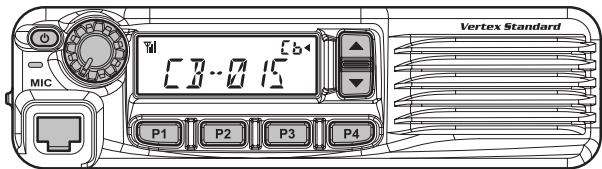


Vertex Standard

UHF CB TRANSCEIVER

VX-4600CB

OPERATING MANUAL



Vertex Standard LMR, Inc.

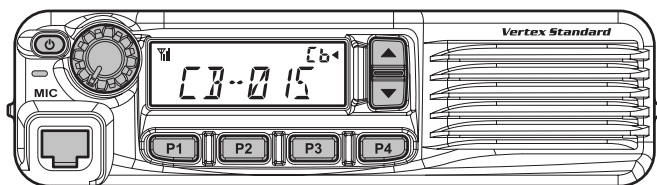
Contents

Introduction	1
Important Information Concerning UHF CB Radio	2
Features	4
Installation	6
Supplied Mounting Bracket	6
Mobile Installation	7
Base Station Installation.....	8
Control & Connectors	10
Front Panel	10
Rear Panel	12
Basic Operation of the Radio	13
Switching Power ON/OFF	13
Setting the Volume	13
Transmitting	13
Key Lock	14
Advanced Operation	15
Programming Function (PF) Keys	15
Description of Operating Functions	16
Field Programming Mode	20
User Menu Mode	21
Specifications	25
General	25
Receiver.....	25
Transmitter	25
VX-4600CB Channel List.....	26
CTCSS Tone Frequency	27
DCS Code.....	27
Supplied Accessories	28
Optional Accessories	28
Vertex standard Products Limited Warranty & Liability	29

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



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.

The **VX-4600CB** is meet the varied commercial radio needs of Australian industry. This transceiver is designed for reliable communications in a wide variety of applications with a wide range of operating capability provided by their leading-edge design.

The **VX-4600CB** allows to 80-channel capacity which can be programmed with an 8-character Alpha-Numeric Tag. Important channel frequency data is stored in EEPROM and flash memory on the CPU, allows the user to change the receiving frequency while the **VX-4600CB** is in the Field programming mode.

The manual will detail the many advanced features provided in the **VX-4600CB**. 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.

Please take a few minutes to read this manual carefully. The information presented here will allow you to derive maximum performance from your radio.

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.

⚠ Warning! RF Exposure Requirements ⚠

During transmissions, this radio generates RF energy that can possibly cause interference with other devices or systems. To avoid such interference, turn off the radio in areas where signs are posted to do so.

Do not operate the transmitter in areas that are sensitive to electromagnetic radiation such as hospitals, health care facilities, air port, and blasting sites.

IMPORTANT INFORMATION CONCERNING UHF CB RADIO

The use of the Citizen Band Radio Service is licensed in Australia by the ACMA radio communications (Citizens Band Radio Stations) class licence and in New Zealand by the ministry of Economic Development New Zealand (MED). A General user radio licence for Citizens Band Radio and operation is subject to conditions contained in those licences.

The class licence for users and equipment operating in the CB/PRS 477 MHz band has been amended.

This radio meets the new 80 channel standard.

In simple terms the same amount of spectrum is available; however, radio transceivers can now operate in a narrower bandwidth and hence use less spectrum.

These radios are generally referred to as narrowband or 12.5 kHz radios. By using 12.5 kHz channel spacing instead of 25 kHz, the 40 channels originally allocated can now be expanded to 80 channels thereby doubling the channel capacity and relieving congestion in the UHF CB/PRS band.

Original 40 channel wideband radios will continue to operate on the original 40 channels, however they will not be able to converse on the newer channels 41 - 80.

The newer narrowband radios will be able to converse with all older 40 channel wideband radios on all channels 1 to 40 as well as the newer channels allocated from 41 to 80.

The mixing of narrowband and wideband radios in the same spectrum can cause some possible operating issues of interference and varying levels of received volume.

IMPORTANT INFORMATION CONCERNING UHF CB RADIO

Possible Issues

When a new narrowband radio receives a transmission from an older wideband radio the speech may sound loud and distorted - simply adjust your radio volume for best performance.

When an older wideband radio receives a signal from a new narrowband radio, the speech may sound quiet - simply adjust your radio volume for best performance.

Depending on how close your receiving radio is to another transmitting radio, there can be interference from the transmitting radio if it is using a channel adjacent to the channel you are listening to.

Simply try going up or down a few channels from the currently selected channel.

The above situations are not a fault of the radio but a symptom of operating wideband and narrowband radios in the same bandwidth.

This possible interference will decrease over time as the population of wideband radios ages and decreases.

Further information and updates are available from the Australian communications and media Authority (ACMA) at www.acma.gov.au and the Ministry of Economic Development (MED), radio spectrum management at: www.rsm.govt.nz

Emergency Channels

The ACMA has allocated channels 5/35 for emergency use only. Channel 5 is the primary simplex Emergency channel. Where a channel 5 repeater is available, you should select Duplex on CH 5.

Note: Channel 35 is the input channel for the channel 5 repeater therefore channel 35 should also not be used for anything other than emergency transmissions.

Telemetry Channels

ACMA regulations have allocated channels 22 and 23 for telemetry only applications and have prohibited the transmission of speech on these channels. Consequently your radio has a transmit inhibit applied to channels 22 and 23.

In the event additional telemetry/telecommand channels are approved by the ACMA, these channels shall be added to those currently listed where voice transmission is inhibited. Currently transmissions on channels 61, 62 and 63 are also inhibited and these channels are reserved for future allocation.

FEATURES

Microprocessor Controlled Frequency Synthesiser: Allows user programmable control of scanning, channel memories and selected feature options.

Voice Encryption: The Voice Encryption feature protect the privacy of your communication from other groups.

Programmable Scan Function: Scans the selected UHF CB channels with both Group and Open Scan functions available.

Priority Channel: User programmable Priority Channel feature allows your working channel to be instantly recalled at the press of a programmable key.

High Contrast Liquid Crystal Display: Large LCD (Liquid Crystal Display) provides a visual indication of the selected channel and all selected functions at a glance.

Field Programming Mode: Allows the user to change the receiving frequency and Wide/Narrow receiver filter of the memory channel by the simple operation from the front panel's key.

User Menu Mode: Allows the user to define or configure various settings of the radio by the simple operation from the front panel's key.

In-Built CTCSS & DCS: User selectable Continuous Tone Coded Squelch System and Digital Coded Squelch system option provides silent channel operation on individual channels.

TOT (Time Out Timer): This radio has a built-in time-out timer that automatically limits transmissions to a maximum of 3 minutes of continuous operation.

This feature is required by the ACMA to prevent accidental blocking of the frequency should your **PTT** switch become jammed or be otherwise pressed accidentally. The time-out period can be changed to a shorter time by your dealer.

FEATURES

Repeater and Duplex Mode: Duplex operation allows the radio to transmit on a different frequency to that which it receives. This allows operation through repeater stations.

A repeater station consists of a linked transmitter/receiver combination installed in a prominent location.

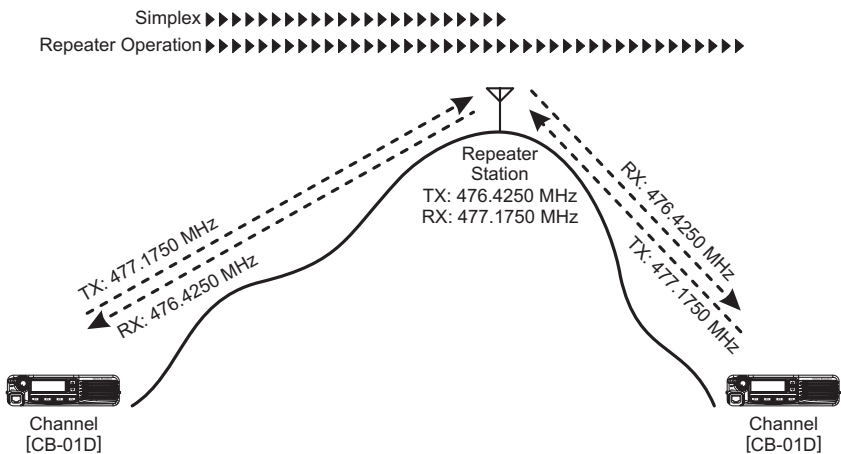
The repeater is designed to receive signals on a designated channel and retransmit them on another channel.

Repeater stations, usually located on mountaintops or other high locations, provide a dramatic extension of the communication range for low-powered hand-held or mobile transceivers.

Normally, UHF radios transmit and receive on the same frequency - known as Simplex operation. However to communicate through repeaters, your radio must be able to transmit and receive on different channels - otherwise known as Duplex operation.

This radio can easily perform the repeater operation by selecting the operating channel to the repeater channel by the [▼]/[▲] key.

The repeater channel is set in channels 1 - 8 and 41 - 48 which have been allocated for repeater use. In the repeater channel, the “D” notation is appeared on the right side of the channel indication. Refer to page 26 for details of the Channel List.



INSTALLATION

Supplied Mounting Bracket

The supplied mounting bracket allows desktop or overhead mounting.

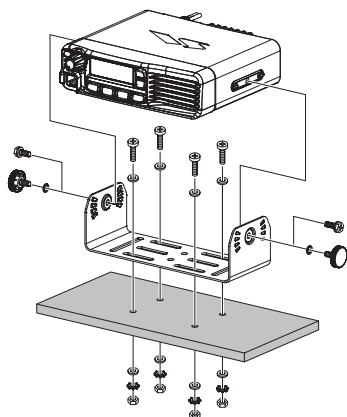
- ❑ Use a 5.5 mm bit to drill the holes to a surface which is more 10 mm thick and can support more than 1.5 kg and secure the bracket with the supplied screws, spring washers, flat washers, and nuts.

You may secure the bracket using the supplied tapping screws, instead of the screws and nuts. In this case, drill the small pilot holes instead of the 5.5 mm holes.

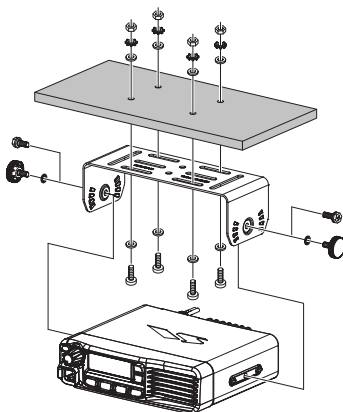
- ❑ Install the radio to the bracket using the supplied Knob Screws and Washers (or Hex Head Bolts, depending on the situation).



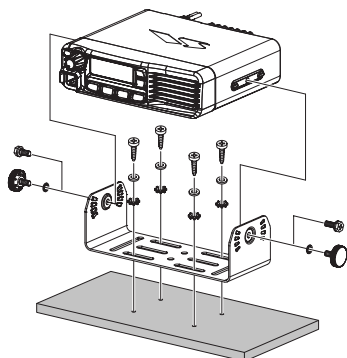
Use only the supplied Knob Screws, Washers, Bolts, or equivalent size screws (HSM5X12).



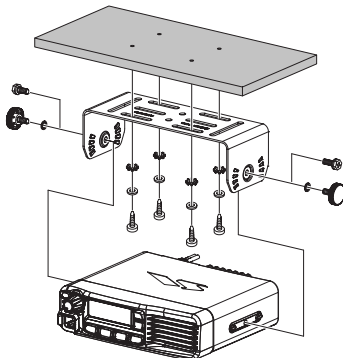
DESKTOP MOUNT (WITH SCREW & NUT)



OVERHEAD MOUNT (WITH SCREW & NUT)



DESKTOP MOUNT (WITH TAPPING SCREW)



OVERHEAD MOUNT (WITH TAPPING SCREW)

INSTALLATION

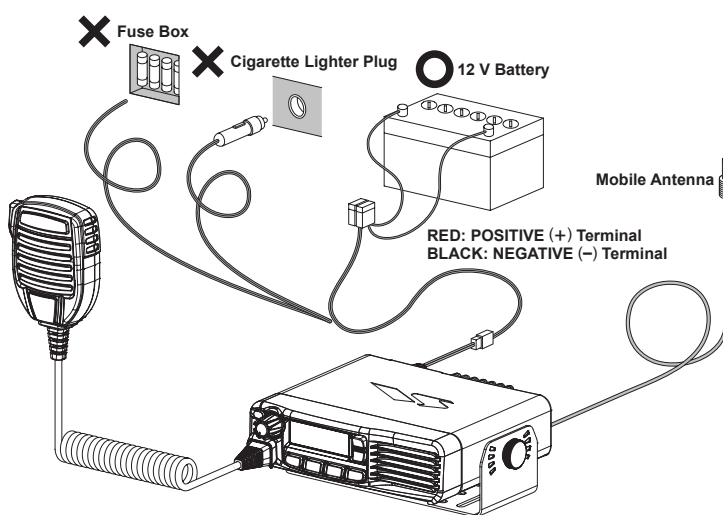
Mobile Installation

To minimize voltage drop and avoid blowing the vehicle's fuses, connect the supplied DC power cable directly to the battery terminals. Do not attempt to defeat or bypass the DC cable's fuse - it is there to protect you, your transceiver, and your vehicle's electrical system.



Warning! Never apply AC power to the power cable of the **VX-4600CB**, nor DC voltage greater than 15.8 Volts. When replacing the fuse, only use a 15-A fuse. Failure to observe these safety precautions will void the Limited Warranty on this product.

- ❑ Before connecting the **VX-4600CB**, check the voltage at the battery terminals while revving the engine. If the voltage exceeds 15 Volts, adjust the vehicle's voltage regulator before proceeding with installation.
- ❑ Connect the **RED** power cable lead to the **POSITIVE (+)** battery terminal, and the **BLACK** power cable lead to the **NEGATIVE (-)** terminal. If you need to extend the power cable, use #12 AWG or larger insulated, stranded copper wire. Solder the splice connections carefully, and wrap the connections thoroughly with insulating electrical tape.
- ❑ Before connecting the cable to the transceiver, verify the voltage and polarity of the voltage at the transceiver end of the DC cable using a DC voltmeter. Now connect the transceiver to the DC cable.



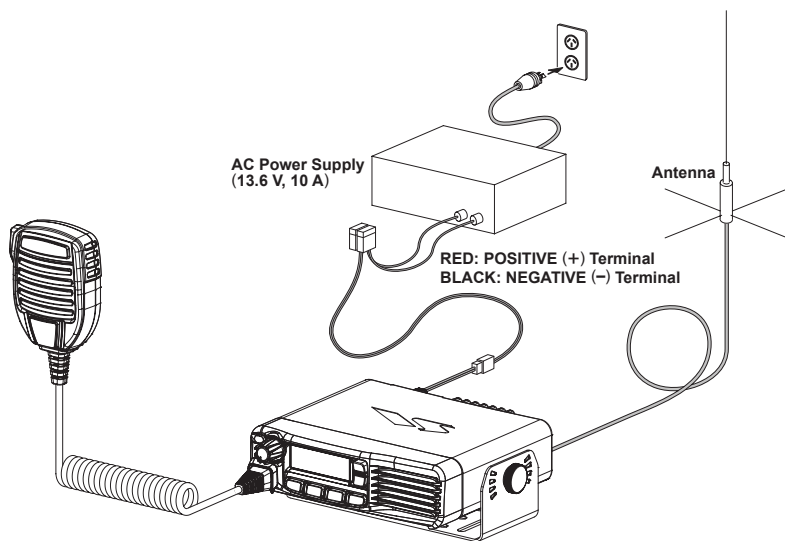
MOBILE INSTALLATION

INSTALLATION

Base Station Installation

Operation of the **VX-4600CB** from an AC line requires a power source capable of providing at least 10 Amps continuously at 13.6 Volts DC. The **FP-1030A** AC Power Supplies are available from your Vertex Standard dealer to satisfy these requirements. Other well-regulated power supplies may be used, as well, if they meet the above voltage and current specifications.

Use the supplied DC power cable for making power connections to the power supply. Connect the **RED** power cable lead to the **POSITIVE (+)** power supply terminal, and connect the **BLACK** power cable lead to the **NEGATIVE (-)** power supply terminal.



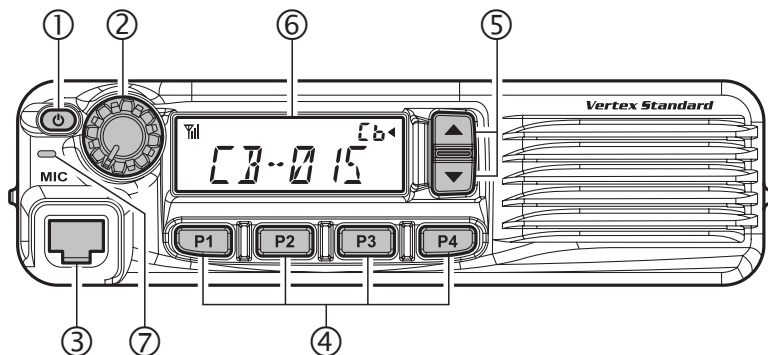
BASE STATION INSTALLATION

NOTE

CONTROLS & CONNECTORS

Front Panel

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



① PWR (⏻) Button

Press and hold in this button for 2 seconds to toggle the transceiver's power "on" and "off".

② VOL Knob

Turn this control clockwise to increase the volume.

③ Microphone Jack

Connect the microphone plug to this jack.

④ [P1] - [P4] Keys (Programmable Function Keys)

These keys can be set up for special applications, such as High/Low power selection, Scan Mode Selection, CTCSS/DCS Setting, etc., as determined by your network requirements and programmed by your Vertex Standard dealer.

⑤ [▼]/[▲] Keys (Programmable Function Keys)

In the factory default, pressing either key changes the current channel (and displayed channel number or name).

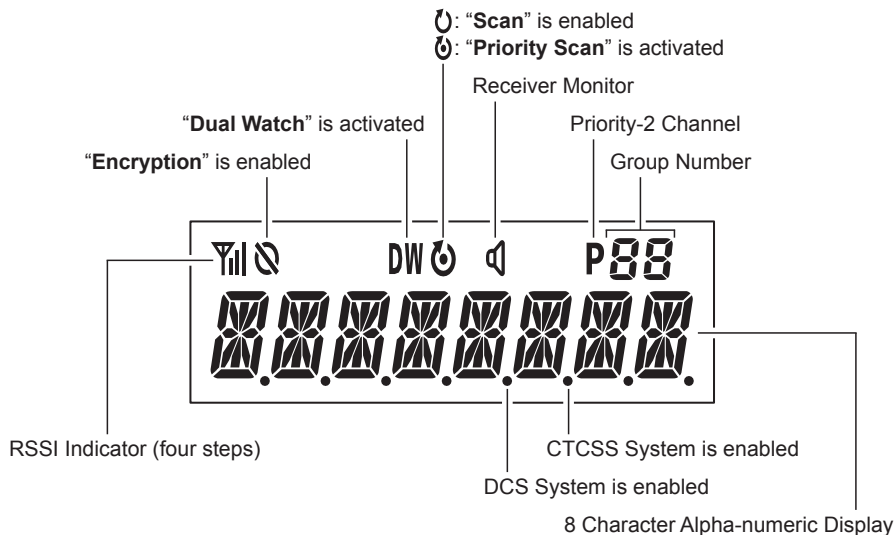
CONTROLS & CONNECTORS

⑥ LCD (Liquid Crystal Display)

The display includes a 8-character alpha-numeric section showing Channel name tags/identity information and error messages, and an upper icon row displaying feature status (see below).

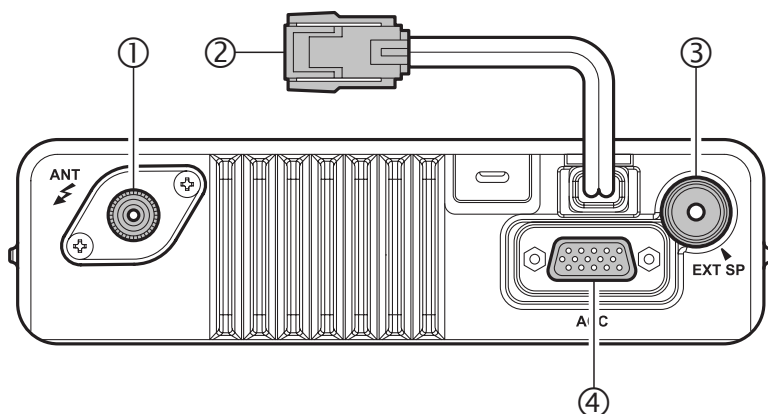
⑦ TX/BUSY Indicator

Indicates transceiver's Transmit/Receive Status.



CONTROLS & CONNECTORS

Rear Panel



① Antenna Jack

The 50-Ohm coaxial feedline to the antenna must be connected here, using a mini-UHF plug.

② 13.6V 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.

⚠ Replace only with the same or equivalent type fuse.

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 (12 W) from the radio.


④ D-Sub 15-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, and external Channel control input etc.

BASIC OPERATION OF THE RADIO

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

- Press and hold in the **PWR**() button for 2 seconds to turn the radio on. The display will become illuminated.
- Press the [**▼**]/[**▲**] key to choose the desired operating channel. A channel number will appear on the display.
- If you want to select an operating channel from a different group, press the [**P4**] key repeatedly to select the group you want before selecting the operating channel. A group number will appear at the upper right corner of the LCD whenever the [**P4**] key is pressed.

Setting the Volume

- Turn the **VOL** 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 Programmable Function key which is assigned 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 **TX/BUSY** 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 4 to 5 cm away from your mouth. Release the **PTT** switch to receive.
- The **VX-4600CB** has a Time-Out Timer which limits the length of each transmission to 3 minutes. It prevent prolonged transmissions.
While transmitting, a beep will sound 10 seconds before time-out. Another beep will sound just before the deadline; the red “**TX**” indicator will disappear and transmission will cease soon thereafter, and the “**TIME OUT**” will be indicated on the display. 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).

BASIC OPERATION OF THE RADIO

- ❑ 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 short beep three times and the **VX-4600CB** indicates “**CH BUSY**” on the display. 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.

Key Lock

In order to prevent accidental operating function/feature change or inadvertent transmission, various aspects of the front panel’s keys may be locked out.

To activate the Locking feature, press and hold in the [**P1**] key while turning the radio on. To disable the Locking feature, repeat this power-on procedure.

ADVANCED OPERATION

Programmable Function (PF) Keys

The **VX-4600CB** includes six Programmable Function (**PF**) keys. The **PF** key functions can be customized, via programming by your Vertex Standard dealer. The possible **PF** key 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 below to the function that has been assigned to each **PF** key on your particular radio, and keep it handy.

FUNCTION	PROGRAMMABLE FUNCTION KEY (PRESS KEY / PRESS & HOLD KEY)					
	[P1]	[P2]	[P3]	[P4]	[▲]	[▼]
Dimmer	/	/	/	/	/	/
Monitor	/	/	/	/	/	/
Squelch Off	/	/	/	/	/	/
Lock	/	/	/	/	/	/
Scan	/	/	/	/	/	/
Scan Set	/	/	/	/	/	/
Scan Mode Select	/	/	/	/	/	/
Priority Channel Set	/	/	/	/	/	/
CTCSS/DCS Set	/	/	/	/	/	/
Group Up	/	/	/	/	/	/
Encryption	/	/	/	/	/	/
User Menu Mode	/	/	/	/	/	/

ADVANCED OPERATION


Description of Operating Functions

DIMMER

Press (or press and hold) the assigned **PF** key to select the brightness level of the display and keypad. Available selections are four levels.


MONITOR

Press (or press and hold) the assigned **PF** key to disable the Signaling Squelch (CTCSS, DCS, 5-Tone Signaling, or DTMF Pager). Press (or press and hold) the assigned **PF** key again to resume normal (quiet) the Signaling Squelch action.

When the Signaling Squelch is disabled, the “

SQL OFF

Press (or press and hold) the assigned **PF** key to disable both the Noise and Signaling Squelch (CTCSS, DCS, 5-Tone Signaling, or DTMF Pager) systems. Press (or press and hold) the assigned **PF** key again to resume normal (quiet) operation of the Noise and Signaling Squelch system.

When the Noise and Signaling Squelch is disabled, the “

LOCK

Press (or press and hold) the assigned **PF** key to lock the **PF** keys and **PTT** switch. In the Lock mode, the display will show “-LOCK-” when you touch the **PF** keys or **PTT** switch. Of course, you may cancel the Lock mode by press (or press and hold) the assigned **PF** key).

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.

- To activate scanning**, press (or press and hold) the assigned **PF** key to activate scanning on the channel, looking for active ones; it will pause each time it finds a channel on which someone is speaking.
- To stop scanning**, press (or press and hold) the assigned **PF** key again. Operation will revert to the “Scan Start” channel.

ADVANCED OPERATION

SCAN SET

Scan Set feature allows the user to arrange a custom scan.

Press (or press and hold) the assigned **PF** key to delete/restore the current channel to/from your scanning list.

- ❑ When you delete a stored channel, “**SCN SKIP**” will appear on the display for one second after you press (or press and hold) the assigned **PF** key; the “**U**” icon will, in turn disappear.
- ❑ When you restore a channel, “**SCN SET**” will appear on the display for one second after you press (or press and hold) the assigned **PF** key, and the “**U**” icon will now appear.

SCAN MODE SELECT

Press (or press and hold) the assigned **PF** key to select the scan mode. Press (or press and hold) the assigned **PF** key repeatedly to select the desired Scan Mode.

- ❑ **Open Scan** (“**SCAN OPN**” will appear on the display)
The scanner will search the all “flagged” channels, looking for active ones. When receive the signal, the scanner will halt and resume according to the programmed resume time.
When press the **PTT** switch in the Open Scan mode, transmission is inhibited while scanner is activated, or disable the scanner while scanner is paused.
- ❑ **Group Scan** (“**SCAN GRP**” will appear on the display)
The scanner will search the all “flagged” channels and priority channel, looking for active ones. When receive the signal, the scanner will halt and resume according to the programmed resume time.
When press the **PTT** switch in the Group Scan mode, the radio transmit on the Priority Channel while the scanner is activated, or the radio transmit on the Busy Channel while the scanner is paused.
- ❑ **Priority Scan** (“**SCAN PRI**” will appear on the display)
The scanner will search the all “flagged” channels and priority channel, looking for active ones. When receive the signal, the scanner will halt and resume according to the programmed resume time.
In the Priority Scan mode, press the **PTT** switch to disable the scanner.

ADVANCED OPERATION

PRIORITY CHANNEL SET

Press (or press and hold) the assigned **PF** key to assign/remove the current channel to/from Priority Channel “flag”. The Priority Channel “flag” sets individually to the Group Scan and Priority Scan modes.

When you assign a “flag”, a small “**P**” icon will appear at the upper right corner of the display. When you remove a “flag”, a small “**P**” will disappear from the display.

CTCSS/DCS SET

Press (or press and hold) the assigned **PF** key to enable selection of the CTCSS/DCS system.

The CTCSS/DCS system superimposes a continuous, subaudible tone (for CTCSS system) or digital code (for DCS system) on your transmitted audio. When decoded at the other station, the CTCSS/DCS signal triggers their squelch to open and receive your transmission. To use the CTCSS/DCS system, both stations must be select the same tone or code.

1. Press (or press and hold) the assigned **PF** key to display the current CTCSS/DCS system.
2. Press the [**P1**] key to select the desired CTCSS/DCS mode.
3. Press the [**▲**]/[**▼**] key to select the desired subaudible tone (for CTCSS system) or digital code (for DCS system).

You may cancel the new setting by pressing the [**P3**] key.

4. Press the [**P4**] key to activates the CTCSS/DCS system.

To disable the CTCSS/DCS system, select the “OFF” in step 3 above.

The “decimal point” will be appeared on the display to indicate the CTCSS/DCS system is activated.

Note: The “CH-05” and “CH-35” channels are used for Emergency Channel. The CTCSS/DCS system is not available on these channels.



DCS System is enabled
CTCSS System is enabled

ADVANCED OPERATION


GROUP UP

Press (or press and hold) the assigned **PF** key to switch to a higher Memory Channel Group.

Once the desired Group is reached, press the **PF** key which is assigned to the Channel Up/Down function to select the desired channel within the selected Group.

ENCRYPTION

Press (or press and hold) the assigned **PF** key to toggle the Encryption feature “on” and “off” independently on each channel. The Encryption feature protect the privacy of your communication.

When the Encryption feature is activated, the “” icon will be indicated on the display.

Note: The “CH-05” and “CH-35” channels are used for Emergency Channel. The Encryption feature is not available on these channels.

USER MENU MODE

Press (or press and hold) the assigned **PF** key to enter the User Menu Mode. See page 21 for details of the User Menu Mode.

FIELD PROGRAMMING MODE

The Memory Channel of the RX Only Group allows the user to change the receiving frequency while the **VX-4600CB** is in the Field Programming mode.

1. Turn the radio “off”.
2. Press and hold in the [▲] key while turning the radio on. Release the [▲] key after “**FIELDPRG**” appeared. The radio enters the Field Programming mode.
3. Press the [▲]/[▼] key to select the Memory Channel which you wish to change the frequency.
4. Press the [P4] key briefly. The memory channel number will blink.
If you wish to disable the current channel (leave from Memory Channel list), press the [▲]/[▼] key to change the blinking memory channel number to the blinking “**NONEXIST**” notation, then skip to step 8.
Note: The memory channel “1” can not set to “disabled”.
5. Press the [P4] key briefly, then press the [▲]/[▼] key to select the desired bandwidth between “**SEP WIDE**” (Wide: 25 kHz/step) or “**SEP NARR**” (Narrow: 12.5 kHz/step).
6. Press the [P4] key briefly, and then press the [▲]/[▼] key to change the receiving frequency by 1 MHz step.
7. Press the [P4] key briefly, and then press the [▲]/[▼] key to change the receiving frequency by the step which was determined in step 5.
8. Press the [P4] key to save the new frequency.
9. If you wish to change other memory channel, repeat steps 3 through 8 above.
10. After completing your programming, turn the radio off by pressing the **PWR**(⏻) button for 2 seconds to save the new settings.

USER MENU MODE

The **VX-4600CB** includes a User Menu Mode which allows the user to define or configure various settings, such as Squelch Threshold Level,, Beep On/Off, Display Backlight On/Off, etc. To activate the User Menu Mode:

- Press (or press and hold) the **PF** key assigned to the “User Menu Mode” function to enter the User Menu Mode.
- Select the User Menu Mode item you wish to change using the **[P1]/[P2]** key, then use the **[▼]/[▲]** key to adjust the setting of the selected item.
- Press the **[P4]** key to store the new configuration and exit to normal operation. You may cancel the selection by pressing the **[P3]** key.

DISPLAY	DESCRIPTION
SQL	Sets the Squelch level.
BEEP	Enables/Disables the Key Beeper.
BELL	Enables/Disables the Bell function.
LIGHT	Enables/Disables the back light of the display and keypad.
KEY	Enables/Disables the Key Lock function.
PTT	Enables/Disables the PTT Lock function.
DIMM	Sets the LCD Brightness level.
SCAN	Engages/Disengages Scanning.
DW	Engages/Disengages Dual Watch.
AF	Sets the minimum Audio Volume level.
CONTR	Sets the LCD Contrast level.
ENCR	Enables/Disables the disabling the Encryption feature temporarily.
L-OUT	Select the Channel Lock-out feature.
SCN-T	Sets the Scan resume time.
DUTY	Selects the Duty function of the 5-Tone Paging Decoder.
ROGER	Enables/Disables the Roger Beep.

USER MENU MODE

SQL

Function: Sets the Squelch threshold level.

Available Values: -15 to +15

Default: 00

BEEP

Function: Enables/Disables the keypad beeper.

Available Values: ON / OFF

Default: ON

BELL

Function: Enables/Disables Bell function.

Available Values: ON / OFF

Default: OFF

When the Bell function is enabled, a “bell” alert sounds when call is coming in, during CTCSS/DCS operation.

LIGHT

Function: Enables/Disables the keyboard and display backlight.

Available Values: ON / OFF

Default: ON

KEY (Key Lock)

Function: Enables/Disables the Programmable Function Keys by the Key Lock function.

Available Values: FRE (OFF) / LCK (ON)

Default: LCK (ON)

PTT (PTT Lock)

Function: Enables/Disables the **PTT** switch by the Key Lock function.

Available Values: FRE (OFF) / LCK (ON)

Default: LCK (ON)

DIMM (Dimmer)

Function: Set the LCD Brightness level.

Available Values: 0 (OFF) / 1 / 2 / 3

Default: 2

USER MENU MODE

SCAN

Function: Set the Scan Status.

Available Values: OFF / ON / GRP (Group) / FM (Follow-Me)

OFF: Stop the Scan

ON: Starts the Scan

GRP: Starts the LMR Group Scan which search all “flagged” channels on the LMR Group.

FM: Start the Follow-Me Scan that search all “flagged” channels and Scan Start channel.

Default: OFF

DW

Function: Enables/Disables the Dual Watch feature.

Available Values: ON / OFF

Default: OFF

The Dual Watch feature is similar to the Priority Scan, except that only two channels are monitored: current operating channel and priority channel.

AF (AF Minimum Volume)

Function: Set the minimum audio volume level.

Available Values: 000 to 255

Default: 000

CONTR (Contrast)

Function: Set the LCD Contrast level.

Available Values: 00 to 15

Default: 07

ENCR (Encryption)

Function: Enables/Disables the Encryption feature temporarily.

Available Values: ON / OFF

Default: OFF

USER MENU MODE

L-OUT (Lock-Out)

Function: Selects the Channel Lock-out feature.

Available Values: DEF (Default) / OFF / BC (BCLO) / BT (BTLO)

DEF: Determined in the dealer setting.

OFF: Disable the Lock-out feature.

BC: Activates the BCLO (Busy Channel Lock-out) feature.

The radio inhibits transmission while there is a carrier present.

BT: Activates the BTLO (Busy Tone Lock-out) feature.

The radio inhibits transmission while there is carrier present only when there is a invalid tone or no tone present.

Default: DEF

SCN-T (Scan Resume Time)

Function: Sets the Scan resume time.

Available Values: DEF (Default) / 5S (5 sec.) / 10S (10 sec.) / 15S (15 sec.) / P5 (Pause)

DEF: Determined in the dealer setting.

5S: The Scanner will resume after 5 seconds when a signal disappears.

10S: The Scanner will resume after 10 seconds when a signal disappears.

15S: The Scanner will resume after 15 seconds when a signal disappears.

P5: The scanner stops for 5 seconds, then the Scanner resume regardless of the signal receiving.

Default: DEF

DUTY

Function: Selects the Duty function of the 5-Tone Paging Decoder.

Available Values: DEF (Default) / ON

DEF: Determined in the dealer setting.

ON: You will always hear (depending on the sub-audio signaling) all traffic on the 5-Tone paging channel.

Default: DEF

ROGER (Roger Beep)

Function: Enables/Disables the Roger beeper which emit the beep when release the PTT switch.

Available Values: ON / OFF

Default: OFF

SPECIFICATIONS

General

Frequency Ranges:	476.4250 - 477.4125 MHz: UHF CBRS Band 450 - 520 MHz: RX Only
Channels / Group:	80 CH (UHF CBRS Band) + 16 CH (RX Only Band)
Power Supply Voltage:	13.6 V \pm 20 %
Channel Spacing:	12.5 kHz: UHF CBRS Band 12.5 / 25 kHz: RX Only Band
PLL Steps:	5 / 6.25 kHz
Current Consumption: (@13.6 V)	3 A (TX), 2.5A (RX), 200 mA (RX: SQL Closed)
Operating Temperature Range:	-30 °C to +60 °C
Frequency Stability:	\pm 2.5 ppm (-30 °C to +60 °C)
Antenna Impedance:	50 ohm
Case Size (W x H x D):	165 x 45 x 155 mm (w/o knob)
Weight (Approx.):	1.25 kg

Receiver

Circuit Type:	Double-conversion Superheterodyne
Intermediate Frequency:	1st: 67.65 MHz, 2nd: 450 kHz
Sensitivity (12 dB SINAD):	0.25 μ V
Adjacent Channel Selectivity:	70 dB/80 dB (12.5 kHz/25 kHz)
Hum & Noise:	40 dB/45 dB (12.5 kHz/25 kHz)
Intermodulation:	75 dB
Spurious & Image Rejection:	80 dB
Audio Output:	Internal: 4 W @32 Ohm, 5% THD External: 12 W @4 Ohm, 5% THD

Transmitter

Modulation Type:	Variable Reactance
Power Output:	5 W
Emission Type:	11K0F3E
Maximum Deviation:	\pm 2.5 kHz
FM Hum & Noise:	40 dB
Audio Distortion:	< 3 % (@1 kHz)

Specifications subject to change without notice or obligation.

SPECIFICATIONS

VX-4600CB Channel List

CHANNEL	FREQUENCY (MHZ)		CHANNEL	FREQUENCY (MHZ)		CHANNEL	FREQUENCY (MHZ)	
	RX	TX		RX	TX		RX	TX
CB-01D	476.4250	477.1750	CB-25S	477.0250		CB-49S	476.6375	
CB-01S	476.4250		CB-26S	477.0500		CB-50S	476.6625	
CB-02D	476.4500	477.2000	CB-27S	477.0750		CB-51S	476.6875	
CB-02S	476.4500		CB-28S	477.1000		CB-52S	476.7125	
CB-03D	476.4750	477.2250	CB-29S	477.1250		CB-53S	476.7375	
CB-03S	476.4750		CB-30S	477.1500		CB-54S	476.7625	
CB-04D	476.5000	477.2500	CB-31S	477.1750		CB-55S	476.7875	
CB-04S	476.5000		CB-32S	477.2000		CB-56S	476.8125	
CB-05D	476.5250	477.2750	CB-33S	477.2250		CB-57S	476.8375	
CB-05S	476.5250		CB-34S	477.2500		CB-58S	476.8625	
CB-06D	476.5500	477.3000	CB-35S	477.2750		CB-59S	476.8875	
CB-06S	476.5500		CB-36S	477.3000		CB-60S	476.9125	
CB-07D	476.5750	477.3250	CB-37S	477.3250		----	----	
CB-07S	476.5750		CB-38S	477.3500		----	----	
CB-08D	476.6000	477.3500	CB-39S	477.3750		----	----	
CB-08S	476.6000		CB-40S	477.4000		CB-64S	477.0125	
CB-09S	476.6250		CB-41D	476.4375	477.1875	CB-65S	477.0375	
CB-10S	476.6500		CB-41S	476.4375		CB-66S	477.0625	
CB-11S	476.6750		CB-42D	476.4625	477.2125	CB-67S	477.0875	
CB-12S	476.7000		CB-42S	476.4625		CB-68S	477.1125	
CB-13S	476.7250		CB-43D	476.4875	477.2375	CB-69S	477.1375	
CB-14S	476.7500		CB-43S	476.4875		CB-70S	477.1625	
CB-15S	476.7750		CB-44D	476.5125	477.2625	CB-71S	477.1875	
CB-16S	476.8000		CB-44S	476.5125		CB-72S	477.2125	
CB-17S	476.8250		CB-45D	476.5375	477.2875	CB-73S	477.2375	
CB-18S	476.8500		CB-45S	476.5375		CB-74S	477.2625	
CB-19S	476.8750		CB-46D	476.5625	477.3125	CB-75S	477.2875	
CB-20S	476.9000		CB-46S	476.5625		CB-76S	477.3125	
CB-21S	476.9250		CB-47D	476.5875	477.3375	CB-77S	477.3375	
CB-22S	476.9500	----	CB-47S	476.5875		CB-78S	477.3625	
CB-23S	476.9750	----	CB-48D	476.6125	477.3625	CB-79S	477.3875	
CB-24S	477.0000		CB-48S	476.6125		CB-80S	477.4125	

SPECIFICATIONS

CTCSS Tone Frequency (Hz)

CT	OFF	CT	85.4	CT	110.9	CT	146.2	CT	173.8	CT	199.5	CT	241.8
CT	67.0	CT	88.5	CT	114.8	CT	151.4	CT	177.3	CT	203.5	CT	250.3
CT	69.3	CT	91.5	CT	118.8	CT	156.7	CT	179.9	CT	206.5	CT	254.1
CT	71.9	CT	94.8	CT	123.0	CT	159.8	CT	183.5	CT	210.7		----
CT	74.4	CT	97.4	CT	127.3	CT	162.2	CT	186.2	CT	218.1		----
CT	77.0	CT	100.0	CT	131.8	CT	165.5	CT	189.9	CT	225.7		----
CT	79.7	CT	103.5	CT	136.5	CT	167.9	CT	192.8	CT	229.1		----
CT	82.5	CT	107.2	CT	141.3	CT	171.3	CT	196.6	CT	233.6		----

DCS Code

DCS	OFF	DCS	074	DCS	172	DCS	263	DCS	365	DCS	465	DCS	654
DCS	023	DCS	114	DCS	174	DCS	265	DCS	371	DCS	466	DCS	662
DCS	025	DCS	115	DCS	205	DCS	266	DCS	411	DCS	503	DCS	664
DCS	026	DCS	116	DCS	212	DCS	271	DCS	412	DCS	506	DCS	703
DCS	031	DCS	122	DCS	223	DCS	274	DCS	413	DCS	516	DCS	712
DCS	032	DCS	125	DCS	225	DCS	306	DCS	423	DCS	523	DCS	723
DCS	036	DCS	131	DCS	226	DCS	311	DCS	431	DCS	526	DCS	731
DCS	043	DCS	132	DCS	243	DCS	315	DCS	432	DCS	532	DCS	732
DCS	047	DCS	134	DCS	244	DCS	325	DCS	435	DCS	546	DCS	734
DCS	051	DCS	143	DCS	245	DCS	331	DCS	445	DCS	565	DCS	743
DCS	053	DCS	145	DCS	246	DCS	332	DCS	446	DCS	606	DCS	754
DCS	054	DCS	152	DCS	250	DCS	343	DCS	452	DCS	612		----
DCS	065	DCS	155	DCS	251	DCS	346	DCS	454	DCS	624		----
DCS	071	DCS	156	DCS	252	DCS	351	DCS	455	DCS	627		----
DCS	072	DCS	162	DCS	255	DCS	356	DCS	462	DCS	631		----
DCS	073	DCS	165	DCS	261	DCS	364	DCS	464	DCS	632		----

SUPPLIED ACCESSORIES

Microphone (MH-67A8J)	AAE60X102 (1 pc)
DC Cable	T9026415 (1 pc)
Blade Fuse (15A: ATY-N15)	Q0000175 (2 pcs)
Bracket	RA1234700 (1 pc)
Knob Screw	RA079060A (2 pcs)
Hex Head Bolt (HSM5X12B)	U9900209 (2 pcs)
Spring Lock Washer (SW5B)	U71005007 (2 pcs)
Bracket Mounting Items	
Double Faced Adhesive Tape	R7069960 (1 pc)
Pan Head Screw (M5X20)	U00520001 (4 pcs)
Pan Head Tapping (5X20 #1)	U40520101 (4 pcs)
Hex Nut (N5)	U60500301 (4 pcs)
Plain Washer (FW5)	U70005001 (8 pcs)
Toothed Lock Washer (OW5)	U72005007 (4 pcs)

OPTIONAL ACCESSORIES

MH-75A8J	16-Keypad Microphone
MD-12A8J	Desktop Microphone
MLS-100	External Speaker (12 W Peak Power)
MLS-200	External Speaker (15 W Peak Power)
FP-1030A	External Power Supply (13.8 VDC 25 A)
RMK-4600	Remote Mount Kit (Requires CT-15x Control Cable)
CT-156	Control Cable (for RMK-4600, 3 m length)
CT-157	Control Cable (for RMK-4600, 5 m length)
CT-158	Control Cable (for RMK-4600, 7 m length)
DVS-8	Voice Storage Unit
LF-6	Line Filter
CE144	PC Programming Software
CT-4	Programming Cable (Radio to Radio Clone Cable)
VPL-1	Programming Kit (Computer to PC)
FIF-12	USB Programming Interface
CT-104A	Connection Cable for FIF-12 (8-pin DIN ↔8-pin Modular)

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 PRODUCTS LIMITED WARRANTY & LIABILITY

I. What This Warranty Covers And For How Long:

Motorola Solutions Australia warrants the Vertex Standard TWO-WAY RADIO Products listed below (“Product”) against defects in material and workmanship under normal use and service for a period of time from the date of purchase as scheduled below:

Vertex Standard Two-Way Radio Mobile and Portable Units: Three (3) Years Accessories (including battery, antenna, charger, belt clip etc.): One (1) Year

Motorola Solutions Australia, at its option, will at no charge either repair the Product (with new or reconditioned parts), replace it (with a new or reconditioned Product), or refund the purchase price of the Product during the WARRANTY PERIOD provided it is returned in accordance with the terms of this warranty. Replaced parts or boards are warranted for the balance of the original applicable WARRANTY PERIOD. All replaced parts of Product shall become the property of Motorola Solutions Australia. This express limited warranty is extended by Motorola Solutions Australia to the original end user purchaser only and is not assignable or transferable to any other party. This is the complete warranty for the Product manufactured by Motorola Solutions Australia.

Motorola Solutions Australia assumes no obligations or liability for additions or modifications to this warranty unless made in writing and signed by an officer of Motorola Solutions Australia, or made in a separate agreement between Motorola Solutions Australia and the original end user purchaser.

Motorola Solutions Australia does not warrant the installation, maintenance or service of the Product. Motorola Solutions Australia cannot be responsible in any way for any ancillary equipment not furnished by Motorola Solutions Australia which is attached to or used in connection with the Product, or for operation of the Product with any ancillary equipment, and all such equipment is expressly excluded from this warranty. Because each system which may use the Product is unique, Motorola Solutions Australia disclaims liability for range, coverage, or operation of the system as a whole under this warranty.

VERTEX STANDARD PRODUCTS LIMITED WARRANTY & LIABILITY

II. General Provisions:

This warranty sets forth the full extent of Motorola Solutions Australia's responsibilities regarding the Product. Repair, replacement or refund of the purchase price of the Product, at Motorola Solutions Australia's option, is the end user purchaser's sole exclusive remedy.

THIS WARRANTY IS GIVEN IN LIEU OF ALL OTHER EXPRESS WARRANTIES. IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO THE DURATION OF THIS LIMITED WARRANTY. IN NO EVENT SHALL MOTOROLA SOLUTIONS AUSTRALIA BE LIABLE FOR DAMAGES IN EXCESS OF THE PURCHASE PRICE OF THE PRODUCT, FOR ANY LOSS OF USE, LOSS OF TIME, INCONVENIENCE, COMMERCIAL LOSS, LOST PROFITS OR SAVINGS OR OTHER INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE SUCH PRODUCT, TO THE FULL EXTENT SUCH MAY BE DISCLAIMED BY LAW.

III. What This Warranty Does Not Cover:

- A) Defects or damage resulting from use of the Product in other than its normal and customary manner.
- B) Defects or damage occurring from misuse, abuse, accident, corrosion, fire, liquid intrusion, or neglect.
- C) Defects or damage from improper or unauthorized testing, operation, maintenance, service, repair, installation, alteration, modification, or adjustment.
- D) Breakage or damage to antennas unless caused directly by defects in material or workmanship.
- E) Product that has not been operated in accordance with the procedures described in the operating instructions.
- F) Product that has been subjected to unauthorized modifications, tampering, disassembly, use of non-genuine accessories or batteries or repairs (including the addition to the Product of non-Motorola Solutions Australia supplied equipment if not authorized by Motorola Solutions Australia) which adversely affect performance of the Product or interfere with Motorola Solutions Australia's normal warranty inspection and testing of the Product to verify any warranty claim.
- G) Product which has had the serial number removed or made illegible.

VERTEX STANDARD PRODUCTS LIMITED WARRANTY & LIABILITY

- H) Product that has its seal(s) on non-user serviceable components or modules broken.
- I) Freight costs to the repair depot.
- J) Product that has been subjected to illegal or unauthorized alteration of the software/firmware in the Product.
- K) Scratches or other cosmetic damage to the Product surfaces that does not affect the operation of the Product.
- L) Normal and customary wear and tear.
- M) Memory modules not programmed by Motorola Solutions Australia's Aftermarket Products Group.
- N) Warranty claims not made within the Warranty Period.

IV. Patent And Software Provisions:

Motorola Solutions Australia will have no liability with respect to any claim of patent infringement which is based upon the combination of the Product or parts furnished hereunder with software, apparatus or devices not furnished by Motorola Solutions Australia, nor will Motorola Solutions Australia have any liability for the use of ancillary equipment or software not furnished by Motorola Solutions Australia which is attached to or used in connection with the Product. The foregoing states the entire liability of Motorola Solutions Australia with respect to infringement of patents by the Product or any parts thereof. Laws in Australia and other countries preserve for Motorola Solutions Australia certain exclusive rights for copyrighted Motorola Solutions Australia software such as the exclusive rights to reproduce in copies and distribute copies of such Motorola Solutions Australia software. Motorola Solutions Australia software may be used in only the Product in which the software was originally embodied and such software in such Product may not be replaced, copied, distributed, modified in any way, or used to produce any derivative thereof. No other use including, without limitation, alteration, modification, reproduction, distribution, or reverse engineering of such Product software or exercise of rights in such Product software is permitted. No license is granted by implication, estoppel or otherwise under Motorola Solutions Australia patent rights or copyrights.

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V. How To Get Warranty Service:

You must provide proof of purchase (bearing the date of purchase and Product item serial number) in order to receive warranty service and, also, deliver or send the Product item, transportation and insurance prepaid, to an authorized warranty service location. Warranty service will be provided by Motorola Solutions Australia through one of its authorized warranty service locations. If you first contact the company which sold you the Product (e.g., dealer or communication service provider), it can facilitate your obtaining warranty service, repair service and technical support.

VI. For Australia Only:

This warranty is given by Motorola Solutions Australia Pty Limited (ABN 16 004 742 312) of Tally Ho Business Park, 10 Wesley Court, Burwood East, Victoria (“Motorola Solutions Australia”).

Our goods come with guarantees that cannot be excluded under the Australia Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Motorola Solutions Australia’s limited warranty below is in addition to any rights and remedies you may have under the Australian Consumer Law. If you have any queries, please call Motorola Solutions Australia at 1800 356 254. You may also visit our website: <http://www.vertexstandard.com.au>, and http://www.motorola.com/Business/XA-EN/Pages/Contact_Us#support_tab for the most updated warranty terms.

VII. Further Assistance From Motorola Solutions Australia:

You may also contact the Customer Help Desk through the following web address: <http://www.vertexstandard.com.au>.

DISPOSAL OF YOUR ELECTRONIC AND ELECTRIC EQUIPMENT

Products with the symbol (crossed-out wheeled bin) cannot be disposed as household waste.

Electronic and Electric Equipment should be recycled at a facility capable of handling these items and their waste by products.

Please contact your local equipment supplier representative or service center for information about the waste collection system in your country.





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