



TX4600

Ingress protected 5 watt UHF CB radio



INSTRUCTION MANUAL



Tri-colour Backlighting



Ingress Protected

CONTENTS

IMPORTANT INFORMATION.....	3	Storing SelCall Indents.....	12
SAFETY INFORMATION.....	3	Recalling SelCall Indents From Memory.....	13
EMERGENCY CHANNELS.....	3	Naming Your SelCall Indents.....	13
TELEMETRY CHANNELS.....	3	Displaying Alpha Names.....	13
FEATURES.....	4	Entering and Storing a SelCall Name.....	13
CONTROLS.....	5	Receiving SelCalls.....	14
Front Panel.....	5	Cancelling the SelCall Alert.....	14
LCD Display.....	5	Quiet Mode.....	15
Microphone.....	5	Setting Up the Quiet Mode.....	15
GENERAL OPERATION.....	6	Activating the Quiet Mode.....	15
Function Key.....	6	De-activating the Quiet Mode.....	15
Volume On/Off.....	6	Receiving Signals in the Quiet Mode.....	15
Selecting Channels.....	6	Scanning in the Quiet Mode.....	16
Transmitting.....	6	To Scan in the Quiet Mode.....	16
Squelch Control.....	6	Receiving Signals while Scanning in the Quiet Mode.....	16
Squelch Sensitivity.....	6	GROUP CALLING.....	16
Priority Channel.....	7	Programming and Sending Group Calls.....	17
Duplex Operation.....	7	LISTENING CHANNELS.....	17
CTCSS.....	7	Setting the Frequency Steps.....	18
Overview.....	7	Activating Listening Channels.....	18
Monitoring the Channel.....	7	Programming the Frequencies.....	18
Selecting the Tone Set.....	7	Setting Alpha Labels for your Listening Channels.....	18
Selecting the Required CTCSS Tone.....	7	SEEK MODE.....	19
Enabling CTCSS on a Channel.....	7	Enabling the Seek Mode.....	19
Disabling CTCSS on a Channel.....	8	Scanning for Active Frequencies in Seek Mode.....	19
SCANNING.....	8	Setting Seek Mode Frequency Limits.....	19
Overview.....	8	MENU SETTINGS.....	20
Scan Groups.....	8	Overview.....	20
Selecting the Scan Group.....	8	Frequency / Alpha Adjustments.....	21
Programming Scan Channels.....	8	Setting the Squelch Sensitivity.....	21
To Start Scanning.....	9	Selecting the Scan Mode.....	21
To Stop Scanning.....	9	Selecting Duplex.....	22
OPEN SCAN MODE.....	9	CTCSS Tones.....	22
Using Scan in the Open Scan Mode.....	9	Lamp Colour.....	23
GROUP SCAN MODE.....	9	Battery / S Metre / Alpha Selection.....	23
Setting Up the Group Scan.....	10	LCD Contrast.....	24
Scanning in the Group Scan Mode.....	10	Beep Tone Level.....	24
Using Two Group Scan or Two Open Scan Modes.....	10	INSTALLATION.....	24
SELECTIVE CALLING.....	11	General.....	24
Overview.....	11	Installing the Unit.....	25
SelCall Identification Number.....	11	DC Connections.....	25
SelCall Indent Names.....	11	Antenna Installation.....	26
The Quiet Mode (Q).....	11	Noise Suppression.....	26
SelCall Memories.....	12	Disconnecting the Microphone.....	26
USING SELCALL.....	12	UHF CB OPERATING FREQUENCIES.....	27
Entering a SelCall Indent.....	12	CTCSS TONE FREQUENCY CHART.....	28
Sending a SelCall.....	12	SPECIFICATIONS.....	29
Call Acknowledge.....	12	SC CONTRACT WARRANTY AGAINST DEFECTS.....	30

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.

SAFETY INFORMATION

The TX4600 is a radio transmitting device.

- When transmitting, keep the antenna more than 25 mm from any part of the head or body.
- Do not transmit near electrical blasting equipment or in explosive atmospheres.
- Do not allow children to operate a radio transmitter unsupervised.

POSSIBLE ISSUES

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

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

There can be interference from a transmitting radio if it is close to another transmitting radio 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 the TX4600 has a transmit inhibit applied to channels 22 and 23.

In the event additional telemetry/telecomand 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

TRANSMIT (TX)

Individually Programmable DUPLEX function: User selectable for only those individual channels in your area that have repeaters, leaving the others free for use as extra simplex channels.

RECEIVE (RX)

User Programmable Receive-Only Channels: Use the TX4600's front panel controls to program up to 19 of your own receive-only channels in the 403-520 MHz frequency range.

Preset Squelch Control with user-selectable sensitivity.

SCANNING AND MEMORY FUNCTIONS

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

Frequency Seek Function: With Band Edge Selection.

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

Priority Channel: A user programmable Priority Channel feature allows your working or local repeater channel to be instantly recalled at the press of a button.

PRIVACY FUNCTIONS

In-Built Selcall: Selective Calling with five digit ANI and fully user-adjustable 5 tone transmitted SelCall Ident. Also allows naming of Idents for easier caller identification.

Unique Page (Transpond) mode: Allows you to transfer an incoming SelCall to another radio if your radio is unattended.

Quiet Mode: Selectable on individual channels, Quiet mode prevents incoming signals from being heard on selected channels unless preceded by your SelCall code.

CTCSS: A built-in Continuous Tone Coded Squelch System option provides quiet channel operation.

PHYSICAL PROPERTIES

Overvoltage Protection: Special overvoltage detection circuitry protects the radio and warns of excessive voltage conditions by flashing the display.

Front Facing Speaker: Projects the sound forward for greater clarity.

Water & Dust proof IP67: Provides protection against dust and temporary immersion in water.

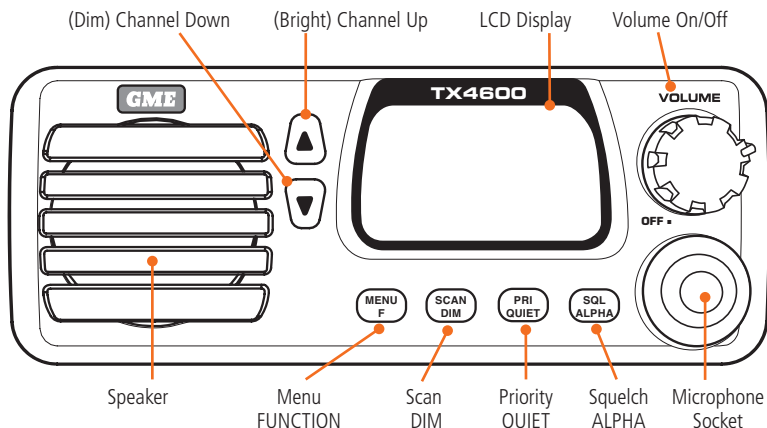
USER CONTROLS AND INTERFACE

Large High Contrast Liquid Crystal Display: Fully detailed LCD provides a visual indication of the selected channel and all selected functions at a glance. Backlit for viewing at night.

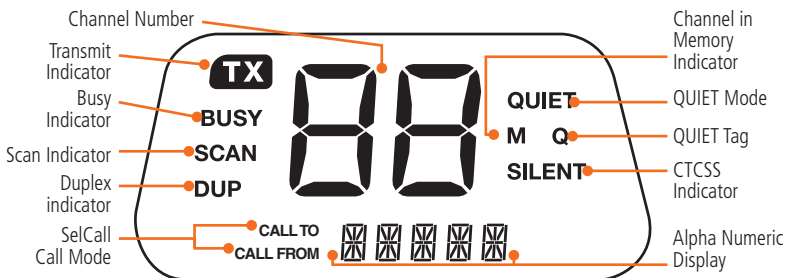
Feature Disabling Function: Allows Scanning, Squelch, Duplex, Priority, Channel selection and CTCSS features to be enabled or disabled to make the radio simpler to operate.

CONTROLS

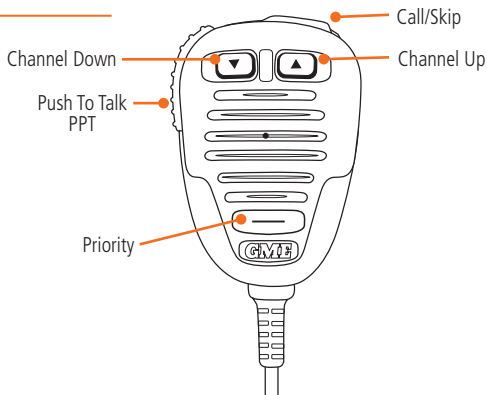
FRONT PANEL



LCD DISPLAY



MICROPHONE



GENERAL OPERATION

FUNCTION KEY

The four keys beneath the TX4600's display have both primary and secondary functions. Their primary functions are printed in Black while their secondary functions are printed in Red.

To access the primary functions

Simply press the required key. eg. To control the Squelch, briefly press the **SQL** key.

To access the secondary functions

Press the **F** key followed immediately by the required key. Eg. To Dim the display, briefly press the **F** key ('F' is displayed), then press the **DIM** key. The display will dim.

NOTE: If the secondary key is not pressed within 10 seconds the **F** key selection will be cancelled.

VOLUME ON/OFF

Rotate the volume control clockwise past the 'click' to turn the TX4600 on. Continue to advance the control clockwise to increase the volume. Rotate the control counterclockwise to turn the radio off.

NOTE: At minimum volume setting there is still sufficient volume to be heard in a quiet cabin environment.

SELECTING CHANNELS

Briefly press the Channel **▲** key to step upwards one channel or the Channel **▼** key to step downwards one channel. A high beep will be heard at each press.

Press and hold the **▲** or **▼** key for 1.5 seconds to scroll quickly upwards or downwards through the channels at a rate of 10 channels per second. When the key is released channel scrolling stops.

TRANSMITTING

Prior to transmitting, always check the channel is not being used. This can be done by either listening or by checking the 'Busy' indicator is not lit.

To transmit, press the **PTT** (Push-to-Talk) button on the microphone. Hold the microphone about 5-8 cm from your face and speak at a normal voice level. The microphone is quite sensitive so it is not necessary to raise your voice or shout. Release the **PTT** when you have finished talking.

SQUELCH CONTROL.

The Squelch control is used to eliminate the background noise when there are no signals present. The TX4600 features a preset Squelch system. The Squelch sensitivity has been factory set to provide optimum performance in most environments, however the sensitivity can be altered by the user if required, to suit varying environmental situations.

The Squelch can be opened or closed with the **SQL** key. When the Squelch is open, the receiver's background noise can be heard and 'BUSY' is displayed. When the Squelch is closed, the receiver remains quiet when there are no signals present but an incoming signal will override the squelch and be heard in the speaker.

To open the Squelch

Briefly press the **SQL** key. A low beep will be heard. If there are no signals present you will hear the receiver's background noise.

To close the Squelch

Briefly press the **SQL** key again. A high beep will be heard and the receiver will become quiet.

NOTE: If an incoming signal is very weak and is close to the minimum squelch level, it may become broken or 'chopped' by the squelch action. To prevent this, simply open the Squelch to allow the signal to be heard clearly. Alternatively you can reduce the Squelch sensitivity as described below.

SQUELCH SENSITIVITY

The sensitivity of the Squelch to incoming signals can be set to suit your operating environment. For example, excessively noisy environments may cause the squelch to open on local noise. The TX4600 has ten preset Squelch sensitivity settings that can be selected using the **MENU** function.

To adjust the preset Squelch sensitivity

Please refer to the **MENU** settings on page 21.

PRIORITY CHANNEL

The Priority Channel feature allows you to store one of the channels as a Priority Channel that can be instantly recalled at the press of a key. This can be used to provide instant access to your working channel or your local repeater channel.

To store a Priority Channel

1. Select the required channel.
2. Press and hold the **PRI** key until a high beep is heard. The selected channel will be stored.

To recall a Priority Channel

Briefly press the **PRI** key. The radio will switch straight to the selected Priority Channel. Any active functions (such as Scanning or Quiet) will be cancelled.

DUPLEX OPERATION

Duplex operation allows the radio to transmit on a different frequency to that which it receives. This allows operation through local repeater stations. These repeater stations automatically re-transmit your signal over a wider area, providing greatly increased range.

Duplex operation is only available on channels 1-8 and 41-48. When duplex is selected on these channels, the radio receives on that channel but actually transmits 30 channels higher.

To select Duplex operation please refer to the **MENU** settings on Page 22.

CTCSS

OVERVIEW

CTCSS (Continuous Tone Coded Squelch System) is a squelch quieting system that allows several groups of users to share the same channel without disturbing each other. It uses a preset sub-audible (very low frequency) tone to open and close the squelch on your radio. There are up to 50 tones available in two optional tone sets. The system applies a continuous low-level tone

to your transmission and uses a matching tone decoder to control your receiver's squelch. With CTCSS enabled, the channel remains quiet to all incoming signals unless they carry the correct tone. When a transmission with the correct tone is received, the squelch opens and remains open for as long as the signal is present. When the transmission ends, the channel becomes quiet again. Transmissions that do not use the correct tone will not be heard.

The TX4600 allows CTCSS to be enabled or disabled on individual channels.

NOTE: The CTCSS tone you select will be used for all CTCSS enabled channels in your radio.

MONITORING THE CHANNEL

It is useful to be able to temporarily open your radio's squelch to allow you to listen for signals from other CTCSS users outside your group. Because their CTCSS tone is different to yours, your squelch would normally remain closed, preventing you from hearing them. You can use the **SQL** key to open the squelch and listen to the channel to check that it is clear before transmitting. This will help prevent you from accidentally transmitting over the top of someone.

To monitor the Channel

Press the **SQL** key. If there are no signals present, you will hear the usual hiss of an empty channel. Press the **SQL** key again to restore the Squelch to its previous setting.

SELECTING THE TONE SET

There are two standard tones sets available, one comprising 50 tones and the other comprising 38 tones. Both tone sets are included in the TX4600 to provide compatibility with other GME radio systems.

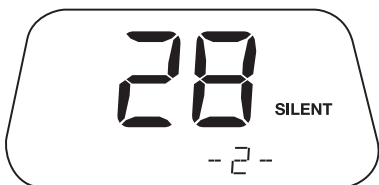
SELECTING THE REQUIRED CTCSS TONE

To preselect the CTCSS tone on your radio, please refer to the **MENU** settings on page 22.

ENABLING CTCSS ON A CHANNEL

If a CTCSS tone has been selected, it can be enabled on individual channels.

1. Press the ▲ or ▼ keys to select the required channel.
2. Press and hold the **SQL** key. A high beep will be heard and 'SILENT' will appear on the display.



You may activate CTCSS on as many channels as you wish except channel 5/35 which is designated for emergency use.

DISABLING CTCSS ON A CHANNEL

Repeat steps 1 and 2 above. A low beep will be heard and 'SILENT' will disappear.

NOTE: You will not be able to activate CTCSS if the CTCSS tone is set to 'of'.

SCANNING

OVERVIEW

The TX4600 has a SCAN function that allows groups of user programmable channels to be scanned for signals. Channels can be scanned at 20 channels per second. When a signal is found, scanning will pause on that channel to allow the signal to be heard, then resume scanning when the channel is clear again.

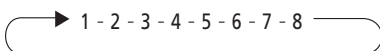
SCAN GROUPS

The TX4600 features two scan groups - Open Scan and Group Scan.

Open Scan

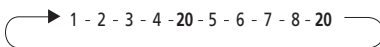
Allows any of the installed channels to be scanned for activity. If a busy channel is found, scanning will pause to allow the signal to be heard. Once the channel has been clear for 5 seconds, scanning will resume automatically.

eg: Scanning channels 1 - 8 in Open Scan



Group Scan

Also allows any of the installed channels to be scanned for activity, but in addition, it also inserts your Priority channel into the scan sequence. This means that your Priority channel will be monitored regularly while scanning to ensure that no calls are missed. Any signals received on your Priority channel will take precedence over any signals received on the other channels.



eg: Scanning channels 1 - 8 with Priority channel 20 in Group Scan.

SELECTING A SCAN GROUP

To preselect a Scan Group

The radio is initially set to Open Scan Mode. Please refer to the **MENU** settings on page 21 to change the Scan Group.

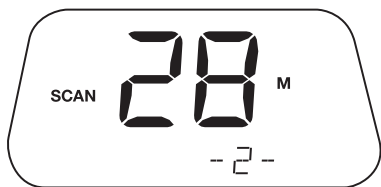
PROGRAMMING SCAN CHANNELS

Your TX4600 is supplied with all 80 UHF CB channels programmed into the Open Scan memory. Any channels not needed, can be removed if required. The Group Scan memory is empty by default and you will need to add channels to it before use.

To add or remove Channels from either Scan Memory

1. Ensure that the radio is not already scanning. If it is, briefly press the **SCAN** key to cancel the scan function.
2. Ensure you have the required scan group preselected (See **MENU** settings on page 21).
3. Select the required channel using the ▲ or ▼ keys.
 - If 'M' is visible to the right of the channel number, the selected channel is already in the scan memory. It can be removed by holding the **SCAN** key in for a few seconds until a

low beep is heard. 'M' will then disappear indicating the channel is no longer in memory



- If 'M' is not visible, then the selected channel is not in the memory. To add it, hold the **SCAN** key in for a few seconds until a high beep is heard. 'M' will now appear.
4. Repeat step 3 to add or remove other channels in the scan memory.

TO START SCANNING

To begin scanning, briefly press the **SCAN** key. A high beep will be heard, 'SCAN' will appear in the display and the radio will begin scanning. In addition the selected scan group will be displayed below the channel number.

NOTE: If there is only one channel programmed into the Open Scan memory or none in the Group Scan memory, a long low beep will be heard when you press the **SCAN** key and the command will be ignored.

TO STOP SCANNING

To cancel the Scan, briefly press the **SCAN** key. A low beep will be heard and 'SCAN' will disappear from the display.

OPEN SCAN MODE

USING SCAN IN THE OPEN SCAN MODE

- If a busy channel is found, scanning will pause on that channel to allow the signal to be heard and will remain there for as long as the channel remains busy. Once the channel has been clear for 5 seconds, scanning will resume automatically.

- If your radio pauses on a busy channel and you don't wish to listen to that conversation, briefly press the **SKIP** button on the microphone (or one of the channel selector keys). The radio will skip over that channel and resume scanning from the next channel in the sequence.
- If your radio is paused on a busy channel and you wish to remain there, briefly press the **SCAN** key. The radio will exit the Scan mode and remain on the busy channel.
- To transmit while paused on a busy channel, simply press the **PTT** button. The radio will exit the Scan mode and remain on the busy channel. You can now converse on that channel in the usual way. When you have finished your conversation, briefly press the **SCAN** key to resume scanning.
- If your radio is scanning and you need to use your Priority channel (for an urgent call or an emergency), briefly press the **PRI** key. The Scan mode will be cancelled and the radio will jump straight to the Priority channel.

NOTE: In the Open Scan mode your TX4600 will not allow you to transmit while it is scanning. If the **PTT** button is pressed while scanning, the radio will give a low beep and will ignore the command. Your radio will only transmit while it is paused on a busy channel.

GROUP SCAN MODE

Group Scan allows you to transmit and receive normally on your priority (working) channel, while continuing to scan several other channels. The receiver will scan the other channels **ONLY WHILE THERE ARE NO SIGNALS ON THE PRIORITY CHANNEL.**

If a signal appears on the Priority channel it will override any signals being received on any of the other channels. In addition, if you press the **PTT** button at any time, the radio will transmit on the priority channel in the usual way.

SETTING UP THE GROUP SCAN

Referring to the appropriate sections of this manual:

1. Preselect the Group Scan mode (see **MENU** settings on page 21).
2. Store your preferred working channel into the Priority channel memory (see 'Priority Channel').
3. Program the required 'other' channels into your Group Scan memory (see 'Programming Scan Channels').

SCANNING IN THE GROUP SCAN MODE

To scan in the Group Scan mode, briefly press the **SCAN** key. A high beep will be heard, 'SCAN' will appear in the display and the radio will begin scanning.

.....
NOTE: If there are no channels programmed in the Group Scan memory when you press the **SCAN** key (or there is only one channel programmed and it is the same as the Priority channel), a low beep will be heard and the command will be ignored.
.....

When scanning, the TX4600 scans all the channels programmed into the Group Scan memory, with the Priority channel being scanned after every fourth channel (Dealer programmable option, if you require different timing for your priority channel, please contact your dealer).

- If a signal appears on the priority channel - at any time - the receiver will switch straight to the Priority channel and will stay there for as long as the channel is busy. During this time you can transmit on the priority channel in the usual way. Once there has been no activity for 5 seconds, the radio will resume scanning the other channels.
- If a signal appears on one of the other channels, scanning will pause on that channel and will remain there while the channel is busy, as long as there are no signals on the priority channel. During this time the receiver

will continue to check the priority channel for signals every 2 seconds, resulting in a series of small 'breaks' in the reception of the paused channel. Once there has been no activity on any channel for 5 seconds, the radio will resume scanning.

- If your radio pauses on a busy channel and you don't wish to listen to that conversation, briefly press the **SKIP** button on the microphone (or one of the channel selector keys). The radio will skip over that channel and resume scanning from the next channel in the sequence.
- If your radio is paused on a busy channel and you wish to remain there, briefly press the **SCAN** key. The radio will exit the Scan mode and remain on the busy channel. Note that the radio will no longer be monitoring the Priority channel (unless it is the same as the busy channel). To resume scanning, press the **SCAN** key again.
- To transmit on a scanned channel, press the **PTT** button while the radio is paused on that channel, then talk in the usual way. The radio will resume scanning when you have finished your conversation and there has been no further activity on the channel for 5 seconds.
- To transmit on the priority (working) channel AT ANY TIME, simply press the **PTT** button while the radio is scanning. The radio will switch straight to the priority channel. When you have finished your conversation and there has been no further activity on the priority channel for 5 seconds, the radio will resume scanning the other channels.
- To go directly to the Priority channel, briefly press the **PRI** key. The radio will exit the Scan mode.

USING TWO GROUP SCAN OR TWO OPEN SCAN MODES

If you prefer, the TX4600 can be re-programmed to have two Group Scan modes or two Open Scan modes instead of one of each.

For example there may be applications where you have no need to scan the Priority channel and

would prefer to have two separate Open Scan modes. Alternatively you may have applications where you prefer to have two Group Scan modes with different Scan groups in each.

Your TX4600 can be Dealer programmed to convert the Group Scan mode into a second Open Scan mode and vice versa. If you would prefer to have two Group Scan or two Open Scan modes, you should contact your GME Dealer to arrange for this feature to be enabled (when using two Group Scan modes the Priority channel will be the same channel for both scan groups).

When the second Open or Group Scan mode is enabled, the resulting two Scan modes become Scan 1 and Scan 2. To select the required scan mode, refer to the **MENU** settings on page 21.

When enabled, the two Scan modes will be identical in operation. To program and operate each, refer to the Open Scan/Group Scan sections above.

NOTE: Enabling or disabling the second Open or Group Scan mode is not a user selectable option. Once enabled by your dealer, the changed Scan mode becomes a permanent part of the TX4600's features and replaces the standard Scan selection. If you find later that you need the original Group or Open Scan function re-enabled, you will need to return your TX4600 to your dealer for re-programming.

SELECTIVE CALLING

OVERVIEW

Your TX4600 has a Selective Calling system known as SelCall that operates like a telephone. Your radio is pre-programmed with its own unique SelCall Identification number. If this number is called by another radio, your TX4600 will beep to alert you. If you do not want to hear any other activity while waiting on a channel, you can select the QUIET mode. This will force the radio to remain quiet to all incoming signals until your SelCall number is called.

Your TX4600 will allow you to store up to ten of your most frequently called SelCall numbers in

memory and each number can be labelled with a 5-letter name for easy identification.

SELCALL IDENTIFICATION NUMBER

Your TX4600 is factory programmed with its own unique SelCall Identification Number (Ident). This number identifies your radio from others in your area. Your radio's own SelCall Ident will be displayed for a few seconds, directly beneath the channel display, when you first turn the radio on.

You will need to make your Ident known to anyone who may need to call you using Selcall. Whenever your TX4600 hears a SelCall signal, it compares the incoming Ident with its own. If the two Idents match, the radio knows it is being called and sounds an alarm to alert you, otherwise the call is ignored.

NOTE: Although your radio's SelCall Ident is pre-programmed at the factory, you can arrange to have your dealer change it if required.

SELCALL IDENT NAMES

When storing SelCall Idents in memory, the TX4600 allows you to add a 5 character name to each one, making it easier to identify whose Ident you are recalling from the memory. In addition, if an incoming SelCall matches one of the Idents stored in the memory, the name can be displayed to make it easier for you to identify the caller.

To add or display names

Your TX4600 must be in the ALPHA mode. To switch between ALPHA mode and NUMERIC mode, briefly press the **F** (function) key followed by the **ALPHA** key. 'ALPHA' or 'NUMER' will be displayed for 2 seconds below the channel display to indicate the selected mode.

THE QUIET MODE (Q)

Your TX4600 can be set to monitor signals on a busy channel but remain QUIET unless it receives its own SelCall Ident. In this way, you won't be disturbed unless someone calls you. When a signal containing your SelCall Ident is received, the QUIET mode is deactivated and an alarm sounds to alert you to the call. You can then

converse normally on the channel. To use the QUIET mode, refer to the QUIET Mode section further below.

NOTE: The QUIET mode overrides the normal Squelch system to ensure that the radio remains quiet even when the channel is busy. When QUIET is set, you may see the 'BUSY' icon appear on the display indicating the channel is being used. However, unless someone transmits your SelCall Ident, nothing will be heard in the speaker.

You can activate the QUIET mode on individual channels ie. some channels can be set to remain Quiet while others can remain open to all incoming signals.

TIP: Setting the QUIET mode is not mandatory. You can still use SelCall on any channel whether the QUIET mode is set or not.

SELCALL MEMORIES

Your TX4600 is fitted with one 'Call' memory and 10 SelCall Ident memories. The 10 SelCall Ident memories are used to store frequently used SelCall Idents. The additional 'Call' memory holds the Ident you last sent or received. The memories can be viewed by briefly pressing the **CALL** button. The initial memory displayed is the 'Call' memory. Pressing the channel selection keys will step through the other 10 SelCall storage memories in sequence. SelCall memories are labelled 'c0' to 'c9'.

USING SELCALL

ENTERING A SELCALL IDENT

1. Press the **CALL** button. 'CALL TO' is displayed, along with the last sent or received SelCall Ident.

NOTE: If an **ALPHA** label is displayed you will need to switch to Numeric Mode. To toggle between Alpha mode and Numeric mode, briefly press the **F** key followed by the **ALPHA** key. A high beep indicates Alpha mode is selected while a low beep means the Numeric mode is selected.

2. Enter the required SelCall Ident as follows:

- (a) Press and hold the **F** key until the radio beeps. The right-hand digit of the SelCall Ident will flash.
- (b) Press the **▲** or **▼** keys to select the required number in the flashing digit position.
- (c) Briefly press the **F** key again to select the next digit position.
- (d) Repeat steps (b) and (c) to enter all 5 digits as required. The SelCall number is now ready to send.



SENDING A SELCALL

With the SelCall number displayed, press and hold the **CALL** button for 2 seconds. A long beep will be heard and the radio will transmit the SelCall Ident.

NOTE: If the call is not sent within 10 seconds of entering the last Ident digit the call mode will time out and the radio will return to normal mode. To exit the CALL TO mode without sending the SelCall briefly press the **CALL** button.

CALL ACKNOWLEDGE

If your SelCall transmission is successful, the radio you called should respond with an 'acknowledge' signal - usually two quick beeps. This will confirm to you that the radio you called is now alerting its user to your signal.

STORING SELCALL IDENTS

Your TX4600 is fitted with 10 user programmable SelCall Ident memories, allowing you to store up to 10 frequently used SelCall Idents. The memories are accessed by pressing the **CALL** button, then pressing the channel selector keys to scroll through the memories. Ident memories are

labelled 'c0' to 'c9'.

To store a SelCall Ident in memory

1. Press the **CALL** button to select the CALL TO mode. 'CALL TO' is displayed along with the last sent or received SelCall Ident.
2. Press channel selector keys to select the required Ident memory (locations 'c0' to 'c9').

TIP: If the radio displays letters instead of numbers in the SelCall Ident position, your radio is in ALPHA mode. To switch back to NUMERIC mode, briefly press the **F** (Function) key followed immediately by the **ALPHA** key. A low beep will be heard and 'NUMER' will be displayed for a few seconds in the Ident position.

3. With the required memory location displayed, enter the SelCall Ident as follows:
 - (a) Press and hold the **F** key until the radio beeps. The right-hand digit of the SelCall Ident will flash.
 - (b) Press the **▲** or **▼** keys to select the required number in the flashing digit position.
 - (c) Briefly press the **F** key again to select the next digit position.
 - (d) Repeat steps (b) and (c) to enter all 5 digits as required.
 - (e) Now press and hold the **F** key. The entire Ident will flash for a few seconds then the radio will beep as the new Ident is stored.

RECALLING SELCALL IDENTIS FROM MEMORY

1. Press the **CALL** button to select the CALL TO mode. 'CALL TO' is displayed along with the last sent or received SelCall Ident.
2. Press the **▲** or **▼** keys to select the required Ident memory in locations 'c0' to 'c9'.
3. When the required SelCall Memory is displayed, press and hold the CALL button to send the Ident.

NAMING YOUR SELCALL IDENTIS

The TX4600 allows you to name each SelCall Ident using a 5 character ALPHA name. The name is stored in memory along with the Ident making it easier to identify whose Ident you are recalling from the memory. If an incoming SelCall matches one of those in your radio's memory, the name can be displayed instead of the SelCall Ident.

DISPLAYING ALPHA NAMES

To display the Selcall's ALPHA Name, you must have the radio's ALPHA display mode selected. To toggle the ALPHA display mode, briefly press the **F** (Function) key followed by the **ALPHA** key. 'ALPHA' or 'NUMER' will be displayed for 2 seconds below the channel display to indicate the selected mode.

TIP: The normal channel display may give no indication of which display mode is selected. The selected mode will only become obvious when displaying Identis.

ENTERING AND STORING A SELCALL NAME

NOTE: Before adding an ALPHA Name to a SelCall Ident, you should first store the required Ident in memory as described above under 'STORING SelCALL IDENTIS' on page 12.

1. Ensure the ALPHA mode is selected (briefly press the **F** key followed by the **ALPHA** key to toggle ALPHA mode).
2. Briefly press the **CALL** button. The CALL TO mode will be selected and the last-sent SelCall memory location will be displayed.
3. Press the **▲** or **▼** keys to select the required SelCall memory (locations c0 to c9). If no ALPHA name has been programmed for that memory the radio will probably display '- - - - -' otherwise it will display the last ALPHA name programmed into that memory.
4. With the required memory location displayed, enter the required ALPHA name as follows:
 - (a) Press and hold the **F** key until the radio

beeps. The left-hand character of the ALPHA name will flash. Press the Channel selector keys to select the required letter in the flashing character position.

The following characters are available:

A B C D E F G H I J K L M N O P Q
R S T U V W X Y Z _ SPACE - ,
0 1 2 3 4 5 6 7 8 9

TIP: Holding the channel selector key for a few seconds will cause the radio to step quickly through the available characters.

- (b) Briefly press the **F** key again to select the next character position.
- (c) Repeat steps (b) and (c) to enter all 5 characters as required.
- (d) Now press and hold the **F** key. The entire ALPHA name will flash for a few seconds then the radio will beep as the name is stored.



Repeat the procedure to add ALPHA names to any other SelCall Idents stored in memory.

To exit the CALL TO mode

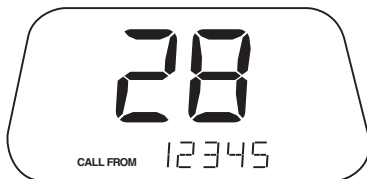
Briefly press the **CALL** button. The radio will return to normal operation.

NOTE: The radio can be left in the ALPHA display mode so that an incoming SelCall matching one of those in the radio's memory will display the name associated with that SelCall Ident instead of the Ident itself. Any incoming Selcalls not matching those in the memory will display 'NEW'. To display the SelCall Ident of that caller, briefly press the **F** key followed by the **ALPHA** key to return to the NUMERIC display mode.

RECEIVING SELCALLS

When your TX4600 receives its SelCall Ident, an alarm will sound to alert you to the call. Initially the alarm will beep urgently at 2 beeps per second for around 10 seconds then slow to around 1 beep every 3 seconds if the call is not answered. It will then continue to beep indefinitely until you cancel it (the way your TX4600 handles the SelCall alert can be altered by your Dealer).

In addition to the alarm, the words 'CALL FROM' will appear on the display along with the callers SelCall Ident or ALPHA name to inform you of the identity of the person calling. To switch between the SelCall Ident and the ALPHA name briefly press the **F** key followed by the **ALPHA** key.



CANCELLING THE SELCALL ALERT

The following are the recommended methods:

To cancel the Alarm and talk on the Channel

Press the **PTT** switch and talk in the usual way. The alarm will be cancelled and the channel will be open for normal communication.

To return the Call

Press and hold the **CALL** button for a few seconds until the radio beeps. The callers SelCall will be sent to the caller.

To cancel the Alarm and listen on the Channel

Briefly press the **QUIET** button (if QUIET has been activated). The alarm will stop beeping and the channel will remain open to any incoming signals.

QUIET MODE

The QUIET mode mutes the TX4600's receiver to prevent any incoming signals from being heard in the speaker until your SelCall Ident is received. In this way you can monitor a busy channel for personal calls without being disturbed by unwanted signals.

If your SelCall Ident is received, the QUIET mode is then cancelled and all incoming signals are heard in the speaker.

SETTING UP THE QUIET MODE

To setup the QUIET mode you must first 'tag' the channels that you want to stay Quiet, then activate the QUIET mode. Once the QUIET mode is activated, the channels you have tagged will remain Quiet to all incoming signals unless your SelCall Ident is received. Channels not tagged will remain open to all signals and will operate normally.

To tag individual Channels for QUIET operation

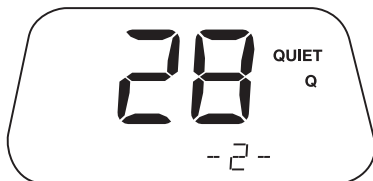
1. Select the required channel using the **▲** or **▼** keys.
2. Briefly press the **F** key then press and hold the **QUIET** key until the radio beeps. 'Q' will appear to the right of the channel display indicating the selected channel is now tagged for Quiet operation.

To remove the QUIET Tag from individual Channels

1. Select a channel that has been tagged for Quiet operation. 'Q' will be displayed.
2. Briefly press the **F** key then press and hold the **QUIET** key until the radio beeps. 'Q' will disappear indicating this channel is no longer tagged for Quiet operation.

ACTIVATING THE QUIET MODE

1. First, select a channel that has been tagged for Quiet operation (you cannot activate the Quiet mode unless you have selected a 'tagged' channel). 'Q' will be displayed.
2. Now briefly press the **F** key followed by the **QUIET** key. 'QUIET' will appear on the display.



Now all channels that were tagged for Quiet operation will be operating in the Quiet Mode.

DE-ACTIVATING THE QUIET MODE

1. Select any channel that has been tagged for Quiet operation. 'Q' and 'QUIET' will be displayed.
2. Briefly press the **F** key followed by the **QUIET** key. 'QUIET' will disappear from the display and all channels that were tagged for Quiet operation will now operate normally again.

RECEIVING SIGNALS IN THE QUIET MODE

- If a normal signal is received on a QUIET channel, the channel will appear busy (the 'BUSY' indicator will be visible) but no sound will be heard from the speaker. This means you will not be disturbed by the signal.
- If a normal signal is received on an Open channel (one that is not tagged with 'Q') the signal will be heard in the usual way.
- If a signal containing your SelCall Ident is received on any channel - Open or QUIET - the QUIET mode will be cancelled and the alarm will beep to alert you to the call. In addition, the callers Ident or ALPHA name will be displayed. All channels will now be open for normal transmission and reception.

If you wish to respond to the calling radio using Selcall, press and hold the call button for 1.5 seconds until the radio beeps. The callers Ident will be transmitted back to them causing the alarm in their radio to be activated.

To cancel the alarm on your radio

Briefly press the **PTT**.

To return your radio to the QUIET mode

Briefly press the **F** (Function) key followed by the **QUIET** key. 'QUIET' will re-appear on the display.

SCANNING IN THE QUIET MODE

The TX4600 will allow you to scan while the QUIET mode is active. Using this feature you can monitor a group of Quiet channels or a combination of Quiet and Open channels.

TO SCAN IN THE QUIET MODE

1. Preselect the Group Scan mode (see MENU settings).
2. Select the channels you wish to scan and store them in the Scan memory.
3. From those channels, select the ones you wish to remain Quiet and tag each one for QUIET operation.
4. Select a tagged channel and activate the Quiet Mode (press the **F** key followed by the **QUIET** key).
5. Press the **SCAN** key. The radio will begin scanning and 'SCAN' and 'QUIET' will be displayed, indicating the radio is scanning in the QUIET mode.

RECEIVING SIGNALS WHILE SCANNING IN THE QUIET MODE

- If a normal signal is received on an open channel, scanning will pause while the channel is busy and will resume scanning 5 seconds after the channel becomes clear. (If you were scanning in Group Scan mode, the radio may switch between the open channel and the Priority channel - this is normal).

- If a normal signal is received on a Quiet channel but your SelCall Ident is not detected, the signal will be ignored and scanning will continue.
- If a signal containing your SelCall Ident is received on any channel - Open or Quiet – both scanning and QUIET modes will be cancelled and the receiver will stay on that channel. In addition, the alarm will beep to alert you to the call and the callers Ident or ALPHA Name will be displayed. The channel will now be open for normal transmission and reception.

TIP: To ensure reliable SelCall detection when scanning in the Quiet mode, it is recommended that you restrict the number of channels in the Scan group to 4 or less.

GROUP CALLING

The TX4600's SelCall system includes a Group Call function which allows you to call up to 1000 radios simultaneously. This can be useful in an emergency situation where you may need to transmit a message to a large number of radios in your group.

By default, your radio is factory-set to allow up to 10 radios to be called at once. If your application requires more, you can arrange for your Dealer to re-program this option to allow 100 or 1000 radios to be called. The following description assumes the default Group Call setting of 10 radios.

The Group Call function works by allowing you to enter a special 'group code' into the last digit position of the SelCall Ident you are sending. The 'group code' appears as an 'A' when displayed in the radio. When this 'group code' is received, it substitutes for all other numbers in the last digit position. As long as the first 4 digits of the SelCall you are sending match those of the radios you are calling, their SelCall alarm will be activated as if their full 5 digit SelCall Idents had been received.

To achieve this, the 10 radios you are calling must be programmed with sequentially numbered SelCall Idents.

eg. 12330, 12331, 12332, 12333 . . --> , 12339

- Transmitting the SelCall Ident 12031 will only activate the alarm in the radio with the SelCall Ident of 12331.
- Transmitting 1233A will activate the alarms in all radios with Idents 12330 through 12339 (a total of 10 radios).

If the radios in your fleet do not have sequentially numbered SelCall Idents and you want to make use of this function, you can arrange for your Dealer to re-program the SelCall Idents in your radios.

PROGRAMMING AND SENDING GROUP CALLS

The process for entering a Group call Ident is the same as entering a normal SelCall Ident.

1. Press the **CALL** button. 'CALL TO' is displayed, along with the last sent or received SelCall Ident.
2. Enter the required SelCall Ident as follows:
 - (a) Press and hold the **F** (Function) key until the radio beeps. The right-hand digit of the SelCall Ident will flash.
 - (b) Press the **▲** or **▼** keys to select 'A' in the flashing digit position. This is the special code that will create the Group Call.
 - (c) Briefly press the **F** (Function) key again to select the next digit position.
 - (d) Repeat steps (b) and (c) to enter the other 4 digits as required. The last digit will be set to 'A'.



Once the Ident has been entered you have 10 seconds to send it otherwise the CALL TO mode will be cancelled and the Ident you entered will be lost.

NOTE: Where your TX4600 allows it, programming group calls for 100 radios is identical except that you will need to select 'A' for the last two digits (e.g. 123AA). For 1000 radios you will need to select 'A' for last three digits (eg: 12AAA).

eg:

100 Radios Ident Sent: 123AA
Idents called: 12300 -> 12399

1000 Radios Ident Sent: 12AAA
Idents called: 12000 -> 12999

To send the SelCall Ident

With the required SelCall Ident displayed in the CALL TO mode, press and hold the **CALL** button for a few seconds until the radio beeps. The SelCall Ident will be sent automatically and the radio will return to normal operation.

Call acknowledge in Group Mode

There is no call acknowledge when sending group calls. This is to prevent all the radios in your group from trying to respond to your SelCall transmission at the same time.

Storing Group Call Idents

Group Call Idents can be stored in memory in the same way as a standard SelCall Ident.

Receiving Group Calls

Receiving a Group call is identical to receiving a normal SelCall except that the alarm sound is a LOW tone beep instead of the normal High tone beep. The Caller's Ident or ALPHA Name appears on the display in the usual way.

LISTENING CHANNELS

The TX4600 has provision for adding an additional 19 user programmable 'Listening' frequencies between 403 MHz and 520 MHz. These channels can be programmed by you using the front panel keys, making the TX4600 a useful UHF scanning receiver.

SETTING THE FREQUENCY STEP

The extra frequencies can be programmed in 12.5 kHz or 25 kHz steps. The step rate is preset and can be toggled as follows.

1. Switch the radio OFF.
2. Hold the ▼ key while switching the radio ON.
3. 12.5k or 25.0k will be displayed indicating the select frequency step is 12.5 kHz or 25.0 kHz.

ACTIVATING LISTENING CHANNELS

By default, the Receive-Only channels are disabled and only the standard 80 UHF CB channels can be accessed. To make use of the extra channels you must activate the programming mode and program frequencies into the channels you wish to use. Those channels will then become available.

To activate the programming mode

1. Switch the radio off.
2. Hold the **MENU** key while switching the radio ON again.

Using the ▲ or ▼ keys you will now be able to select additional channels between 81 and 99.

Once you have enabled and programmed your additional Listening channels, switch the radio off to end the programming mode. When you switch it on again, normal operation will be restored and any Listening channels you have enabled will now be available above channel 80.

PROGRAMMING THE FREQUENCIES

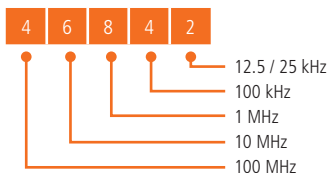
Before programming channel frequencies, make sure the radio is in the NUMERIC mode. If it is in the ALPHA mode press **F** (Function) followed by **ALPHA**. 'NUMER' will be displayed.

To program a frequency into a channel

1. Activate the Programming mode (hold **MENU** then switch **ON**).
2. Press the ▲ or ▼ keys to select the required channel number (81 – 99).
3. Press and hold the **MENU** key until the radio beeps. If the channel has never been

activated, 'OFF' will be displayed, otherwise a frequency will be displayed.

4. Press the ▲ or ▼ keys to adjust the flashing digit value.
5. Press the **CALL** button to advance to the next digit.
 - Advancing above 9 or below 0 causes the adjacent digit to change accordingly.
 - The display only indicates to 10 kHz resolution. The kHz digit is not displayed. eg. 468.425 MHz will display as:



- While you are selecting the frequency, the receiver is live and will receive signals on the frequency being displayed. You can use this feature to manually identify active frequencies and store them.
6. Once you have the correct frequency displayed, press and hold the **MENU** key to store it.

TIP: To remove a listening frequency from a channel, rotate the channel selector until the display reads '—off—'.

To program additional frequencies

Repeat steps 2 – 6 above.

When you have finished programming your channels, switch the radio off. When you switch it on again, normal operation will be restored and the Listening channels you programmed will now be available above channel 80.

SETTING ALPHA LABELS FOR YOUR LISTENING CHANNELS.

Your extra listening channels can be set to display either the channel Frequency or a meaningful label that you choose. Please refer to the Frequency/ALPHA Adjustment function in the MENU settings on page 21.

SEEK MODE

The Seek mode is a unique feature that allows you to continuously scan a band of frequencies between 403 MHz and 520 MHz for activity. Once the radio has reached the upper limit of 520 MHz it will resume scanning from 403 MHz again. If you find an active frequency you can assign it to a Listening Channel. This feature makes it easier to locate active channels when you aren't sure of the exact frequency you want to listen to.

ENABLING THE SEEK MODE

NOTE: Before using the Seek mode you should:

1. Preselect your preferred frequency step (12.5 kHz or 25 kHz).
2. Enable the Listening channel numbers that you wish to store active frequencies into. You cannot use Seek mode unless at least 1 channel is enabled.
3. Select the Numeric mode so that the frequency can be displayed (rather than the ALPHA label).

To enable the Seek mode

1. Switch the radio OFF.
2. Hold the **SCAN** key while switching the radio **ON** again. 'SEEK' will be displayed for a few seconds. The radio is now in Seek mode.

NOTE: When you have finished using the Seek mode simply switch the radio off. When you switch it on again, normal operation will be restored.

SCANNING FOR ACTIVE FREQUENCIES IN THE SEEK MODE

To scan for active frequencies and store them into a listening channel:

1. Select the required Listening channel (81 – 99). The frequency currently selected for that channel will be displayed.
2. Briefly press the **SCAN** key. The radio will begin scanning the frequency band starting

from the selected frequency. The channel number will remain constant (because the radio is scanning frequencies not channels) but the frequency will change as the scan advances through the band.

3. To change the scanning direction press the **▲** or **▼** keys. Press **▲** key to scan upwards in frequency or **▼** key to scan downwards.
4. When a signal is found, scanning will pause on that frequency. Once the signal has gone and the frequency remains clear for 5 seconds, scanning will resume.
5. To manually skip over an active frequency and continue scanning, press the **CALL** button. To continue scanning in a specific direction or to change the direction, press the appropriate **▲** or **▼** key.
6. When you find a frequency you wish to store, press and hold the **SCAN** key until the radio beeps. The frequency will be stored under the selected Listening channel number.

To store active frequencies into other Listening channels repeat steps 1 – 6 above.

SETTING SEEK MODE FREQUENCY LIMITS

When in Seek mode, the default frequency range is the entire Listening band of 403 - 520 MHz. However, in many cases you may only be interested in a searching for signals within a small section of the available frequency band. To make searching easier the TX4600 allows you to set upper and lower frequency limits. The Seek function will then search only within those limits. This limits the scan to the area you are most interested in, thereby increasing the chance of finding an active frequency within that band.

To scan within frequency limits

1. Select the required Listening channel (81 – 99). The frequency currently selected for that channel will be displayed.
2. Hold the **MENU** key until the radio beeps. The radio will enter the Frequency Edit mode.
3. Select the LOWER frequency limit using the

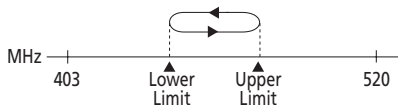
CALL button to select the flashing digit position and the ▲ or ▼ keys to change the frequency value.

- When the LOWER frequency limit has been selected, briefly press the **SCAN** key then press and hold the ▼ key. The radio will give a long beep. The LOWER limit is now stored.
- Now select the UPPER frequency limit using the **CALL** button to select the flashing digit position and the ▲ or ▼ keys to change the frequency value.
- When the UPPER frequency limit has been selected, briefly press the **SCAN** key then press and hold the ▲ key. The radio will give a long beep. The UPPER limit is now stored.
- Press and hold **MENU** to exit the frequency edit mode. Now follow the same steps as described under 'Scanning for active frequencies in the Seek Mode' on page 19. The only difference will be smaller frequency band which will now scan only within the frequency limits set above.

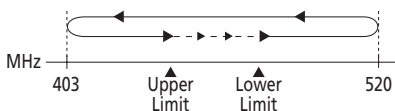
NOTE: The Seek frequency limits will remain stored in the radio even after you have switched the radio OFF. The next time you use the Seek mode the same frequency limits will apply. To change the frequency limits simply reset them as described above.

TIP: The Lower frequency limit should normally be lower than the upper frequency limit. However, if you should enter a lower frequency limit that is higher than the upper frequency limit the radio will then scan frequencies OUTSIDE these limits. In other words you can exclude the frequencies between the limits.

If Upper Limit is greater than Lower Limit, radio will scan INSIDE the limit range.



If Upper Limit is less than Lower Limit, radio will scan OUTSIDE the limit range.



MENU SETTINGS

OVERVIEW

The **MENU** feature provides a convenient method of customizing or storing some of the radio's functions. The following Menu Options are available. Note that some items are only available on certain channels.

Menu Settings	Ch 1-8 Ch 41-48	Ch 9-40 Ch 49-80	RX Only Ch
Frequency/ ALPHA Adjustment			•
Squelch Settings	•	•	•
Open/Group Scan	•	•	•
Duplex/Simplex Mode	•		
CTCSS Tones	•	•	•
Lamp Colour	•	•	•
Battery/S-Meter Selection	•	•	
Battery/S-Meter ALPHA Selection			•
LCD Contrast	•	•	•
Beep Tone Level	•	•	•

To access the Menu functions

- Press and hold the **MENU** key. The first **MENU** function is displayed.
- Briefly press the **MENU** key again to cycle through each available function in the order listed above. After the last function has been selected, the cycle returns to the beginning.
- Press the ▲ or ▼ keys to alter the parameters of the selected function.
- Press and hold the **MENU** key to exit and store any changes.

FREQUENCY/ALPHA ADJUSTMENT

The Frequency/**ALPHA** adjustment is only available when a user programmable Listening channel is selected. It allows you to manually adjust the channel frequency or, if **ALPHA** mode is selected, lets you edit the **ALPHA** label for that Listening channel.

1. Select a user Channel between 81 and 99.
2. Press and hold the **MENU** key until the radio beeps.

If the radio is in Numeric mode, the channel frequency will be displayed. If the radio is in **ALPHA** mode, your selected ALPHA label will be displayed (if you have not set a label for this channel, '**ALPHA**' will be displayed).

3. Briefly press the **▲** or **▼** key to change the character or number in the flashing digit position.
4. Briefly press the **CALL** button to move to the next flashing digit position.
5. Once you are happy with your selection, press and hold the **MENU** key to store the new setting.

SETTING THE SQUELCH SENSITIVITY

The sensitivity of the Squelch to incoming signals can be set to suit your operating environment. In quiet rural locations a low setting will allow the weakest signals to be received while still keeping the radio quiet between transmissions. In city locations, a higher setting might be needed to ensure the squelch remains closed when subjected to the higher interference levels often encountered in high density areas.

The TX4600 has ten (10) preset Squelch sensitivity settings (labelled SQL-0 to SQL-9) that can be selected using the Menu function. The minimum Squelch setting (SQL-0) will open the Squelch allowing all signals to be heard. SQL-9 is the maximum setting, requiring very strong signals to open the squelch. The factory default is SQL-3 which generally provides reliable squelch operation for most applications.

To preselect the Squelch sensitivity

1. Select a Channel between 1 and 80.
2. Press and hold the **MENU** key until the radio beeps. SQL-x will be displayed where x is a number from 0 to 9.
3. Press the **▲** or **▼** key to increase or decrease the preset squelch to the desired setting.
4. Press and hold the **MENU** key to store the new setting.

SELECTING THE SCAN MODE

The TX4600 features two scan groups – Open Scan and Group Scan.

NOTE: If preferred, your dealer can re configure your unit to have two Open Scan or two Group Scan groups.

To select the Scan Group

1. Select a Channel between 1 and 80.
2. Press and hold the **MENU** key until the radio beeps.
3. Briefly press the **MENU** key again. 'OSCAN' (Open Scan) or 'GSCAN' (Group Scan) will be displayed.

NOTE: If two Open Scan or two Group Scan groups have been installed, SCAN1 or SCAN2 will be displayed.

4. Press the **▲** or **▼** key to select the required Scan Group.
5. Press and hold the **MENU** key until the radio beeps, to store the setting.



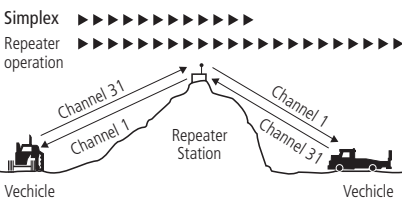


NOTE: If two Open Scan or two Group Scan groups are available, the radio will display 'Scan1' for the original Open Scan and 'Scan2' for the original Group Scan.

SELECTING DUPLEX

Duplex operation allows the radio to transmit on a different frequency to that which it receives. This allows operation through repeater stations. Repeaters automatically re-transmit your signal over a wider area, providing greatly increased range.

Simplex/Duplex Range Comparison



Duplex operation operates only on channels 1 – 8 or 41 – 48. When duplex is selected on these channels, the radio receives on that channel but actually transmits 30 channels higher. (See chart below).

The TX4600 allows you to select Duplex operation individually on each channel.

To enable or disable Duplex on a channel

1. Select the required channel 1 – 8 or 41 – 48 (the Duplex setting feature is only available on these channels).

Channel Selected	1	2	3	4	5*	6	7	8	41	42	43	44	45	46	47	48
Receive Channel	1	2	3	4	5*	6	7	8	41	42	43	44	45	46	47	48
Transmit Channel	31	32	33	34	35*	36	37	38	71	72	73	74	75	76	77	78

* Emergency Channel only

2. Press and hold the **MENU** key until the radio beeps.
3. Briefly press the **MENU** key twice. 'dUPON' (Duplex On) or 'dUPOF' (Duplex Off) will be displayed.
4. Press the **▲** or **▼** key to select the required Duplex setting.
5. Press and hold the **MENU** key until the radio beeps, to store the setting.

CTCSS TONES

CTCSS (Continuous Tone Coded Squelch System) is a squelch quieting system that allows several groups of users to share the same channel without disturbing each other. It uses one of a set of sub-audible (very low frequency) tones to open and close the squelch on your radio.

There are two standard tones sets, one comprising 50 tones and the other comprising 38 tones. Both tone sets are included in the TX4600 to provide compatibility with other radio system.

To toggle the required tone set

1. Switch the radio OFF.
2. Press and hold the **SQL** key while switching the radio on again.
3. 'CTC50' or 'CTC38' will be displayed indicating which tone set is selected.

NOTE: When switching up from CTC38 to CTC50, the radio will retain the selected CTCSS tone frequency and automatically update the tone set number to reflect its new position in the CTC50 tone set table. eg. If CTCSS tone frequency 233.6 Hz (CTC38 tone set #36) was selected, the radio will then display equivalent CTC50 tone set #47. When switching down from CTC50 to CTC38, if there is no equivalent CTC38 frequency, the CTCSS tone will be set to 'of' (0 Hz). You will need to reselect a new tone.

To preselect a CTCSS Tone

1. Press and hold the **MENU** key until the radio beeps.
2. Briefly press the **MENU** key repeatedly until 'CTCXX' is displayed, where XX is a number between 1 and 50 or oF.
3. Press the **▲** or **▼** key to select the required CTCSS tone number (see CTCSS Tone Chart on page 25). If the CTC38 tone set is enabled there will be 38 tones available otherwise there will be 50 tones.

NOTE: To display the CTCSS frequency instead of the tone number, briefly press the **SQL** key. The CTCSS frequency (in Hz) will be displayed. Briefly press the **SQL** key again to return to the tone number.



CTCSS Tone Number Displayed



CTCSS Tone Frequency Displayed

4. To turn CTCSS tones OFF select CTCof
5. Press and hold the **MENU** key until the radio beeps, to store the setting.

LAMP COLOUR

The display lamp can be set to Orange, Red or Green to match other equipment you might have installed or to satisfy personal preference.

1. Press and hold the **MENU** key until the radio beeps.

2. Briefly press the **MENU** key repeatedly until 'LAMP' is displayed.
3. Press the **▲** or **▼** keys to cycle through the available colours of Orange, Red or Green.
4. Press and hold the **MENU** key until the radio beeps, to store the setting.

BATTERY/S-METER/ALPHA SELECTION

The TX4600 has the option of displaying either the battery voltage or the incoming signal strength (S-meter) in the area beneath the channel display. In addition, when 'Listening' channels (81 – 99) are selected, the radio provides an extra option of displaying the frequency of the selected user channel or a custom ALPHA label (when ALPHA mode is selected).

The 'Listening' channels are treated independently to the normal UHF CB channels in that you can for example, select S-Meter or Battery Voltage on Channels 1 – 80 yet display the channel frequency (or an ALPHA label) on channels 81 – 99.

To display S-Meter or Battery Voltage on channels 1 – 80

1. Select a channel from 1 – 80.
2. Press and hold the **MENU** key until the radio beeps.
3. Briefly press the **MENU** key repeatedly until 'S-MET' (S Meter) or 'bATT' (Battery) is displayed.



4. Press the ▲ or ▼ keys to select your preferred choice of S-MET and bATT.
5. Press and hold the **MENU** key until the radio beeps, to store the setting.

To display S-Meter, Battery Voltage or Frequency/Alpha label on 'Listening' channels (81 – 99):

1. Select a channel from 81 – 99.
2. Press and hold the **MENU** key until the radio beeps.
3. Briefly press the **MENU** key repeatedly until 'S-MET' (S Meter), 'bATT' (Battery) or 'ALPHA' is displayed.
4. Press the ▲ or ▼ keys to select your preferred choice of S-MET (S Meter), bATT (Battery) or ALPHA.
5. Press and hold the **MENU** key until the radio beeps, to store the setting.

LCD CONTRAST

Use this setting to adjust the LCD display contrast.

To Adjust the Contrast

NOTE: Adjusting the contrast may affect the viewing angle.

1. Press and hold the **MENU** key until the radio beeps.
2. Briefly press the **MENU** key repeatedly until 'LCDXX' is displayed (where XX is a number from 0 to 15).
3. Press the ▲ or ▼ keys to select the required contrast setting. LCD15 is the highest contrast setting
4. Press and hold the **MENU** key until the radio beeps, to store the setting.

BEEP TONE LEVEL

Use the Beep Tone setting to adjust the volume level of the keypad beeps.

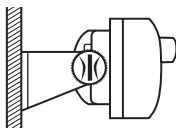
To adjust the keypad beeps

1. Press and hold the **MENU** key until the radio beeps.

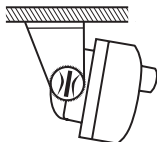
2. Briefly press the **MENU** key repeatedly until 'beep' is displayed.
3. Press the ▲ or ▼ keys to select the required keypad beep level. Selecting 'beep0' will turn the keypad beeps off.
4. Press and hold the **MENU** key until the radio beeps, to store the setting.

INSTALLATION

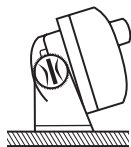
GENERAL



Panel Mounting

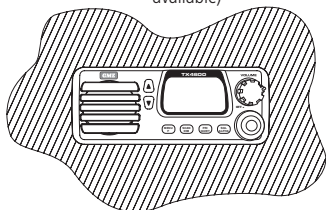


Overhead Mounting



Upright Mounting

Flush Mounting
(Optional MK001B
flush mounting kit
available)



It is advisable to spend a little time selecting the best location for your TX4600. The mounting bracket can be rotated above, below or behind the radio enabling the radio to be mounted in a wide range of locations. In addition, an optional flush mounting kit allows the radio to be flush mounted in a panel or dashboard.

Keep the following points in mind when choosing a location:

- The TX4600 is designed to meet IP67 specifications which allows for temporary immersion in water, however we recommended

you select a location that will minimize excessive exposure to continuous rain or spray.

- Select a location that won't expose your radio to continuous direct sunlight which could cause overheating.
- Ensure the location allows a free flow of air around the heat sink on the back of the radio.
- The microphone and all controls should be readily accessible and the loud speaker easily heard from the normal steering or driving position. An extension speaker can be installed if required.

INSTALLING THE UNIT

After choosing a location, hold the unit with the mounting bracket attached, to the desired position and mark the location with a pencil. Remove the mounting bracket from the radio and drill the mounting holes. Bolt or screw the bracket in place using hardware suitable for the mounting surface. The unit is supplied with stainless steel screws, however, if the mounting surface is unsuitable for screws you may need to replace these with stainless steel bolts. Remember, in some applications the fixings for overhead mounted units may have to survive rough conditions.

DC CONNECTIONS

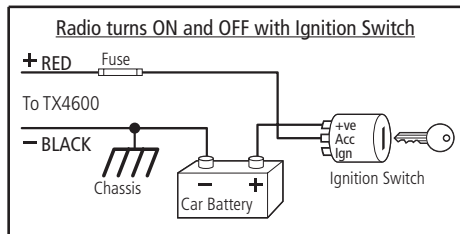
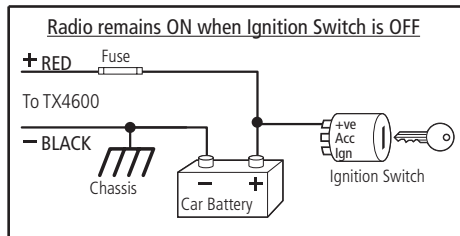
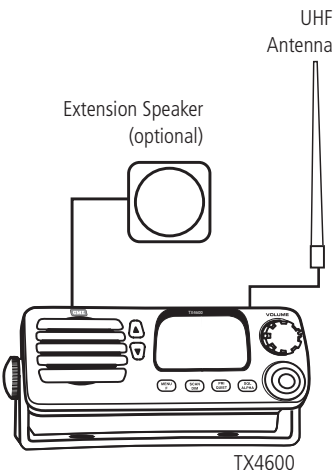
Connect the RED power lead to the positive (+) side of the battery or to an accessory point in the vehicle's fuse box.

Connect the BLACK power lead to the negative (-) side of the battery or to a ground point in your vehicle.

NOTE: The RED power lead is fitted with a 3 Amp fuse. If the fuse blows, use only a standard 3 Amp (3AG) fuse as a replacement. Use of a higher rated fuse or a slow-blow type could result in damage to your radio which would void the warranty.

If required, an extension speaker may be installed to improve sound levels in noisy environments or in locations further away from the steering or driving position. For locations exposed to water we recommend the SPK45 or SPK07. For dry installations the SPK04, SPK08 or SPK09 are suitable extension speakers.

NOTE: The internal speaker continues to operate when the extension speaker is plugged in.



ANTENNA INSTALLATION

It is essential to select a good quality, high efficiency, 477 MHz antenna. A poor quality antenna or one not designed for the specific frequency band you are using will give very poor performance.

GME have a huge range of suitable 477 MHz UHF CB antennas to suit most installations and applications. We recommend you contact your local Dealer for advice.

Connect to the antenna cable to the rear antenna socket using a PL259 coaxial connector.

NOISE SUPPRESSION

The inherent design of FM transceivers results in a high level of resistance to ignition and electrical interference. However in some installations it may be necessary to take additional steps to help reduce or eliminate noise interference.

During installation, try to route the DC battery leads, the antenna lead or any accessory wires away from the engine compartment, ignition or alternator wiring. If the noise continues, it may be necessary to fit a suppression kit in which case we recommend you consult an auto electrician for advice specific to your installation.

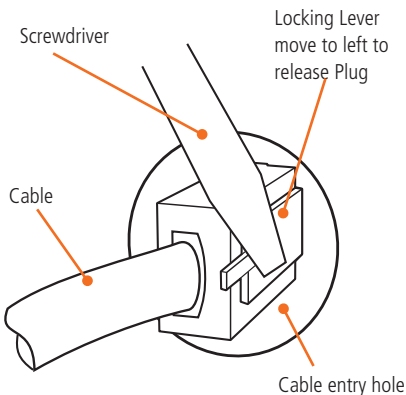
Higher frequency electrical interference caused by electric motors can be suppressed directly at the motor terminals.

DISCONNECTING THE MICROPHONE

It is recommended that the microphone be left permanently connected to the TX4600, but if it must be disconnected, proceed as follows:

1. Insert a small screwdriver between the rubber boot and the lip of the raised area on the front panel.
2. Ease the rubber boot out of the cable entry hole and slide it along the cable away from the front panel.
3. Identify the plug locking lever, work the screwdriver blade behind it and move the lever towards the plug body. At the same time gently pull the plug from the socket. (see diagram)

If required, replacement microphones are available with plug and rubber boot already fitted.



UHF CB OPERATING FREQUENCIES

CH	Frequency (MHz)	CH	Frequency (MHz)	CH	Frequency (MHz)	CH	Frequency (MHz)
1	476.425	21	476.925	41	476.4375	61	476.9375
2	476.450	22	476.950	42	476.4625	62	476.9625
3	476.475	23	476.975	43	476.4875	63	476.9875
4	476.500	24	477.000	44	476.5125	64	477.0125
5	476.525	25	477.025	45	476.5375	65	477.0375
6	476.550	26	477.050	46	476.5625	66	477.0625
7	476.575	27	477.075	47	476.5875	67	477.0875
8	476.600	28	477.100	48	476.6125	68	477.1125
9	476.625	29	477.125	49	476.6375	69	477.1375
10	476.650	30	477.150	50	476.6625	70	477.1625
11	476.675	31	477.175	51	476.6875	71	477.1875
12	476.700	32	477.200	52	476.7125	72	477.2125
13	476.725	33	477.225	53	476.7375	73	477.2375
14	476.750	34	477.250	54	476.7625	74	477.2625
15	476.775	35	477.275	55	476.7875	75	477.2875
16	476.800	36	477.300	56	476.8125	76	477.3125
17	476.825	37	477.325	57	476.8375	77	477.3375
18	476.850	38	477.350	58	476.8625	78	477.3625
19	476.875	39	477.375	59	476.8875	79	477.3875
20	476.900	40	477.400	60	476.9125	80	477.4125

	Emergency use only
	Telemetry / SelCall use only. Voice transmission is inhibited as required by AS/NZS 4365.2011
	Guard band channel. Transmission is inhibited as required by AS/NZ 4365.2011
	Repeater input channels (Duplex)

	Repeater output channels (Duplex)
11	Officially designated call channel
40	Road channel
18	Caravan and motorhome
10	4WD / Offroad

CTCSS TONE FREQUENCY CHART

50 Tone Set	38 Tone Set	Frequency	50 Tone Set	38 Tone Set	Frequency	50 Tone Set	38 Tone Set	Frequency
1	1	67.0	18	17	118.8	35	-	183.5
2	-	69.4	19	18	123.0	36	30	186.2
3	2	71.9	20	19	127.3	37	-	189.9
4	3	74.4	21	20	131.8	38	31	192.8
5	4	77.0	22	21	136.5	39	-	196.6
6	5	79.7	23	22	141.3	40	-	199.5
7	6	82.5	24	23	146.2	41	32	203.5
8	7	85.4	25	24	151.4	42	-	206.5
9	8	88.5	26	25	156.7	43	33	210.7
10	9	91.5	27	-	159.8	44	34	218.1
11	10	94.8	28	26	162.2	45	35	225.7
12	11	97.4	29	-	165.5	46	-	229.1
13	12	100.0	30	27	167.9	47	36	233.6
14	13	103.5	31	-	171.3	48	37	241.8
15	14	107.2	32	28	173.8	49	38	250.3
16	15	110.9	33	-	177.3	50	-	254.1
17	16	114.8	34	29	179.9			

CTCSS Frequency shown in Hz

SPECIFICATIONS

ELECTRICAL

General

- Compliant Specification:** Meets AS/NZS 4365 for radio communications equipment in the UHF citizen and personal radio service.
- Frequency Range TX:** 476.425 - 477.4125 MHz
- Frequency Range RX:** 403 - 520 MHz
- Number of Channels:** 80 UHF CB + 19 Receive only
- Channel Spacing:** 12.5 kHz only
- Operation Mode:** Simplex Ch1 - 80
Semi Duplex Ch 1 - 8, 41 - 48
- Scanning Speed:** 20 channels per second
- Antenna Impedance:** 50 Ohms nominal
- Operating Voltage Range:** 10 - 15 volts DC
- Nominal Battery Voltage:** 13.8 volts DC
- Over Voltage Protection:** 30 V DC max. At 18 V DC the RF power is reduced, and the words 'Hi DC' flash.
- Over Current Protection:** In-line 3A Fuse
- Reverse Polarity Protection:** Shunt Diode
- Frequency Stability:** ± 2.5 PPM
- SelCall Tone Length:** 40 ms

Transmitter

- RF Output:** 5.0 watts max.
- Spurious Emission:** $< - 67$ dB
- Frequency Transients during switching:** < 3 kHz
- Modulation:** FM
- Maximum Deviation:** $< \pm 2.5$ kHz at $+ 20$ dB
- Spurious Emissions:** $< - 26$ dBm
- Transmit Frequency Response:** $+ 6$ dB per octave 300 Hz to 3 kHz + 1 - 3 dB.
- Audio Signal to Noise:** > 45 dB
- Out of Band Emission:** $- 70$ dBc
- Current Consumption:** 1.7 amps with 50 Ohm termination

Receiver

- Circuit Type:** Double conversion Superheterodyne
- Intermediate Frequencies:** 1st - 21.4 MHz
2nd - 450 kHz
- Current Consumption:** < 260 mA muted
600 mA @ max. A.F Output

Sensitivity: - 123 dBm for 12 dB SINAD unweighted

Selectivity: - 6 dB at \pm 3.5 kHz
- 60 dB at \pm 12.5 kHz

Intermodulation Immunity: 73 dB

Blocking Immunity: 100 dB

Spurious Response Immunity: 70 dB

Image Rejection: 70 dB

Audio Power: 3 watts average into 4 Ohms

Audio Signal to Noise: > 45 dB

Receive Frequency Response: - 6 dB/Octave de-emphasis 300 Hz to 3 kHz + 1 - 3 dB

Conducted Spurious Emission: < - 57 dBm

MECHANICAL

Dimensions: 65 (H) x 165 (L) x 56 (D) mm

Weight: 472 grams

ENVIRONMENTAL

Temperature Range: -10°C to +60°C

Weatherproof: Meets IP67

Shock and Vibration: MIL STD 810 method

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Specifications are subject to change without notice or obligation.
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STANDARD COMMUNICATIONS CONTRACT WARRANTY AGAINST DEFECTS

This warranty against defects is given by Standard Communications Pty Ltd ACN 000 346 814 (We, us, our or GME). Our contact details are set out in clause 2.7. This warranty statement only applies to products purchased in Australia. Please contact your local GME distributor for products sold outside of Australia. Local distributor details at www.gme.net.au/export.

1. Consumer guarantees

1.1 Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for 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.

1.2 To the extent we are able, we exclude all other conditions, warranties and obligations which would otherwise be implied.

2. Warranty against defects

2.1 This Warranty is in addition to and does not limit, exclude or restrict your rights under the Competition and Consumer Act 2010 (Australia) or any other mandatory protection laws that may apply.

2.2 We warrant our goods to be free from defects in materials and workmanship for the warranty period (see warranty table) from the date of original sale (or another period we agree to in writing). Subject to our obligations under clause 1.2, we will at our option, either repair or replace goods which we are satisfied are defective. We warrant any replacement parts for the remainder of

the period of warranty for the goods into which they are incorporated.

2.3 To the extent permitted by law, our sole liability for breach of a condition, warranty or other obligation implied by law is limited

- (a) in the case of goods we supply, to any one of the following as we decide -
 - (i) the replacement of the goods or the supply of equivalent goods;
 - (ii) the repair of the goods;
 - (iii) the cost of repairing the goods or of acquiring equivalent goods;
- (b) in the case of services we supply, to any one of the following as we decide –
 - (i) the supplying of the services again;
 - (ii) the cost of having the services supplied again.

2.4 For repairs outside the warranty period, we warrant our repairs to be free from defects in materials and workmanship for three months from the date of the original repair. We agree to re-repair or replace (at our option) any materials or workmanship which we are satisfied are defective.

2.5 We warrant that we will perform services with reasonable care and skill and agree to investigate any complaint regarding our services made in good faith. If we are satisfied that the complaint is justified, and as our sole liability to you under this warranty (to the extent permitted at law), we agree to supply those services again at no extra charge to you.

2.6 To make a warranty claim you must before the end of the applicable warranty period (see warranty table), at your own cost, return the goods you allege are defective, provide written details of the defect, and give us an original or copy of the sales invoice or some other evidence showing details of the transaction.

2.7 Send your claim to:
Standard Communications Pty Ltd.
PO Box 96 Winston Hills,
NSW 2153, Australia.
Tel: (02) 9844 6666 Fax: (02) 9884 6600
Email: servadmin@gme.net.au

2.8 If we determine that your goods are defective, we will pay for the cost of returning the repaired or replaced goods to you, and reimburse you for your reasonable expenses of sending your warranty claim to us.



3. What this warranty does not cover

- 3.1 This warranty will not apply in relation to:
- (a) goods modified or altered in any way;
 - (b) defects and damage caused by use with non Standard Communications products;
 - (c) repairs performed other than by our authorised representative;
 - (d) defects or damage resulting from misuse, accident, impact or neglect;
 - (e) goods improperly installed or used in a manner contrary to the relevant instruction manual; or
 - (f) goods where the serial number has been removed or made illegal.

4. Warranty period

4.1 We provide the following warranty on GME and Kingray products. No repair or replacement during the warranty period will renew or extend the warranty period past the period from original date of purchase.

PRODUCT TYPE	WARRANTY PERIOD
UHF CB	3 years

 **1300 463 463**  **gme.net.au**

A division of Standard Communications Pty Ltd.

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New Zealand: PO Box 58, 446 Botany, Auckland 2163 (09) 274 0955

All other international enquiries email: **export@gme.net.au**

Part Number: 310228 Drawing Number: 42333-8