button for more than 1/2 second causes the function to repeat.

⑤ Microphone Jack

Connect the microphone plug to this jack.

⑥ [**A**] **Button** (Programmable Function Button)

This button can be set up for special applications, such as High/Low power selection, Monitor, Talk-Around, etc, as determined by your network requirements and programmed by your VERTEX STANDARD dealer.

⑦ [▽]/[△] **Buttons** (Programmable Function Buttons)

These buttons can be set up for special applications, such as High/Low power selection, Monitor, Talk-Around, etc, as determined by your network requirements and programmed by your VERTEX STANDARD dealer.

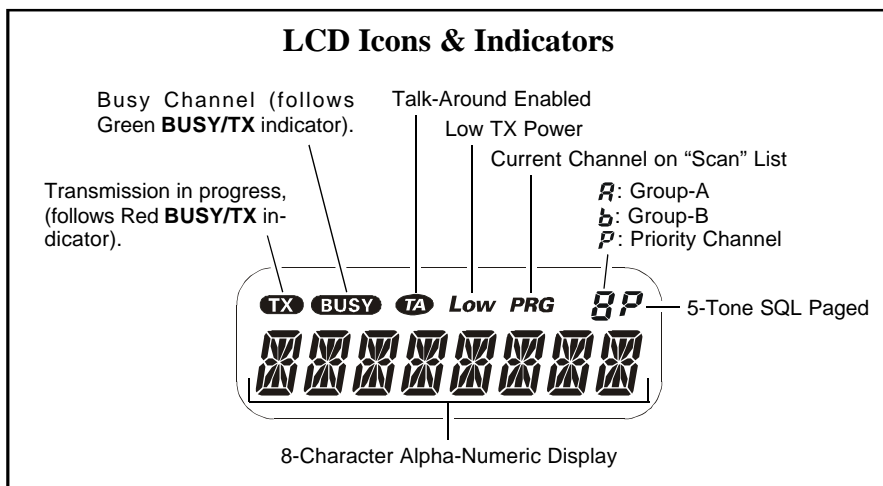⑧ [**P1**] - [**P4**] **Buttons** (Programmable Function Buttons)

These buttons can be set up for special applications, such as High/Low power selection, Monitor, Talk-Around, etc, as determined by your network requirements and programmed by your VERTEX STANDARD dealer.

LCD Icons & Indicators

Busy Channel (follows Green **BUSY/TX** indicator).

Talk-Around Enabled

Low TX Power

Current Channel on "Scan" List

Transmission in progress, (follows Red **BUSY/TX** indicator).

R: Group-A
b: Group-B
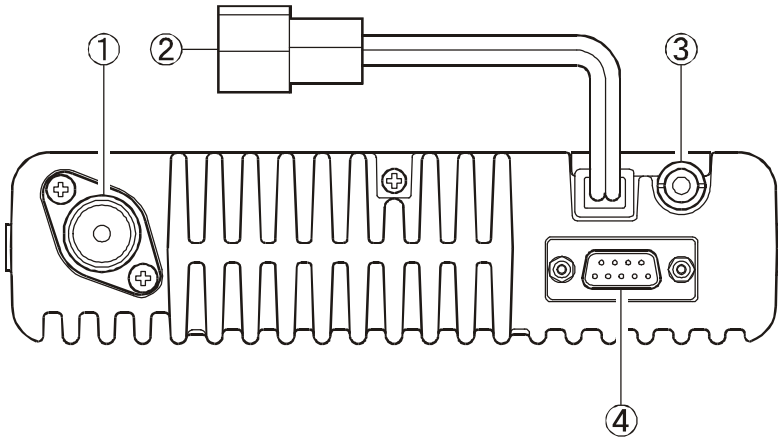P: Priority Channel

5-Tone SQL Paged

8-Character Alpha-Numeric Display

CONTROLS & CONNECTORS

Rear Panel

① Antenna Socket

The 50-Ohm coaxial feedline to the antenna must be connected here, using a type-M (PL-259) plug.

⚠ **Warning!**: The 50 V RF voltage (@25 W/50 Ω) is applied to the TX RF section of the transverter while transmitting.

Do not touch the TX RF section absolutely while transmitting.

② 13.2V DC Cable Pigtail with Connector

The supplied DC power cable must be connected to this 2-pin connector. Use only the supplied fused cable, extended if necessary, for power connection.

③ External Speaker Jack

An external loudspeaker may be connected to this 2-contact, 3.5-mm mini-phone jack.

Caution: Do not connect either wire of this line to ground, and be certain that the speaker has adequate capability to handle the audio output (4 W) from the radio.

④ D-Sub 9-Pin Accessory Connector

External TX audio line input, PTT (Push To Talk), Squelch, and external RX audio line output signals may be obtained from this connector for use with accessories such as data transmission/reception modems, etc.

BASIC OPERATION OF THE TRANSCEIVER

Important! - Before turning on the radio the first time, confirm that the power connections have been made correctly and that a proper antenna is connected to the antenna jack.

Switching Power ON/OFF

❒ Turn the **VOL/PWR** knob turn on the radio. The display will become illuminated.

❒ Press the [▼]/[▲] button to choose the desired operating channel. A channel name will appear on the display. If you want to select an operating channel from a different group, press the **PF** button which is programmed to the "*Group*" feature to select the group you want *before* selecting the operating channel.

Setting the Volume

❒ Turn the **VOL/PWR** knob clockwise to increase the volume, and counterclockwise to decrease it.

Transmitting

❒ To transmit, monitor the channel and make sure it is clear.
Press the **PF** button which is programmed to the "*Monitor*" feature to listen for channel activity.

❒ When receiving a call, transmit only after the incoming call ends. The radio cannot receive a call and transmit simultaneously.

❒ Press the **PTT** switch.

❒ If the channel is clear, the **BUSY/TX** indicator will glow red. The radio is now transmitting. While holding in the **PTT** switch, speak across the face of the microphone in a clear and normal voice. For best transmission, hold the microphone about 5 cm away from your mouth. Release the **PTT** switch to receive.

❒ If the Busy Channel Lockout feature has been programmed on a channel, the radio will not transmit when a carrier is present. Instead, the radio will generate a continuous low-pitched tone while the **PTT** switch is pressed. Release the **PTT** switch and wait for the channel to be clear of activity.

❒ If CTCSS or Digital Coded Squelch (DCS) Lockout has been programmed on a channel, the radio can transmit only when there is no carrier being received or when the carrier being received includes the correct CTCSS tone or DCS code.

5-Tone Sequential Signaling System

If the selected channel has been programmed for 5-Tone sequential signaling system, you may transmit the 5-Tone sequential code.

❒ Press the **PF** button which is programmed to the "*Code Up*" or "*Code Down*" feature to select the 5-Tone sequential code to be transmit.

❒ Press the **PF** button which is programmed to the "*Call 1*" feature to transmit the 5-Tone sequential code.

Automatic Time-Out Timer

If the selected channel has been programmed for automatic time-out, you must limit the length of each transmission. While transmitting, a beep will sound 10 seconds before time-out. Another beep will sound just before the deadline; the "TX" indicator will disappear and transmission will cease soon thereafter. To resume transmitting, you must release the **PTT** switch and wait for the "penalty timer" to expire (if you press the **PTT** switch before this timer expires, the timer restarts, and you will have to wait another "penalty" period)

Programmable Function (**PF**) Buttons

The VX-2500E includes seven Programmable Function (**PF**) Buttons. The **PF** button functions can be customized, via programming by your VERTEX STANDARD dealer, to meet your communications/network requirements. Some features may require the purchase and installation of optional internal accessories. The possible **PF** button programming features are illustrated below, and these functions are explained on the pages to follow.

For further details, contact your VERTEX STANDARD dealer. For future reference, check the box next to the function that has been assigned to each **PF** button on your particular radio, and keep it handy.

Function	Programmable Function (PF) Buttons						
	⊙ A ⊙	▽	△	P1	P2	P3	P4
None							
Code Select							
Code Up							
Code Down							
Monitor							
Scan							
Dual Watch							
Priority							
Priority Set							
Add/Dell							
Low Power							
Talk-around							
Horn							
Reset							
Lighting							
Key Lock							
Short Cut #1							
Short Cut #2							
Short Cut #3							
Short Cut #4							
Speed Dial							
Call 1							
Call 2							
Call 3							
Group							
Emergency							
Squelch Off							
Follow-Me Scan							

ADVANCED OPERATION

Description of Operating Functions

CODE SELECT

Press the assigned **PF** button to engage the setting of the 5-Tone sequential code.

While setting of the sequential code, press this key to move the cursor to the next charactor.

CODE UP

Press the assigned **PF** button to switch to a higher paging code number for the 5-Tone sequential signaling System.

While setting the sequential code, press this button to switch to a higher sequential code number.

CODE DOWN

Press the assigned **PF** button to switch to a lower paging code number for the 5-Tone sequential signaling System.

While setting the sequential code, press this button to switch to a lower sequential code number.

MONITOR

Press the assigned **PF** button momentarily to cancel CTCSS- and DCS-controlled squelch; the **BUSY/TX** indicator will glow green. Press and hold this button for 1.5 seconds to hear background noise (unmute the audio); the **BUSY/TX** indicator will blink green.

ADVANCED OPERATION

SCAN

The Scanning feature is used to monitor multiple channels programmed into the transceiver. While scanning, the transceiver will check each channel for the presence of a signal, and will stop on a channel if a signal is present.

❒ Press the assigned **PF** button to activate scanning.
❒ The scanner will search the channels of each group, looking for active ones; it will pause each time it finds a channel on which someone is speaking.
❒ Press the assigned **PF** button again to disable scanning. Operation will revert to the programmed *revert channel*.

Note: Your dealer may have programmed your radio to stay on one of the following channels if you press the **PTT** switch during scanning pause:

  ❍ "Last Busy" Channel
  ❍ "Priority" Channel
  ❍ Channel "1"

DUAL WATCH

The **Dual Watch** feature is similar to the **Scan** feature, except that only two channels are monitored:

❒ The current operating channel; and
❒ The "Priority" channel.

To activate Dual Watch:

  ❍ Press the assigned **PF** button.
  ❍ The scanner will search the two channels; it will pause each time it finds a channel on which someone is speaking.

To stop Dual Watch:

  ❍ Press the assigned **PF** button.

PRIORITY

❒ Press the assigned **PF** button to recall the "Priority" channel. When you recall the "Priority" channel, "P" icon will appear on the LCD.
❒ Press this button again, return to previous channel; "P" icon will disappear on the LCD.

ADVANCED OPERATION

PRIORITY SET

To set up a "Dual Watch" frequency pair using the "Dual Watch" feature, select a channel using the [▼]/[▲] button. Now, pressing the assigned **PF** button locks the current channel as the User-assigned Priority Channel, and "P" icon will appear on the LCD.

ADD/DELETE

❒ Press the assigned **PF** button to delete the current channel from Scanning. Alternatively, press and hold the assigned **PF** button for 2 seconds to delete the current channel from Scanning.

❒ When you delete a channel, the "***PRG***" icon will disappear on the LCD. To restore a particular channel to your scanning list, press and hold in the assigned **PF** button again for 2 seconds; the "***PRG***" icon will appear on the LCD.

LOW POWER

Press the assigned **PF** button to set the radio's transmitter to the "Low Power" mode. Press this button again to return to "High Power" operation when in difficult terrain.

TALK AROUND

Press the assigned **PF** button to activate the Talk Around feature when you are operating on duplex channel systems (separate receive and transmit frequencies, utilizing a "repeater" station). The Talk Around feature allows you to bypass the repeater station and talk directly to a station that is nearby. This feature has no effect when you are operating on "Simplex" channels, where the receive and transmit frequencies are already the same.

Note that your dealer may have made provision for "Talk Around" channels by programming "repeater" and "Talk Around" frequencies on two adjacent channels. If so, the key may be used for one of the other Pre-Programmed Functions.

HORN

When the Horn feature is enabled, a tone will sound from the speaker if you receive a call from the base station.

❒ Press and hold in the assigned **PF** button, indicate the "HORN OFF" notice on the display for 2 second and disable the Horn feature.

❒ Press and hold in this button again, indicate the "HORN ON" notice on the display for 2 second and activate the Horn feature.

ADVANCED OPERATION

RESET

Press the assigned **PF** button to reset the 2-Tone or 5-Tone sequetial signaling system.

LIGHTING

Press the assigned **PF** button to turn off the display lamp. Press the assigned **PF** button again to turn on the display lamp.

KEY LOCK

Press and hold in the assigned **PF** button for 2 seconds to lock the front panel buttons (except Emergency, Lock, and Monitor button); this can be enabled to prevent radio settings from being disturbed.

SHORT CUT #1 – SHORT CUT #4

Press the assigned **PF** button to recall the Dealer pre-programmed channel directly.

SPEED DIAL

Your Dealer may have pre-programmed Auto-Dial telephone number memories into your radio.

To dial a number, just press the assigned **PF** button for Speed Dialing. The DTMF tones sent during the dialing sequence will be heard in the speaker.

CALL 1

Press the assigned **PF** button to send the 5-Tone sequential code which is set to the present channel.

CALL 2/3

Press the assigned **PF** button to send the pre-programmed 5-Tone sequential code.

GROUP

The VX-2500E is capable of separating 32 operating channels into either of 2 groups (Group-A: CH 1 ~ CH 16, Group B: CH 17 ~ CH 32). Press the assigned **PF** button to change the between Group-A amd Group-B.

ADVANCED OPERATION

EMERGENCY

The VX-2500E includes an "Emergency" feature which may be useful if you have someone monitoring on the same frequency as your transceiver's channel.

Press the assigned **PF** button to initiate an emergency call. For further details contact your VERTEX STANDARD dealer.

SQUELCH OFF

Press the assigned **PF** button to hear background noise (unmute the audio).

Background noise or incoming signals will now be heard whether or not a matching tone is present on the signal.

Press and hold in the assigned **PF** button for more than one seconds to override both the Noise and Tone squelch. Again press and hold in the assigned **PF** button for more than one seconds (or press the assigned **PF** button twice) to resume normal (quiet) Noise and Tone squelch action.

FOLLOW-ME SCAN

"Follow-Me" Scan feature checks a *User-assigned* Priority Channel regularly as you scan the other channels. Thus, if only Channels 1, 3, and 5 (of the 8 available channels) are designated for "Scanning," the user may nonetheless assign Channel as the "User-assigned" Priority Channel via the "Follow-Me" feature.

Press the assigned **PF** button to activate "Follow-Me" scanning, then press the [▼]/ [▲] button to the channel which you want to designate as the "User-Assigned Priority Channel". When the scanner stops on an "active" channel, the User-assigned Priority Channel will automatically be checked every few seconds.

ARTS (Auto Range Transpond System)

This system is designed to inform you when you and another ARTS-equipped station are within communication range.

During ARTS operation, your radio automatically transmits for about 1 second every 25 seconds in an attempt to shake hands with the other station.

If you move out of range for more than two minutes, your radio senses that no signal has been received; a ringing beeper will sound, and "OUT OF SERVICE" will scroll on the LCD. If you subsequently move back into range, as soon as the other station transmits, your beeper will sound, and "IN SERVICE" will scroll on the LCD.

OPTIONAL ACCESSORIES

MLS-100   Mobile Loudspeaker (12 W Peak Power)
LF-1   Line Filter
MH-700D   DTMF Back-lit Microphone
MH-25A8J   Microphone

Availability of accessories may vary; some accessories are supplied standard per local requirements, others may be unavailable in some regions.

Check with your VERTEX STANDARD Dealer for changes to this list.

Vertex Standard

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