Gloss white art stock - 130gsm
Trimmed document size: 135 mm (w) x 152 mm (h) 20 pages
Book to be saddle stitched in 2 places
Printed in CMYK throughout with gloss Aq Varnish

GME

TX3500

5 watt compact UHF CB radio

INSTRUCTION MANUAL

AUSTRALIAN MADE

Full Spectrum Backlighting
DSP
Pure Sound
Advanced Signal Management
Dynamic Volume Control
Front and Rear Mic Input
3 year
Warranty

CONTENTS

INTRODUCTION 3
IMPORTANT INFORMATION 3
POSSIBLE ISSUES 3
EMERGENCY CHANNELS 3
TELEMETRY CHANNELS 3
FEATURES 4
GENERAL OPERATION 4
- Volume 4
- Selecting Channels 4
- Squelch 4
- Front Panel Controls 5
- LCD Panel 5
- Signal Meter 6
- Transmitting 6
- Time-out Timer 6
- Backlighting 6
- Bandwidth Filter Settings 6
- To change the Filter Setting 6
- Dynamic Volume Control (DVC) 7
- Repeaters and Duplex Mode 7
- Priority Channel 8
- Scanning 8
- CTCSS & DCS 10
- Receive (RX) only Channels 12

INSTALLATION 12
DC POWER CONNECTION 14
HIGH VOLTAGE WARNING 15
ANTENNA CONNECTION 15
NOISE SUPPRESSION 15
CTCSS TONE FREQUENCY CHART 16
DCS TONE CHART 17
UHF CB OPERATING FREQUENCIES 18
SPECIFICATIONS 19
SC CONTRACT WARRANTY AGAINST DEFECTS ..... Back page
- Contacts ..... Back page

ACCESSORIES SUPPLIED

- TX3500 Radio
- Mounting Cradle
- Instruction Manual
- Microphone
- Microphone Clip
- DC Lead
- Screw Pack

If any items are missing or damaged, please contact your retailer or place of purchase.

INTRODUCTION

Your GME TX3500 80 channel radio is Australian designed and built and is the most advanced UHF Citizen Band radio available.

The TX3500 combines the very latest in electronic hardware with the most up-to-date computer aided design and manufacturing techniques to produce an extremely compact mobile radio with outstanding specifications and performance.

The TX3500 is designed for unobtrusive mounting in modern vehicles. With its built-in loud speaker and extremely small size the TX3500 can be mounted in almost any convenient location.

IMPORTANT INFORMATION

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.

POSSIBLE ISSUES

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

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 moving up or down a few channels from the currently selected channel.

The above situations are not a fault of the radio but a normal symptom of operating wideband and narrowband radios in the same bandwidth. This possible interference will decrease over time as the population of wideband radios operating in the UHF CB band 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 TX3500 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.
- **Full Spectrum Backlighting:** User adjustable, totally customisable backlight settings to match the vehicles dashboard lighting or drivers preference.
- **Digital Signal Processing:** Measures, filters and compresses standard analogue audio signals and converts them into digital format. Allows advanced RF and audio processing techniques to be applied to maximise the radios performance.
- **Advanced Signal Management:** Identifies interference caused by strong local signals on adjacent channels and prevents these from opening your squelch. ASM also minimises distortion on reception by fine tuning the receiver frequency to match that of the incoming signal.
- **Dynamic Volume Control:** Automatically compensates for variations in received audio level to provide a constant audio output level to the speaker.
- **Programmable Scan Function:** Scans the selected UHF CB channels with both Group and Open scan functions available.
- **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.
- **Priority Channel:** A user programmable Priority channel feature allows your working channel to be instantly recalled at the press of a key.
- **High Contrast Liquid Crystal Display:** Fully detailed LCD provides a visual indication of the selected channel and all selected functions at a glance.
- **Fully Customisable Backlighting:** User adjustable back light settings provides smooth blending of brightness, colour and saturation to suit your personal preference.
- **CTCSS & DCS:** A built-in Continuous Tone Coded Squelch and Digital Coded Squelch System option provides silent channel operation.
- **Over Voltage Protection:** Special overvoltage detection circuitry protects the radio and warns of excessive voltage conditions by flashing the display.
- **Surface Mount Technology:** The very latest surface mount component types, design and assembly techniques and quality control procedures are used to ensure the highest performance and reliability.
- **Dual Microphone Input Sockets:** Front and rear microphone sockets to match most installation needs.
- **Front and Rear microphone inputs:** Convenient front and rear microphone inputs to facilitate ease of installation and operation across a range of vehicles.
- **Designed and Manufactured in Australia:** The TX3500 has been totally designed and manufactured in Gladesville NSW to meet the demanding needs of the Australian community.

GENERAL OPERATION

VOLUME

Rotate the **Volume** control clockwise past the 'click' to turn the TX3500 on. Rotate the control further clockwise to increase the volume, or counter clockwise to decrease the volume.

If no sound is heard, briefly press the **SQL** key to temporarily un-mute the radio then adjust the volume while listening to the background noise. When finished, briefly press the **SQL** key again to re-mute the radio.

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

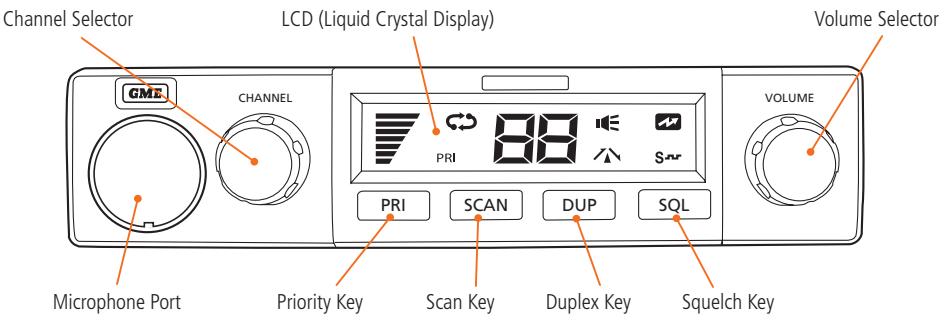
SELECTING CHANNELS

Select the required channel by rotating the **Channel knob**. Rotate the knob clockwise to select higher channel and counter clockwise to select lower channels. The selected channel is displayed on the LCD.

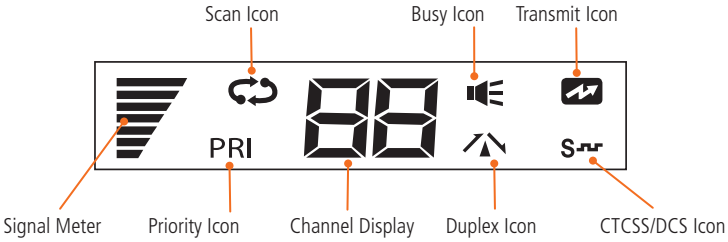
SQUELCH

The squelch is used to eliminate any annoying background noise when there are no signals present. The squelch can be opened or closed using the **SQL** key. When the squelch is open the receiver's background noise can be heard and

FRONT PANEL CONTROLS



LCD PANEL



the symbol is displayed. When the squelch is closed the receiver remains quiet while there are no signals present but any incoming signals 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 and the symbol will be displayed. If there are no signals present you will hear the receiver's background noise.

To close the squelch

Briefly press the **SQL** key. A high beep will be heard. If there are no signals present the symbol will disappear and the receiver will become quiet again.

Adjusting the squelch level

The TX3500's default squelch sensitivity level has been factory set to provide optimum performance under most operating conditions. If required, the sensitivity level can be adjusted to suit changing conditions.

To adjust the squelch sensitivity, briefly press the **Channel knob**. The channel display will show the current squelch setting in values from 1 - 9. A squelch setting of -1 allows the squelch to open on very weak signals whereas a setting of -9 requires much stronger signals to overcome the squelch. Rotate the **Channel knob** to change the squelch setting. Press the **Channel knob** to accept the setting and return to normal operation.

SIGNAL METER

The signal meter indicates the relative signal strength of the incoming signal. Stronger incoming signals will display more bars while weaker signals will display less bars.

TRANSMITTING

Prior to transmitting, always check the channel is not being used. This can be done either by listening or by checking that the signal meter and the 'BUSY' icon is not visible.

To transmit, press the **PTT** switch on the microphone. The icon will appear. 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. The icon will disappear.

IMPORTANT: Always listen to ensure the channel is free before transmitting.

TIME-OUT TIMER

Your TX3500 has an in-built Time-Out Timer (TOT) that limits transmissions to a maximum of 3 minutes of continuous operation. This feature is required by the ACMA to prevent the radio from jamming the frequency if the PTT switch has been accidentally jammed. Once the TOT is triggered the radio will beep once and the transmitter output will be switched off. If the PTT remains pressed, the transmit icon will remain visible but there will be no signal transmitted from the radio. Once the PTT switch has been released the TOT is reset and transmissions can recommence.

BACKLIGHTING

The Liquid Crystal Display and keys are back lit for easy viewing at night. The back lighting remains on at while the TX3500 is switched ON.

Adjusting the backlighting

The backlighting brightness and colour can be adjusted for personal preference. There are three settings available;

br' - Brightness Setting: Provides a continuously variable brightness adjustment from very dim to full brightness.

'cL' - Colour Setting: Provides a continuously variable colour change via a smooth blend of Red, Green and Blue colours.

'Li' - Lightness Setting: Provides a continuously variable lightness or colour saturation of the selected colour from full colour to white (no colour).

To make adjustments to the backlighting, press and hold the **Channel knob** for several seconds. 'br' is displayed indicating the Brightness mode is selected.

Briefly press the **Channel knob** to step through the available settings. 'br' (brightness), 'cl' (colour) or 'Li' (lightness) will be displayed at each press.

To adjust the current selection, rotate the **Channel knob** left or right.

When finished, press and hold the **Channel knob** to return to normal operation.

TIP: For the deepest colour range, reduce the lightness 'Li' setting.

NOTE: The back light setting function will automatically time out after 6 seconds if no further adjustments have been made.

BANDWIDTH FILTER SETTINGS

The TX3500 is fitted with two user-selectable receiver bandwidth filters which allow the receiver to be adjusted for either wide or narrow band reception on channels 1 – 40. This feature provides additional compatibility with older 40-channel radios. The wide setting increases the tolerance of the TX3500 receiver to older wideband 40 channel radios or to signals that might be slightly off frequency. The narrow setting increases the selectivity of the receiver to help reduce interference from strong interfering signals on adjacent channels.

TO CHANGE THE FILTER SETTING

1. Switch the radio OFF.
2. Press and hold the **Channel knob** while switching the radio ON.
3. Release the **Channel knob**. 'FL' will be displayed along with two signal meter bars. The spacing of the signal

meter bars indicates the bandwidth setting. A narrow space indicates a narrow-band setting while a wide space indicates a wide-band setting.

Wide Band Setting

Narrow Band Setting

4. To change the setting, rotate the **Channel knob** left or right. The signal bars will change to show the selected bandwidth.
5. To return to normal operation, switch the radio OFF then ON again (or wait a few seconds for the function to time-out).

NOTE: The wideband filter selection only operates on channels 1-40. Channels 41-80 always remains narrowband.

DYNAMIC VOLUME CONTROL (DVC)

The modulation level of signals heard on the UHF CB band has always varied considerably resulting in noticeable differences in received audio volume between stations. Generally users have compensated for this by adjusting the volume control for each received signal. With the introduction of 80 channel narrowband transmissions that use lower levels of modulation, the diversity in received audio volume is likely to increase further.

The TX3500 is able to automatically compensate for these variations in received audio level by utilising a Dynamic Volume Control. When activated, this feature automatically compensates for variations in received audio level resulting in a constant audio output level to the speaker to greatly enhance the quality of the reception.

To switch the Dynamic Volume Control ON or OFF

1. Switch the radio OFF.
2. Press and hold the **PRI** key while switching the radio ON.
3. A high beep indicates the DVC is switched ON while a low beep indicates the DVC is OFF.

REPEATERS AND DUPLEX MODE

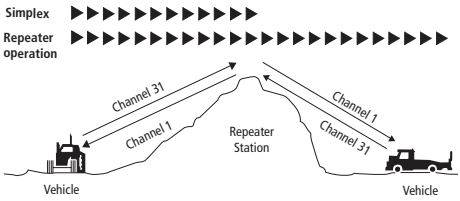
Duplex operation allows the radio to transmit on a different frequency to that which it receives. This allows operation through repeater stations.

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. Repeaters are usually mounted on hills or tall buildings. The increased elevation greatly improves both the receiving and transmitting range of the repeater allowing it to receive and retransmit signals to radios that would otherwise be out of range of each other.

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. Your TX3500 is fitted with a Duplex key to allow you to operate through repeaters.

The Duplex function can only be selected on channels 1-8 and 41-48 as these are the channels that have been allocated for repeater use. When Duplex is selected, your TX3500 receives on the selected channel (e.g. CH 1) but transmits 30 channels higher (CH 31). The repeater hears your signal on CH 31 and retransmits it on CH 1 for others to hear.

Simplex/Duplex Range Comparison



The TX3500 allows you to enable or disable Duplex mode on individual repeater channels. In this way any repeater channels that are not being used with repeaters in your area can be used in Simplex mode for normal direct radio-to-radio communications.

To enable Duplex on a Repeater channel

1. Select the required repeater channel (1–8, 41–48)
2. Briefly press the **DUP** key. The duplex symbol will appear on the display accompanied by a high beep.

To remove Duplex from a Repeater channel

1. Select the required repeater channel (1-8, 41-48). If duplex is currently selected, the duplex symbol will appear.
2. Briefly press the **DUP** key. The duplex symbol will disappear from the display accompanied by a low beep.

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

***** Emergency channel only

PRIORITY CHANNEL

The Priority channel feature allows you to instantly recall any one of the 80 channels in the TX3500. This feature can be used to provide instant access to your working channel or your local repeater channel at the press of key. It is also used in conjunction with the Group Scan mode.

To store a Priority channel

1. Select the required channel.
2. Press and hold the **PRI** key. The channel number will flash then a high beep will be heard as the channel is stored.

To recall a Priority channel

1. Briefly press the **PRI** key.
2. The TX3500 will immediately switch to the Priority channel and the PRI icon will be displayed.
3. To return to the previously selected channel press the **PRI** key again. The PRI icon will disappear and the radio will return to the previously selected channel.

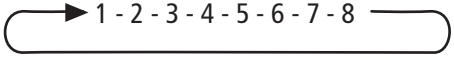
SCANNING

The TX3500 incorporates a scan function that allows a selected group of channels to be scanned for activity. Channels are scanned at a rate of 20 channels per second. If a signal is detected on a channel, the scan will pause to allow the signal to be heard. Once the channel has been clear for 5 seconds the scan will resume.

Scan Groups

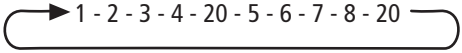
The TX3500 supports 2 scan groups: Open Scan and Group Scan.

Open Scan allows a group of channels to be scanned in an ascending sequence. If a signal is found, the scan will pause on that channel. During this time you can press the **PTT** switch on the microphone and talk on the channel. Once the channel has been clear for 5 seconds the scan will resume.



Example: Scanning channels 1 – 8 in Open Scan

Group Scan allows you to transmit and receive on your priority channel, but during periods of inactivity, the radio will also scan a group of other channels. Signals received on the Priority channel will have precedence over those received on the other channels. Similarly, pressing the **PTT** while scanning will cause the radio to revert to the priority channel. Once the Priority channel has been clear for 5 seconds the scan will resume.



Example: Scanning channels 1 – 8 with priority channel 20 in Group Scan

Selecting a Scan Group

1. Turn the TX3500 off.
2. Hold the **SCAN** key while turning the TX3500 on again.
3. Release the **SCAN** key. The display will show 'OS' for Open Scan or 'GS' for Group Scan.
4. Rotate the **Channel switch** one click left or right to change the scan group.
5. Switch the radio OFF then ON again to resume normal operation.

To add or remove channels from the scan memory

1. Check that the radio isn't already scanning. If it is, briefly press the **SCAN** key to cancel the scan.
2. Select the required channel.
3. Check to see if the scan symbol is displayed on that channel.
   I. If is displayed, the selected channel is already in the scan memory. Press and hold the **SCAN** key to remove it. The scan symbol will disappear.
   II. If is not displayed, the selected channel is not in the scan memory. Press and hold the **SCAN** key to add the selected channel to the scan memory. The scan symbol will now be displayed on that channel.

Scanning in Open Scan mode

Briefly press the **SCAN** key. A high beep will be heard and the scan symbol will animate. During this time the channel numbers will scroll rapidly as the channels are scanned.

NOTE: If there are less than 2 channels programmed into the scan memory when you press **SCAN**, a low beep will sound and the command will be ignored.

If a busy channel is located, the scan will pause to allow you to hear the signal but will continue to animate on the display to indicate that the scan function is still active. Once the channel has been clear for 5 seconds, the scan will resume.

If you don't wish to listen to a busy channel you can skip over it by rotating the **Channel knob**. Scanning will resume at the next available channel in memory.

Default working channel in Open Scan mode

In the Open Scan mode, your default working channel is the channel your radio switches to when you press the **PTT** while scanning. To define your working channel simply select the required channel before you press the **SCAN** key. E.g. to make channel 24 your working channel, simply select channel 24 before pressing the **SCAN** key.

To talk on your working channel while scanning, simply press the **PTT**. The scan will pause and your radio will switch to your working channel allowing you to transmit and receive on that channel. Once your communication has finished and the channel has been clear for 5 seconds, scanning will resume.

If your radio pauses on a busy channel *other than your working channel* and you wish to talk on that channel, simply press the **PTT** during a break in the conversation. The busy channel now becomes your new working channel, replacing your previous working channel. Once your communication has finished and the channel has been clear for 5 seconds, scanning will resume.

Scanning in Group Scan mode

Group Scan mode is slightly different to Open Scan mode in that the Group Scan allows you to communicate on your Priority channel while continuing to scan a number of other channels. The receiver will scan the other channels ONLY WHILE THERE ARE NO SIGNALS ON THE PRIORITY CHANNEL.

Signals being received on the Priority channel it will override any signals being received on any of the other channels. In addition, if you press the **PTT** at any time the radio will always transmit on the Priority channel.

Setting up Group Scan

1. See the '**Selecting a Scan Group**' section on page 9 to select the Group Scan mode.
2. Store your preferred Priority channel as outlined above under '**Priority Channel**' on page 8.
3. Program the required 'other' channels into the scan group memory as described above under '**To add or remove channels from the scan memory**' on page 9.

To Scan in the Group Scan mode, briefly press the **SCAN** key. A high beep will be heard and the scan symbol will animate. During this time the channel numbers will scroll rapidly as the selected channels are scanned with the Priority channel being scanned every fourth channel.

If a signal appears on the Priority channel – at any time – the radio will switch directly to the Priority channel and 3 short beeps will be heard. The radio will now stay on the Priority channel for as long as the channel remains busy. During this time you can transmit and receive on the Priority channel in the usual way. Once the Priority channel has been clear 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 every 2 seconds resulting in a series of small breaks in the reception of the busy channel. Once the signal has gone and there has been no activity on any channel for 5 seconds, the radio will resume scanning.

To transmit on the Priority channel at any time, simply press the **PTT**. The radio will switch straight to the priority channel. When you have finished your conversation and there has been no further activity for 5 seconds, the radio will resume scanning the other channels.

If the scan pauses on a busy channel and you don't wish to listen to that conversation, rotate the **Channel knob** and the radio will skip that channel and resume scanning.

If the radio is paused on a busy channel and you want to remain there, briefly press the **SCAN** key. The radio will exit scan and remain on the bust channel. At this point you will no longer be monitoring the priority channel.

To resume scanning press the **SCAN** key again. To exit the scan mode and go directly to the Priority channel at any time, press the **PRI** key.

Scan Group options

By default your TX3500 has one Open Scan mode and one Group Scan mode. There may be applications where you have no need to monitor a Priority channel and would prefer to have two separate Open Scan modes. Alternately you may prefer to have two separate Group Scan modes with different scan or priority channels in each. Your TX3500 can be programmed to convert the Group Scan into an Open Scan and vice versa. If this is required, please contact your GME retailer to arrange for this feature to be activated.

When two Open Scan or two Group Scan modes are enabled, the Scan Group selection screen will display O1 and O2 for the Open Scan groups or G1 and G2 for the Group Scan groups. See the section '**Selecting a Scan Group**' on page 9.

NOTE: Enabling or disabling the second Open or Group Scan mode is not a user selectable option. Once enabled or disabled, the new Scan mode becomes a permanent part of your radio's features. If you decide later that you need the original Scan mode settings restored you will need to return your radio to your GME retailer for re-programming.

CTCSS & DCS

CTCSS (Continuous Tone Coded Squelch System)

CTCSS 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 CTCSS tone sets, one comprising 50 tones and the other comprising 38 tones. Both tone sets are installed in the TX3500 to ensure compatibility with other radio systems. The 50 tone set contains all of the tones in the 38 tone set plus 12 additional tones. For more details, see CTCSS Tone Frequency Chart at the back of this manual.

To toggle between the 50 and 38 tone sets

1. Switch the radio OFF.
2. Press and hold the **DUP** key while switching the radio ON.

3. 50 or 38 will be displayed indicating the currently selected tone set.
4. Rotate the **Channel knob** one click left or right to change the selection.
5. Switch the radio OFF then on again to store your selection and return to normal operation.

NOTE: When switching upwards from the 38 tone set to the 50 tone set, the radio will retain the currently selected CTCSS tone frequency but will update the associated tone set number to reflect its new position in the 50 tone set table.

e.g. CTCSS tone #36 (233.6 Hz) in the 38 tone set table changes to tone #47 when the 50 tone set is selected.

When switching downwards from 50 to 38 tones, if there is no equivalent CTCSS tone frequency in the 38 tone set table, the CTCSS tone will be set to OFF and you will need to reselect a new tone.

DCS (Digitally Coded Squelch)

DCS is a Squelch quieting system similar to CTCSS that uses low frequency digital signals instead of a continuous low frequency tone. As with CTCSS, it also allows several user groups to share the same channels without disturbing each other. There are 104 DCS codes available. See DCS Tone Chart at the back of this manual.

Choosing CTCSS or DCS

Choosing which tone system and frequency to use will largely depend on the other radios you talk to. If you talk to others outside your group who already use CTCSS or DCS tones, you will need to select the tone system and frequency that matches theirs. The TX3500 includes most of the commonly used tone sets.

If the users you talk to don't currently use CTCSS or DCS, then you can make your own choice. There is no difference in performance or function between the different tone sets.

NOTE: The tone you select will be used for all channels that have 'Silent' enabled.

To select a CTCSS or DCS tone

1. Switch the radio Off.
2. Press and hold the **SQL** key while switching the radio ON again.
3. The currently selected tone number will be displayed along with a flashing icon in the lower right corner. A flashing **S** icon indicates a CTCSS tone is displayed while a flashing **S** icon indicates a DCS tone is displayed.
4. Rotate the **Channel knob** left or right to select the required CTCSS or DCS tone. Rotating towards the right will advance through the available CTCSS tones. Continue rotating past the last CTCSS tone to access DCS tones. To switch the CTCSS/DCS tones off, rotate the knob all the way to the left until 'OF' is displayed.

← Rotate Left		Rotate Right →
OF	CTCSS Tones 1-38 or 1-50 (**S**)	DCS Tones 1-104 (**S**)

Since there are 104 DCS tones and only two characters available to display them, DCS tones 100 to 104 are labelled A0 to A4 on the display.

5. Once the required setting has been selected, switch the radio OFF then ON again to save the setting and restore normal operation.

Enabling CTCSS/DCS on a channel (Silent mode)

When 'Silent' mode is enabled on a channel, the CTCSS/DCS system will prevent the Squelch on your radio from opening unless the incoming signal matches your selected CTCSS/DCS tone. If other users are using the same channel but are not using your selected CTCSS/DCS tone, the busy icon will appear on the display indicating the signal is being received, however no sound will be heard in the speaker. Only when someone transmits on the channel using your selected CTCSS/DCS tone will the squelch open to allow you to hear the signal.

Silent mode can be enabled on any channel you choose (except emergency channel 5/35).

To enable Silent mode on a Channel:

1. Select the required channel.
2. Press and hold the **SQL** key until a high beep is heard.
3. An **S** icon (CTCSS) or **S** icon (DCS) will be displayed in the lower right of the display to indicate Silent mode is now enabled on that channel.

NOTE: If the CTCSS/DCS tone in your radio has been set to Of you will not be able to enable Silent mode.

To disable Silent mode on a Channel:

1. Select the required channel. An **S** icon (CTCSS) or **S** icon (DCS) will be displayed indicating Silent mode is currently enabled on that channel.
2. Press and hold the **SQL** key until a low beep is heard.
3. The **S** or **S** icon will disappear indicating Silent mode is now disabled on that channel.

IMPORTANT: When Silent mode is enabled on a channel, you should always check the busy icon for signs of traffic on the channel before you transmit to ensure you do not accidentally transmit over the top of another user.

Monitor Function

If the busy icon shows that the channel is busy, but you cannot hear any sound, the signal is probably using a different CTCSS/DCS tone to yours.

If you wish to listen to the signal to confirm that someone else is using the channel, press and hold the Volume knob. This activates the 'monitor' function which temporarily disables the CTCSS/DCS system in your radio to allow the signal to be heard in the speaker. When the Volume knob is released the channel will become quiet again.

RECEIVING (RX) ONLY CHANNELS

The radio includes support for up to 19 RX-only dealer programmable frequencies in the range of 403-520MHz.

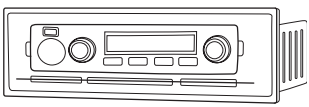
RX-only channels, when installed, can be found above channel 80.

INSTALLATION

The TX3500 is supplied with a slim, slide on mounting cradle. The cradle can be screwed or bolted to any convenient location in your vehicle (under or above the dash, on the centre console, etc.) using the mounting slots provided in the cradle. The TX3500 contains a built-in speaker and should be installed in a convenient location in the vehicle's cabin using the mounting slots provided in the base. For maximum sound from the internal speaker, we recommend the cradle be mounted above the radio to minimise any obstruction of the speaker. Alternatively the TX3500 can be installed in a less audible location and an extension speaker used instead. When installing the radio, avoid mounting it close to heaters or air conditioners.

Console Mounting

A flush mounting DIN adapter MBD001 is available as an optional accessory. The adapter includes mounting brackets and a specially designed front panel escutcheon to suit most vehicle installations. See your nearest GME retailer for details.

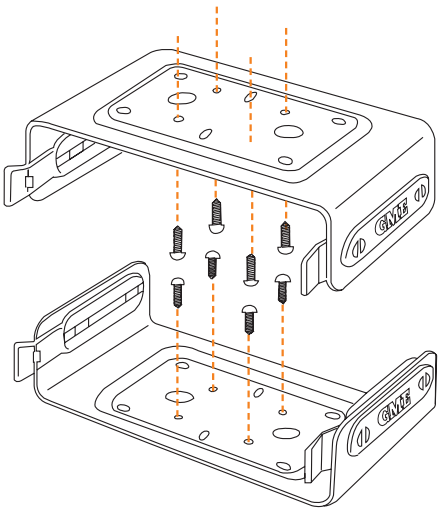


Din Adapter MBD001

When Installing the Cradle

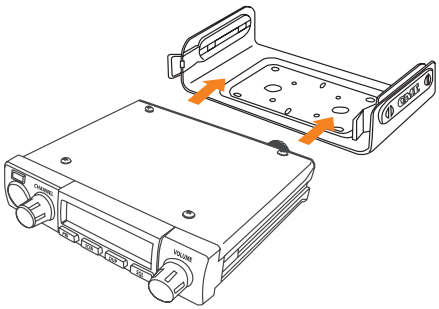
Avoid mounting close to heaters or air conditioners. Screw the mounting cradle to a firm surface and slide the TX3500 into the cradle from the front until it clicks into place. Finally, connect the power lead and antenna cable to the sockets on the radio's rear panel.

Mounting the Cradle

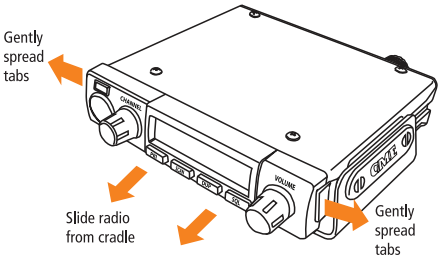


Fitting the Radio

Slide radio fully into cradle until it clicks into place.



Removing the Radio

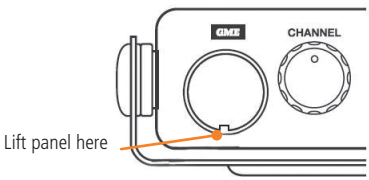


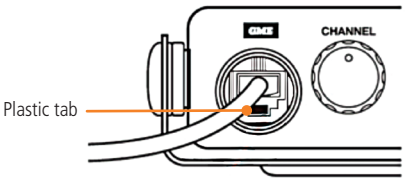
Fitting the Microphone

The microphone uses a miniature 6 pin telephone style plug which fits the TX3500's microphone socket. The TX3500 has two microphone sockets – one on the front panel and one on the rear panel. The microphone can be plugged into either socket. If connecting the microphone to the rear socket, an optional extension cable LEM6P is available to bring the microphone connection to a more accessible location.

To fit the Microphone: Front

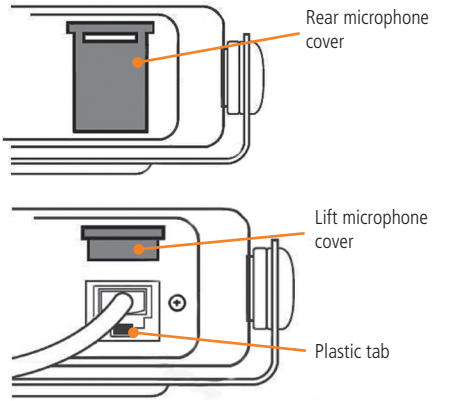
1. The front microphone cover is a press fit. To remove, simply insert the end of a paper clip or similar into the small slot in the edge of the cover and lift the cover away from the panel.
2. Place the microphone plug so the plastic tab faces downwards, then press plug into the socket until it 'clicks'.
3. Gently press the rubber strain relief into the hole surrounding the socket so that the slot around the strain relief fits neatly inside the lip of the hole.





Rear

1. The rear microphone cover hinges from the top. Simply lift the cover from the bottom. The cover will remain connected to the chassis.
2. Place the microphone plug so the plastic tab faces downwards, and press the plug into the socket until it 'clicks'.



Removing the Microphone

1. For front panel connections, squeeze the rubber strain relief near the front panel to disengage the slot, and slide the strain relief back along the microphone cord.
2. Squeeze the plastic tab on the microphone plug towards the plug to unlock it while gently pulling the plug outwards. If the plug does not come out easily, the tab has not released correctly and should be squeezed again.

DC POWER CONNECTION

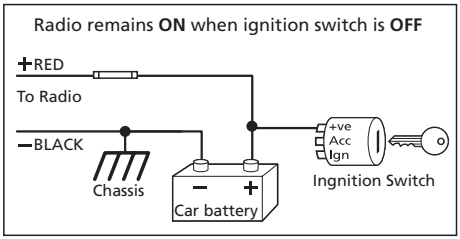
The TX3500 is designed for 13.8 Volt DC, negative earth installations only (i.e. where the negative terminal of the battery is connected to the chassis or frame of the vehicle).

There are two recommended methods of installation.

Radio Remains ON when the Ignition Switch is OFF

Connect the radio's negative (black) lead to the vehicle's chassis, or if preferred, directly to the battery's negative terminal. The radio's positive (red) lead should be connected via the 2 Amp fuse to the battery's positive terminal.

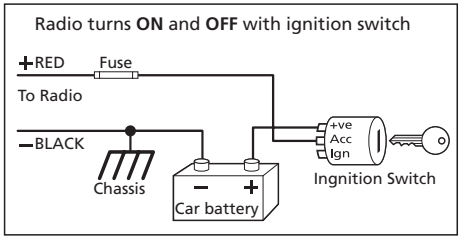
Alternatively, the positive lead could be connected into the fuse box at a point that has +13.8 Volts continuously available (on the battery side of the ignition switch) via the 2 Amp fuse.



Radio Turns ON and OFF with the Ignition Switch

Connect the radio's negative (black) lead to the vehicle's chassis, or if preferred, directly to the battery's negative terminal. The radio's positive (red) lead should connect to an accessory point in the vehicle's fuse box via the 2 Amp fuse.

This point should supply +13.8 Volts only when the ignition switch is turned ON or in the ACCESSORY position via the 2 Amp fuse.



HIGH VOLTAGE WARNING

The TX3500 has a built-in, high voltage detection system to warn you if an overvoltage situation occurs. If the power supply voltage exceeds 18 Volts DC, the channel display will flash 'hi dc' for 5 seconds when the unit is first turned on, or at the time the voltage exceeds 18 Volts. In addition, when transmitting, the TX indicator will flash and the transmitter will select low output power.

If the overvoltage warning appears you should switch your TX3500 OFF and disconnect it from the power source, before locating the cause of the trouble.

Once the High Voltage warning has been triggered, and you have fixed the source of the problem, you will need to switch the TX3500 OFF then ON again to reset it.

The power source must not exceed 30 Volts.

ANTENNA CONNECTION

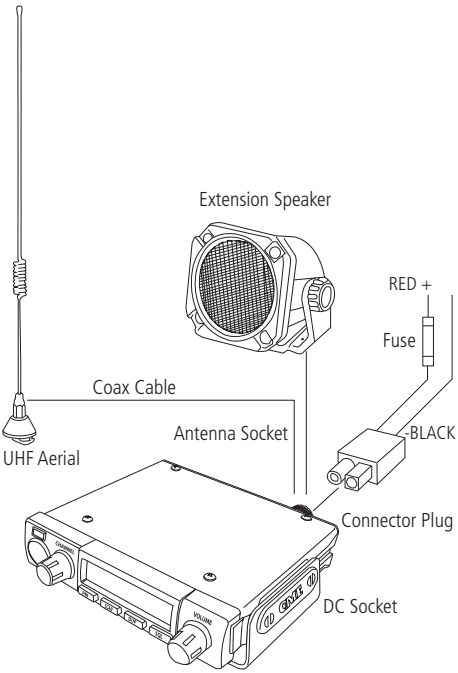
It is essential to select a good quality, high efficiency, 477 MHz antenna. A poor quality antenna or one not designed for the specific frequency band you are using will give very poor performance.

GME have a wide range of suitable 477 MHz UHF CB antennas to suit most installations and applications. We recommend contacting your local GME retailer 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 cause by electric motors can be suppressed directly at the motor terminals.



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								

DCS TONE CHART											
DCS	CODE	DCS	CODE	DCS	CODE	DCS	CODE	DCS	CODE	DCS	CODE
1	023	19	116	37	225	55	325	73	452	91	627
2	025	20	122	38	226	56	331	74	454	92	631
3	026	21	125	39	243	57	332	75	455	93	632
4	031	22	131	40	244	58	343	76	462	94	654
5	032	23	132	41	245	59	346	77	464	95	662
6	036	24	134	42	246	60	351	78	465	96	664
7	043	25	143	43	251	61	356	79	466	97	703
8	047	26	145	44	252	62	364	80	503	98	712
9	051	27	152	45	255	63	365	81	506	99	723
10	053	28	155	46	261	64	371	82	516	100	731
11	054	29	156	47	263	65	411	83	523	101	732
12	065	30	162	48	265	66	412	84	526	102	734
13	071	31	165	49	266	67	413	85	532	103	743
14	072	32	172	50	271	68	423	86	546	104	754
15	073	33	174	51	274	69	431	87	565	-	-
16	074	34	205	52	306	70	432	88	606		
17	114	35	212	53	311	71	445	89	612	-	-
18	115	36	223	54	315	72	446	90	624	-	-

UHF CB OPERATING FREQUENCIES

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	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
\+ Officially designated call channel
\# Telemetry/Selcall use only. Voice transmission is inhibited as required by AS/NZS 4365.2010
^ Road channel
~ Repeater channels
• *Guard band channel. Transmission is inhibited as required by AS/NZ 4365.2010

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
Number of Channels:	80
Channel Spacing:	12.5 kHz
Operation Mode:	Simplex or half Duplex with repeater talk around.
Scanning Speed:	50 ms per channel (20 channels per second).
Antenna Impedance:	50 Ohms nominal
Nominal Battery Voltage:	12 volts DC
Operating Voltage Range:	10-16 volts DC
Battery Polarity:	Negative Earth
Standard Test Voltage:	13.8 volts DC
Overvoltage Protection:	30 volts DC maximum. At 18 volts DC the channel display flashes 'Hi DC' for 5 seconds on receive. The RF power is reduced and TX flashes on transmit.
Reverse Voltage Protection:	Diode Crowbar
Overcurrent Protection:	In-line 2 Amp Fuse
Operating Temperature:	-10°C to 60°C

Transmitter

RF Output:	5 watts
Spurious Emission:	< - 70 dBc
Frequency Error:	< ± 1.5 kHz
Modulation:	FM
Maximum Deviation:	< ± 2.5 kHz at + 20 dB AF limiting.
Transmit Frequency Response:	+ 6 dB per octave 300 Hz to 3 kHz + 1-3 dB.
Demodulated Audio Signal to Noise:	> 45 dB unweighted
Current Consumption:	1.7 Amps with 50 Ohm termination.

Receiver

Intermediate Frequencies:	38.85 MHz, 450 kHz
Sensitivity:	- 122 dBm for 12 dB SINAD unweighted
Selectivity:	- 6 dB at + 3.5 kHz - 60 dB at ± 12.5 kHz
Intermodulation Immunity:	-72 dB
Blocking Immunity:	-98 dB
Spurious Response Immunity:	70 dB
Audio Output Power:	3 Watts average into 4 Ohms
Audio Signal to Noise:	> 45 dB unweighted
Receive Frequency Response:	- 6 dB/Octave de-emphasis 300 Hz to 3 kHz + 1-3 dB.
Current Consumption:	< 175 mA muted 750 mA Full volume.
Conducted Spurious Emission:	< - 70 dBm

MECHANICAL SPECIFICATIONS & CONNECTIONS

Dimensions:	29 (H) x 128 (L) x 117 (D) mm
Weight:	450 grams
12 Volt Power Supply:	Two core cable with bulkhead connector in rear panel.
Antenna:	SO239 panel socket
External Speaker:	3.5 mm mono jack
Microphone Port:	6 Way telephone style with rubber strain relief.

Specifications are subject to change without notice or obligation

STANDARD COMMUNICATIONS 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.

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. Unit B, 22-24 College Street, Gladesville, NSW 2111, Australia. Telephone: (02) 9879 8888 Fax: (02) 9816 4722. 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
477 MHz UHF CB mobile transceivers	3 years

ISO 9001: 2008
AU97\0906
List of certified characteristics available at www.sgs.com

GME A division of: **Standard Communications Pty Ltd**.

Melbourne: 7 Micro Circuit, Dandenong South, VIC 3165. T: (03) 9798 0988, F: (03) 9798 0177.

Perth: Unit 1, 10-12 Harvard Way, Canning Vale, WA 6155. T: (08) 9455 5744, F: (08) 9455 3110.

Sydney: Unit B, 22-24 College St., Gladesville, NSW 2111. T: (02) 9879 8888, F: (02) 9816 4722.

Adelaide: 14 Phillips St, Thebarton, SA 5031. T: (08) 8234 2633, F: (08) 8234 5138.

Brisbane: Unit 1, 89-101 Factory Rd., Oxley, QLD 4075. T: (07) 3278 6444, F: (07) 3278 6555.

Auckland: 2/24 Bishop Dunn Pl., East Tamaki, Manukau 2013, NZ. T: (09) 274 0955, F: (09) 274 0959.

For customers outside Australia and New Zealand, please contact your local GME retailer or email to: **export@gme.net.au** **www.gme.net.au**