# GME

# TX3510  TX3520  TX3540

## 5 watt compact fully featured UHF CB radios

# INSTRUCTION MANUAL

AUSTRALIAN MADE

Full Spectrum Backlighting

Pure Sound

Advanced Signal Management

Dynamic Volume Control

Voice Inversion Scrambler

Front and Rear Mic Input

Warranty

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## INTRODUCTION

Your GME TX3510/TX3520/TX3540 80 channel radio is Australian designed and built and is the most advanced UHF Citizen Band radio available. It 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.

Your radio is designed for unobtrusive mounting in modern vehicles. With its built-in loud speaker and extremely small size, it can be mounted in almost any convenient location.

## IMPORTANT INFORMATION CONCERNING UHF CB RADIO

The use of the citizen band radio service is licenced 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 is soon to be amended. This radio is capable of being upgraded to the new standard and this manual has been written with the new standard in mind. Descriptions which refer to channels above 40 will only apply once your radio has been upgraded.

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 not become obsolete and will continue to operate on the original 40 channels, however they will not be able to converse on the newer channels 41 to 80. The newer narrowband radios will be able to converse with all older 40 channel wideband radios on all channels 1 to 40 and the newer channels allocated between 41 to 80.

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

## POSSIBLE ISSUES

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

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

Depending on how close your receiving radio is to another transmitting radio, there can be interference from the transmitting radio if it is using a channel adjacent to the channel you are listening to. Simply try going up or down a few channels from the currently selected channel.

The above situations are not a fault of the radio but a symptom of operating wideband and narrowband radios in the same bandwidth. This possible interference will decrease over time as the population of wideband radios ages and decreases.

Further information and updates are available from the Australian Communications and Media Authority (ACMA) at www.acma.gov.au and the Ministry of Economic Development (MED), Radio Spectrum Management at: www.rsm.govt.nz

### EMERGENCY CHANNELS

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

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

### TELEMETRY CHANNELS

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

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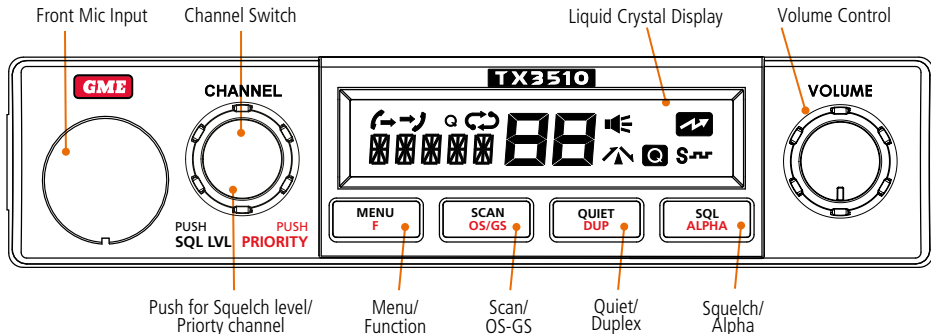
## FEATURES

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

- **Full Spectrum Backlighting:** User adjustable, totally customisable colour backlight settings to match the vehicle's 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 radio's performance.

- **Advanced Signal Management (ASM):** Identifies interference caused by strong local signals on adjacent channels and prevents it from opening your squelch. ASM also minimises distortion on reception by fine tuning the receiver frequency to match that of the incoming signal. This prevents your squelch from opening to unwanted interference and ensures that incoming signals remain clear and undistorted even when they are slightly off-frequency.

- **Dynamic Volume Control (DVC):** Automatically compensates for variations in received audio level resulting in a constant audio output level to the speaker.

- **Voice Inversion Scrambler**
  When activated, scrambles your voice so that communications are only intelligible to others using the same scrambler technology.

- **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.
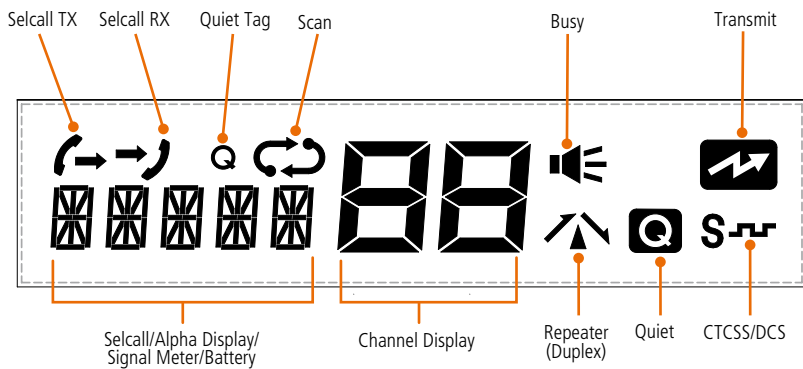
- **Priority Channel:** A user programmable priority channel feature allows your working channel to be instantly recalled at the press of a key.

- **High Contrast Liquid Crystal Display:** Fully detailed LCD provides a visual indication of the selected channel and all selected functions at a glance.

- **User Programmable Receive-Only Channels:** Use the radio's front panel controls to program up to 95 of your own receive-only channels (in 5 banks of 19 channels) within the 403-520 MHz frequency range.

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

- **In-Built Selcall with QUIET Mode:** Provides selective calling of individuals or groups with fully user-adjustable 5 tone transmitted Selcall Ident. Also allows alphanumeric naming of up to 10 Idents for easier caller identification.

- **User selectable Wide/Narrow Receive Filter**

- **Dual Microphone Input Sockets:** Front and Rear Microphone sockets to match most installation needs. Both sockets can be used independently or simultaneously.

- **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.

- **Designed and Manufactured in Australia:** Totally designed and manufactured in Gladesville   to meet the demanding needs of the Australian community.
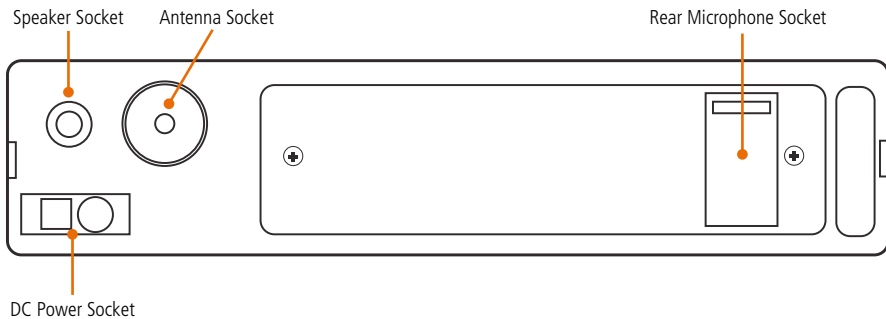
## GENERAL OPERATIONS
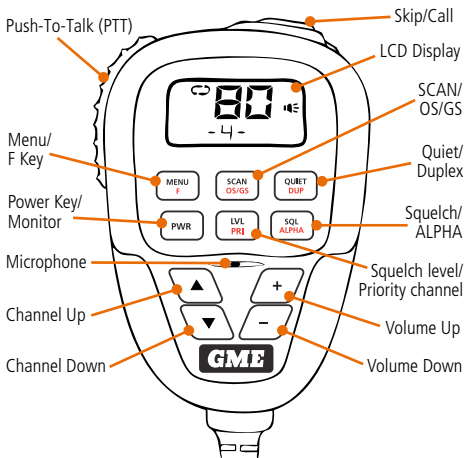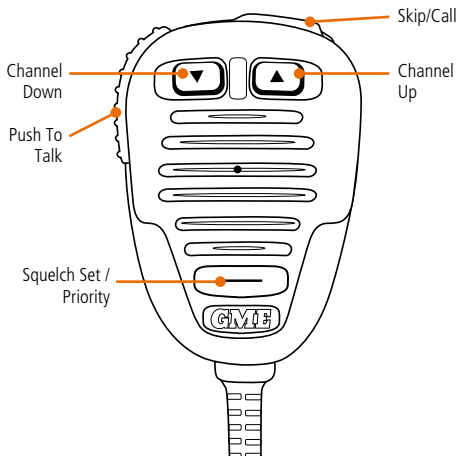
### TX3510/TX3520 FRONT PANEL CONTROLS



Front Mic Input   Channel Switch   Liquid Crystal Display   Volume Control

PUSH
SQL LVL PRIORITY PUSH

Push for Squelch level/ Priorty channel

Menu/ Function

Scan/ OS-GS

Quiet/ Duplex

Squelch/ Alpha

## LCD PANEL



Selcall TX   Selcall RX   Quiet Tag   Scan                     Busy                Transmit

Selcall/Alpha Display/
Signal Meter/Battery

Channel Display

Repeater
(Duplex)

Quiet

CTCSS/DCS

## REAR PANEL



Speaker Socket   Antenna Socket

Rear Microphone Socket

DC Power Socket

## TX3540 CONTROLLER MICROPHONE

Push-To-Talk (PTT)
Skip/Call
LCD Display
SCAN/OS/GS
Menu/F Key
Quiet/Duplex
Power Key/Monitor
Squelch/ALPHA
Microphone
Squelch level/Priority channel
Channel Up
Volume Up
Channel Down
Volume Down

MENU F
SCAN OS/GS
QUIET DUP
PWR
LVL PRI
SQL ALPHA

GME

## TX3510/TX3520 MICROPHONE

Skip/Call
Channel Down
Channel Up
Push To Talk
Squelch Set / Priority

GME

## TX3540 CONTROLLER LCD PANEL
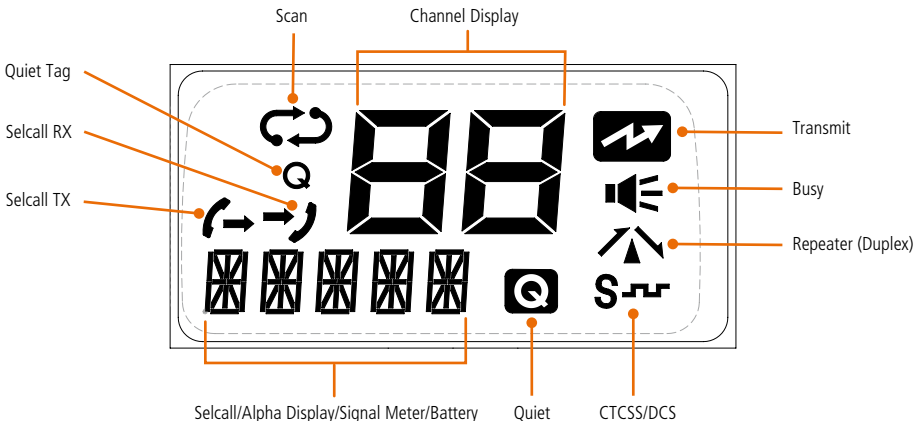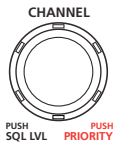
Scan
Channel Display
Quiet Tag
Transmit
Selcall RX
Busy
Selcall TX
Repeater (Duplex)
Selcall/Alpha Display/Signal Meter/Battery
Quiet
CTCSS/DCS

### KEYPAD FUNCTIONS.

The controls on the TX3510 and TX3520 front panel and TX3540 controller microphone all have multiple functions. The primary functions are labelled in BLACK, while the secondary functions are labelled in RED. To access a primary function simply press the required key.

To access a secondary function, briefly press the **F** key followed immediately by the required key.

The table below shows the control functions for all models.

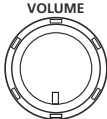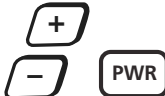| TX3510/TX3520 | TX3540 | FUNCTION |
|---|---|---|
| **MENU** / **F** | **MENU** / **F** | **Menu:** Press and hold the **Menu** key to access the configuration menu. <br> **F:** Press **F** briefly to access secondary functions in **red** on the other keys. |
| **SCAN** / **OS/GS** | **SCAN** / **OS/GS** | **Scan:** Press briefly to toggle scanning. <br> **OS/GS:** Press **F** then **OS/GS** to select Open or Group Scan modes. |
| **QUIET** / **DUP** | **QUIET** / **DUP** | **QUIET:** Press briefly to toggle the Squelch on or off. Press and hold to tag quiet channels. <br> **DUP:** Press **F** then **DUP** to toggle Duplex on the selected repeater channel. |
| **SQL** / **ALPHA** | **SQL** / **ALPHA** | **SQL:** Press briefly to toggle the Squelch on or off. Press and hold to toggle CTCSS on a channel. <br> **Alpha:** Press **F** then **ALPHA** to toggle Alpha or Numeric modes. |
| **CHANNEL** / PUSH SQL LVL / PUSH PRIORITY | ▲ / ▼ **LVL** **PRI** | **Channel:** Rotate the **Channel knob** or press ▲ or ▼ to change channels. <br> **SQL:** Press the **Channel knob** or **LVL/PRI** key briefly to preset the Squelch level. <br> **Priority Recall:** Press **F** then the **Channel knob** or **LVL/PRI** key briefly to recall the Priority channel. <br> **Priority Store:** Press and hold the **Channel knob** or **LVL/PRI** key to store the Priority channel. |
| **VOLUME** | **+** / **–** **PWR** | **ON/OFF:** Rotate the **Volume control** or press the **PWR** key to switch the radio ON or OFF. <br><br> **Volume:** Rotate the **Volume control** or press the **+/-** keys to adjust the volume. |

**NOTE:** When using the **F** key to access other functions, **F** is displayed to indicate that 'Function' mode is activated. If the required function is not selected within 5 seconds the **F** key selection will time out with a low beep and **F** will disappear from the display.

A more detailed description of these key functions is included in this 'General Operation' section. These instructions describe the radio functions using the TX3510/TX3520 controls (with the TX3540 controls shown in brackets).

### VOLUME

Rotate the **Volume control** clockwise past the click (or press the `PWR` key) to turn the radio on. Rotate the **Volume control** left or right (or press the **+** or **–** keys) to adjust 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

To select the required channel, rotate the **Channel knob** (or press the ▲ or ▼ keys). Rotate the knob clockwise (or press ▲ ) to select a higher channel or counter clockwise (or press ▼ ) to select lower channels. The selected channel is displayed on the LCD.
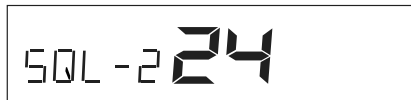
### SQUELCH

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 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.

### Adjusting the Squelch level

The 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** (or `LVL PRI` key). The channel display will show the current squelch level setting in values from **SQL-1** to **SQL-9**. Rotate the **Channel knob** (or press the ▲ or ▼ keys on the controller microphone) to change the squelch setting. A squelch setting of **SQL-1** allows the squelch to open on very weak signals whereas a setting of **SQL-9** requires much stronger signals to overcome the squelch. After adjusting the squelch sensitivity, briefly press the **Channel knob** (or `LVL PRI` key) to return to normal operation.



**NOTE:** The squelch level can be actively adjusted while the radio is scanning. This allows you to tighten the squelch in cases where an undesired weak or noisy signal is interrupting the scan.

### SIGNAL METER

The signal meter indicates the relative strength of the incoming signal in numerical format. Signal strengths are displayed on the lower left of the Channel Display in values from 0 to 9. Signals above strength 9 are displayed as 9+.

**NOTE:** Refer to the **Configuration Menu** for other options that can be displayed in this location.

### TRANSMITTING

Prior to transmitting, always check the channel is not being used. This can be done by listening to the channel or by visually checking that the ◀€ icon is not visible or the signal meter is not indicating a signal.

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

The radio has a built-in time-out timer that automatically limits transmissions to a maximum of 3 minutes of continuous operation. This feature is required by the ACMA to prevent accidental blocking of the frequency should your PTT switch become jammed or be otherwise pressed accidentally. The time-out period can be changed by your dealer.

When the time-out timer activates, the radio will beep for 5 seconds then the 📶 symbol will flash continuously. Normal operation will be restored once the PTT is released.

### BACKLIGHTING

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

#### Adjusting the Backlighting

The backlight brightness and colour can be adjusted for personal preference.

To make adjustments to the backlighting, press and hold the **Channel knob** (or 🔘 key) for several seconds. BKLGT will be displayed indicating the Brightness setting is selected. Briefly press the **Channel knob** (or 🔘 key) to cycle through the available settings. Rotate the **Channel knob** left or right (or press ▲ or ▼ ) to adjust the current setting.

There are three back-light settings available;

**BKLGT (Brightness Setting):** Provides a continuously variable brightness adjustment from very dim to full brightness.

**COLOR (Colour Setting):** Provides a continuously variable colour spectrum change via a smooth blend of colours.

**WHITE (Whiteness Setting):** Controls the whiteness or colour saturation of the selected colour from full colour to White (no colour).

**TIP:** For the deepest colour range, reduce the WHITE setting**.**

After making your selection, press and hold the **Channel knob** (or 🔘 key) to return to normal operation.

**NOTE:** The back-light setting function will automatically time out after 6 seconds if no further adjustments have been made.
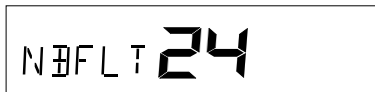
### BANDWIDTH FILTER SETTINGS

To accommodate the blending of the newer narrowband UHF CB 80 channel plan with the original 40 channel wideband system, your radio is fitted with two user-selectable receiver bandwidth filters. While either of these will provide superb receive audio, selecting the wide filter will further increase the tolerance of the receiver to 40 channel wideband radios that might otherwise sound over-modulated or slightly off frequency on channels 1 – 40. Selecting the narrow receive filter will increase the selectivity of the radio to strong interfering signals from adjacent channels.
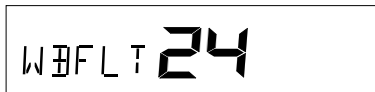
To select the desired filter, press and hold the **MENU** key to enter the menu, then press the **MENU** key repeatedly until **NBFLT** (Narrowband Filter) or **WBFLT** (Wideband Filter) is displayed. Rotate the **Channel knob** (or press ▲ or ▼) to make the desired selection.

When finished, briefly press the **PTT** to exit from the Menu.

Narrowband filter selected

$$N\exists F L \top \mathbf{24}$$

Wideband filter selected

$$W\exists F L \top \mathbf{24}$$

## 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 incoming 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.

Your radio 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 activate the **Dynamic Volume Control**, press and hold the **MENU** key to enter the menu, then press the **MENU** key repeatedly until **DVCOF** (Dynamic Volume Control Off) or **DVCON** (Dynamic Volume Control On) is displayed. Rotate the **Channel knob** (or press ▲ or ▼) to make the desired selection.

When finished, briefly press the **PTT** to exit from the Menu

Dynamic Volume Control ON

$$ⅅⅤⅭⅯℕ \mathbf{24}$$

Dynamic Volume Control OFF

$$ⅅⅤⅭⅯℱ \mathbf{24}$$

## VOICE SCRAMBLER

Your radio incorporates a simple voice scrambler using band inversion. The scrambler is compatible with the majority of scramblers used by other manufacturers, allowing you to enjoy scrambled communications with owners of non-GME radios. Once the scrambler has been activated your transmission and reception will only be intelligible to others using the same scrambler technology.

To enable or disable the voice scrambler:

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

2. Briefly press the **Menu** key repeatedly until **ENCOF** or **ENCON** is displayed.

3. Rotate the **Channel knob** (or press ▲ or ▼) to make your selection. Select **ENCON** to activate the scrambler encoder or **ENCOF** to disable it.

4. Press the **PTT** to exit the menu.

$$ℰℕℂℯℱ \qquad ℰℕℂℯℕ$$

Scrambler Encoder OFF          Scrambler Encoder ON

## 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 increase 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 radio 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 radio 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

Simplex ▶▶▶▶▶▶▶▶▶▶▶▶

Repeater operation ▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶



Channel 31

Channel 1

Channel 1

Channel 31

Repeater Station

Vehicle

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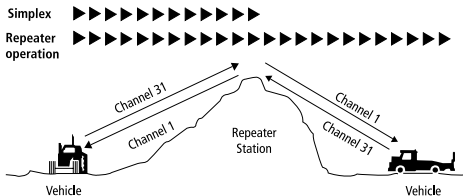
Your radio allows you to enable or disable Duplex mode on individual repeater channels. In this way any repeater channels that are not being used with repeaters in your area can be used in Simplex mode for normal direct radio-to-radio communications.

| 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

### 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 be displayed.

2. Briefly press the **DUP** key. The duplex symbol 🔼 will disappear from the display accompanied by a low beep.

**IMPORTANT:** Channels 1-8, 31-38, 41-48 and 71-78 should only be used in Simplex mode if there are no repeaters in or near your location that operate on the selected channel. In particular, avoid operating in Simplex mode on any of the repeater input channels 31-38 and 71-78 unless you are absolutely sure that there are no repeaters in range using that channel. Inadvertently transmitting on an active repeater input frequency in simplex mode could cause interference to other users on that repeater that would not be audible to your radio.

### PRIORITY CHANNEL

The priority channel feature allows you to instantly recall any one of the 80 channels in your radio. 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. Briefly press **F** then press and hold the **Channel knob** (or 【LVL 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 **F** then briefly press the **Channel knob** (or 【LVL PRI】 key). The radio will immediately switch to the priority channel and PRI will be displayed for a few seconds.

**NOTE:** If the radio was scanning when the priority channel was recalled, the scan will be cancelled.

## SCANNING

Your radio 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

Your radio supports two 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.

$$\rightarrow 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 \rightarrow$$
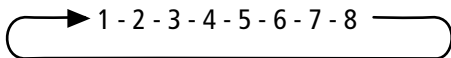
**Example:  Scanning channels 1 – 8 in Open Scan**

**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.

$$\rightarrow 1 - 2 - 3 - 4 - 20 - 5 - 6 - 7 - 8 - 20 \rightarrow$$

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

### Selecting a Scan Group

To switch between Open or Group Scan modes, briefly press **F** then press **OS/GS**. Open or Group will be displayed to the left of the channel display for a few seconds.
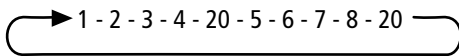
### To add or remove channels from the scan memory

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. ⟳ 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. ⟳ will now be displayed on that channel.

### Quick select

To quickly switch between channels that have been stored in the current scan memory, briefly press the **F** key then rotate the **Channel knob** (or press ▲ or ▼ keys). This will allow you to manually step through only those channels that have been stored in the current scan group memory. During this time **F** will remain on the display to confirm you are still in 'Quick Select' mode. To exit this mode, press the **F** key again or wait 10 seconds for the function to time out.

This option can be used to quickly jump between channels of interest or to quickly review which channels are in the scan memory for editing purposes.

### 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 pressing the **Skip button** on the microphone or rotating the **Channel knob** (or press ▲ or ▼). 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.

### 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 13 to select the Group Scan mode.

2. Store your preferred Priority channel as outlined under '**Priority Channel**' on page 12.

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 13.

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 switch 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 **F** then **PRI**.

### Scan Group options

By default your radio 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 channels in each. Your radio 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 13.

**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

The standard squelch system is fine for quietening the radio in most applications. However it operates solely on signal strength which means that it will always open to any signal that is strong enough. If the channel is busy with other stations the squelch will be constantly opening which can make it difficult to determine which calls are meant for you. CTCSS/DCS provides additional selective receiver audio muting using sub-audio signalling. When enabled, only signals with a matching sub tone will be heard in the speaker. This effectively creates a channel that is silent to all traffic except those who use the same subtone as you.

### Choosing CTCSS or DCS

CTCSS uses a continuous analogue sub tone while DCS uses a digitally encoded sub tone. Choosing which tone system to use will largely depend on the other radios you talk with. If others already use CTCSS or DCS, you should select the tone system that matches theirs. 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. Both types are included in the radio to maintain compatibility with other radio systems.

### CTCSS tone set

There are two CTCSS tone sets available – the basic 38 tone set or the extended 50 tone set (see the CTCSS tone chart at the rear of this manual). Both are included to ensure compatibility with other radios.

To switch between CTCSS tone sets;

1. Switch the radio OFF.

2. Press and hold the **SQL** key while switching the radio ON again.

3. **CTC38** or **CTC50** will appear briefly.

**NOTE:** When switching between tone sets, if you already have a CTCSS tone selected, the radio will try to match the original tone frequency with one in the new table. If there is no tone match, the CTCSS tone will be set to OFF and you will need to select a new tone.

### DCS tone set

There are 104 DCS tones available (see the DCS tone chart at the rear of this manual).

### To Select a CTCSS or DCS tone

1. Select any UHF CB channel 1 – 80 (excluding 5 and 35).

2. Press and hold the **Menu** key until the radio beeps. The CTCSS Menu option will be displayed.

3. If **CTCOF** is displayed, CTCSS/DCS tones are currently switched off (default). To enable CTCSS tones, rotate the **Channel knob** to the right (or press ▲ ). CTCSS tones will be displayed as **CTC01 – CTC50.**

4. Continue rotating the **Channel knob** (or press ▲ repeatedly) to scroll past the last CTCSS tone (38 or 50) to access the DCS tones. DCS tones are displayed as **DT001 – DT104**.

| Press ▼ or rotate left | | Press ▲ or rotate right |
|---|---|---|
| CTCOF ↔ | CTC50 ↔ | DT 104 |
| CTCSS Off | CTCSS Tone 50 | DCS Tone 104 |
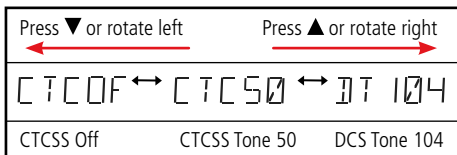
5. To see the actual sub tone instead of the tone label, briefly press the **Channel knob** (or [LVL PRI] key). For CTCSS tones the tone frequency will be displayed in Hz. For DCS tones the tone Code will be displayed. Press the **Channel knob** (or [LVL PRI] key) again to return to the CTCSS/DCS label (refer to the CTCSS and DCS Tone Charts on pages 31–32).

CTCS0          254،1

CTCSS Label          CTCSS Sub tone Frequency

6. To switch CTCSS/DCS tones Off, rotate the **Channel knob** fully to the left (or press ▼ repeatedly) until **CTCOF** is displayed.

To exit the menu, briefly press the **PTT** or wait for the menu to time-out.

**NOTE:** The selected CTCSS/DCS tone will be used globally on any channels that have CTCSS enabled.

### Enabling CTCSS/DCS on a channel (Silent mode)

Enabling CTCSS/DCS on a channel will prevent the squelch from opening unless the incoming signal matches your selected CTCSS/DCS tone. Other users on the same channel who are not using your CTCSS/DCS tone will still be received by your radio (the ◼◣ icon will still appear on the display) – but their voice will not be heard in the speaker. Only when someone transmits on the channel using your CTCSS/DCS tone will the squelch open to allow the signal to be heard. Channels where CTCSS/DCS have been enabled are said to be in 'Silent mode'.

**NOTE:** Silent mode can be enabled on any channel except emergency channels 5 and 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⌐ᵣ** icon (DCS) will be displayed in the lower right of the display to indicate Silent mode is now enabled on that channel.

**NOTE:** You cannot enable Silent mode unless a CTCSS or DCS tone has been selected in the Configuration Menu. If CTCSS/DCS has been set to OFF, Silent mode is inhibited.

### To disable Silent mode on a channel:

1. Select the required channel. An **S** icon (CTCSS) or **S⌐ᵣ** icon (DCS) will be displayed indicating Silent mode is enabled.

2. Press and hold the **SQL** key until a low beep is heard.

3. The **S** (CTCSS) or **S⌐ᵣ** (DCS) icon will disappear to indicate Silent mode has been removed from that channel.

**IMPORTANT:** When Silent mode is enabled on a channel you should always check the ◼◣ icon for signs of traffic on the channel before transmitting to ensure you do not accidentally transmit over the top of another user. Alternatively, you can enable **Busy Lockout** in the **Configuration Menu** which will automatically prevent your radio from transmitting if the channel is already in use

### Monitor function

When the current channel is in Silent Mode, the ◼◣ icon may appear but no sound will be heard in the speaker. This indicates that your radio is receiving a signal that does not match your CTCSS/DCS tone. If you wish, you can briefly monitor the channel as described below. This temporarily disables Silent mode, allowing the signal to be heard.

On the TX3510 and TX3520, press and hold the **Volume knob** to monitor signals on the channel. When you release the **Volume knob**, Silent mode is restored and the radio will become quiet again.

On the TX3540 briefly press the **PWR** key.

**Note:** On the TX3540 you will only have a brief moment to monitor the channel for signals as holding the **PWR** key for more than a few seconds will switch the radio off.

## SELECTIVE CALLING

### Overview

Your radio 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 radio 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. Your radio will then remain quiet to all incoming signals until your Selcall number is called.

Your radio will allow you to store up to ten of your most frequently called Selcall numbers in memory and each number can be labelled for easy identification.

### Selcall identification number

Your radio 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 to the left of 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.

**NOTE:** Although your radio is factory-programmed with a unique Selcall Ident, you can change your Ident to another number if required (see **Selcall Memories** on next page).

### Selcall Ident labels

When storing Selcall Idents, you can add labels to each one to make it easier to identify whose Ident you are recalling. In addition, if an incoming Selcall matches one of your stored Idents, the label can be displayed instead of the Ident.

To add or display labels, your radio must be in the ALPHA mode. To switch between ALPHA mode and NUMERIC mode, briefly press the **F** key followed by the **ALPHA** key. 'ALPHA' or 'NUMBER' will be displayed briefly to the left of the channel display to indicate the selected mode.

### The QUIET mode

Your radio 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 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 ◀€ 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 i.e. some channels can be set to remain Quiet while others can remain open to all incoming signals.

## USING SELCALL

### Entering a Selcall Ident

1. Press the **CALL** button. 📞 is displayed, along with the last sent or received Selcall Ident. If an ALPHA label is displayed you will need to press **F** then **ALPHA** to switch to Numeric mode.

2. Press and hold the **Channel knob** (or ⟨LVL/PRI⟩ key) until the radio beeps. The right-hand digit of the Selcall Ident will flash.

3. Rotate the **Channel knob** (or press ▲ or ▼) to select the required number in the flashing digit position.

4. Briefly press the **Channel knob** (or ⟨LVL/PRI⟩ key) again to select the next digit position.

5. Repeat steps 4 and 5 to enter all 5 digits as required. The Selcall number is now ready to send.

6. Press and hold the **CALL** button. 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 function will time out and the radio will return to normal mode. To exit the 📞 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.

## Selcall memories

Your radio is fitted with one 'Call' memory and 10 user programmable Selcall memories labelled **'C0'** to **'C9'** There is also one additional location labelled **'Id'**.

Memory locations **'C0'** to **'C9'** are for storing frequently called Selcall Idents. The additional location labelled **'Id'** contains your radio's own Selcall Ident. You should only select this memory location if you need to change your radio's factory programmed Selcall Ident.

## To store a Selcall Ident in memory

1. Briefly press the **CALL** button. ⌒→ is displayed along with the last sent or received Selcall Ident.

2. Rotate the **Channel knob** clockwise (or press ▲ ) to select the required Ident memory location **'C0'** to **'C9'** (or select **'Id'** to change your radios own Selcall Ident). If an ALPHA label is displayed you will need to press **F** then **ALPHA** to switch to Numeric mode.

3. Press and hold the **Channel knob** (or [LVL PRI] key) until the radio beeps. The right-hand digit of the Selcall Ident will flash.

4. Rotate the **Channel knob** (or press ▲ or ▼ ) to select the required number in the flashing digit position.

5. Briefly press the **Channel knob** (or [LVL PRI] key) again to select the next digit position.

6. Repeat steps 4 and 5 to enter all 5 digits as required.

7. Now press and hold the **Channel knob** (or [LVL PRI] key). The entire Ident will flash for a few seconds then the radio will beep as the new Ident is stored.

e.g. Programming Call Memory C5



## Recalling Selcall Idents

1. Briefly press the **CALL** button. ⌒→ is displayed along with the last sent or received Selcall Ident.

2. Rotate the **Channel knob** (or press ▲ or ▼ ) to select the required Ident memory in locations **'C0'** to **'C9'**.

3. Press and hold the **CALL** button to send the Ident.

## Naming your Selcall Idents

Your radio allows you to label each Selcall Ident using a 5 character name to make it easier to identify callers. If an incoming Selcall matches one of those in your radio's memory, the label can be displayed instead of the Selcall Ident.

**NOTE:** Before adding an ALPHA label to a Selcall Ident, you must first store the required Ident in memory as described left.

1. Briefly press the **CALL** button. ⌒→ will be displayed along with the last sent or received Selcall Ident.

2. Rotate the **Channel knob** (or press ▲ or ▼ ) to select the required Ident memory in locations **'C0'** to **'C9'**.

3. Briefly press the **F** then **ALPHA** to select the ALPHA mode. **ALPHA** will be displayed briefly.

4. If the ALPHA label is empty, '- - - - -' will be displayed, otherwise it will display the last ALPHA label programmed into that memory.

5. Press and hold the **Channel knob** (or [LVL PRI] key) until the radio beeps. The left-hand position of the Alpha label will flash.

6. Rotate the **Channel knob** (or press ▲ or ▼ ) to select the required character in the flashing position then briefly press the **Channel knob** (or [LVL PRI] key) again to select the next position.

7. Repeat step 6 to enter up to 5 characters as required.

8. Now press and hold the **Channel knob** (or [LVL PRI] key). The entire Alpha label will flash for a few seconds then the radio will beep as the label is stored.

e.g. Labelling Call memory C5



Repeat steps 2 to 8 to add ALPHA labels to any other Selcall Idents stored in memory. The following characters are available;

| Letters | 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 |
| --- | --- |
| Numbers | 0 1 2 3 4 5 6 7 8 9 |
| Punctuation | . <space> * + - |

**To exit the CALL TO mode,** briefly press the **CALL** button (or simply wait for the Call function to time out). The radio will return to normal operation.

**To display the Alpha labels of incoming Selcalls**, the radio should be left in Alpha mode. Any incoming Selcall that does not match those in the memory will display -NEW-. To display the Selcall Ident of that caller, briefly press **F** then **ALPHA** to return to the NUMERIC mode.

### Receiving Selcalls

When your radio 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, then, if the call is not answered, it will slow to around 1 beep every 3 seconds. It will then continue to beep indefinitely until you cancel it.

In addition to the alarm, the ➔ symbol will appear on the display along with the callers Selcall Ident or ALPHA label to inform you of the caller's identity.



Incoming call showing Selcall Ident



Incoming call showing Alpha label

**To return the call:**

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

**To cancel the alarm:**

Briefly press the **PTT** switch. The alarm will be cancelled and the channel will be open for normal communication. You can now talk on the channel in the usual way.

### QUIET MODE

The QUIET mode mutes the receiver to prevent 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 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, tagged channels 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.

2. Press and hold **QUIET** until the radio beeps. **'Q'** will appear to the left of the channel number 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. Press and hold **QUIET** until the radio beeps. 'Q' will disappear indicating this channel is no longer tagged for Quiet operation.

### Activating the QUIET mode

1. 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. Briefly press **QUIET**. ◼Q 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 ◼Q will be displayed.

2. Briefly press **QUIET**. ◼Q 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 ◼≣ icon will be visible) but no sound will be heard from the speaker.

• 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 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 caller's Ident or ALPHA label will be displayed. All channels will now be open for normal transmission and reception.

If you wish to respond to the caller using Selcall, press and hold the **CALL** button until the radio beeps. The caller's 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 **QUIET**. ◼Q will re-appear on the display.

### Scanning in the QUIET mode

The radio 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. Pre-select the required OS or GS scan group (briefly press **F** then **OS/GS**).

2. Program your scan channels as described under the Scanning section.

3. From those channels, select the ones you wish to remain Quiet and tag each one for QUIET operation (press and hold **QUIET**).

4. Select a tagged channel and activate the Quiet mode (briefly press **QUIET**).

5. Press the **SCAN** key. The radio will begin scanning and 'SCAN' and ◼Q 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 label 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 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 positions 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 that 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.

e.g. 14530, 14531, 14532, 14533 . . --> , 14539

- Transmitting the Selcall Ident 14531 will only activate the alarm in the radio with the Selcall Ident of 14531.

- Transmitting 1453A will activate the alarms in all radios with Idents 14530 through 14539 (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 will need 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. 📞 is displayed, along with the last sent or received Selcall Ident. If an ALPHA label is displayed you will need to press **F** then **ALPHA** to switch to Numeric Mode.

2. Press and hold the **Channel knob** (or 🔘 key) until the radio beeps. The right-hand digit of the Selcall Ident will flash.

3. Rotate the **Channel knob** (or press ▲ or ▼) to select 'A' in the flashing digit position. This is the special code that will create the Group Call.

4. Briefly press the **Channel knob** (or 🔘 key) again to select the next digit position.

5. Continue entering the other 4 digits as required. The Selcall number is now ready to send.

6. Press and hold the **CALL** button. A long beep will be heard and the radio will transmit the Selcall Ident.

**NOTE:** Where your radio 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 (e.g. 12AAA).

e.g.

Sending Ident 145AA will call 100 radios with Idents 14500 -> 14599

Sending Ident 14AAA will call 1000 radios with Idents 14000 -> 14999

You can also arrange to send Selcalls to every tenth radio by setting the second digit to A.

e.g.

Sending Ident 145A5 will call radios 14505, 14515, 14525, 14535, 14545 . . -> 14595

### 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 label appears on the display in the usual way.

### RECEIVE (RX) ONLY CHANNELS

The radio includes support for up to 95 user programmable RX-Only channels with frequencies in the range 403 – 520 MHz. Frequencies can be stored in five separate channel banks labelled **A** to **E**, each containing up to 19 channels. In addition, each RX-Only channel can be assigned an individually programmable Alpha label to help identify that channel when it is selected. Frequency and channel bank selections are accessed through the configuration menu.

### Selecting Channel Banks

Before programming or recalling channels you should ensure you have selected the required channel bank. The 5 channel banks can be accessed through the Configuration menu. The default channel bank is labelled **RX-A.**

### To select a Channel Bank

1. Press and hold the **Menu** key. A high beep will be heard and the radio will enter the configuration menu.

2. Briefly press the **Menu** key repeatedly until the **RX**-channel bank option is displayed.

3. Rotate the **Channel knob** (or press ▲ or ▼ ) to select from one of five channel banks **RX-A** through **RX-E**.

4. When finished, press the **PTT** to exit the menu.

### Programming RX-Only channel frequencies

RX-Only channels are switched off by default. To program RX-Only channels you will need to activate the channel editor which will then allow access to channels 81-99 in the currently selected channel bank. RX-Only channels can be programmed with frequencies in the range 403 – 520 MHz.

To program RX-Only frequencies, your radio must be in Numeric mode. If your radio is in Alpha mode briefly press **F - ALPHA** so that 'NUMER' is displayed.

### To activate the Channel Editor

1. Switch the radio off.

2. Press and hold the **Channel knob** (or 🔲 key) while switching the radio on again.

3. **RXALL** will be displayed briefly, indicating the RX Channel Editor has been activated.

You can now rotate the **Channel knob** (or press ▲ or ▼ ) past channel 80 to select additional channels 81-99. –OFF- will be displayed to the left of the channel numbers indicating that these channels are switched off and do not contain any frequencies.

### Selecting Frequency Steps

**NOTE:** This menu option is only available when RX-Only channels are selected.

| RX-ONLY CHANNEL BANK | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Bank** | **Channels** | | | | | | | | | | | | | | | | | | |
| A | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 |
| B | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 |
| C | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 |
| D | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 |
| E | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 |

The frequency step is the space between frequencies when the **Channel knob** is rotated (or ▲ ▼ key is pressed). The frequency step can be set to either 12.5 kHz or 25 kHz. The default is 25 kHz. You should select a frequency step that matches the channel allocations in the frequency band you are programming. When selecting 25 kHz or 12.5 kHz steps, the appropriate wideband or narrow band filter is automatically selected to ensure optimum performance.

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

2. Briefly press **MENU** repeatedly until the frequency step is displayed.

```
25 ,0 K        12 ,5 K
```

    25 kHz Steps              12.5 kHz Steps

3. Rotate the **Channel knob** left or right (or press ▲ or ▼ ) to change the frequency step.

4. Press the **PTT** to exit the menu.

**To program an RX-Only frequency:**

1. Rotate the **Channel knob** (or press ▲ or ▼ ) to select a suitable channel number (81-99). **–OFF**- will be displayed to the left of the channel number.

2. Press and hold the menu key until the radio beeps. '–OFF-' will flash. You now have 6 seconds to begin programming otherwise the menu will time-out.

3. Rotate the **Channel knob** to the right (or press ▲ ) to begin selecting your desired frequency starting at 403 MHz. Continue to rotate to the right (or press ▲ ) to increase the frequency or to the left (or press ▼ ) to decrease the frequency. The display will show the frequency to the nearest 10 kHz.

e.g. 468.425 will display as:

| 4 | 6 | 8 | 4 | 2 |

- 10 kHz
- 100 kHz
- 1 MHz
- 10 MHz
- 100 MHz
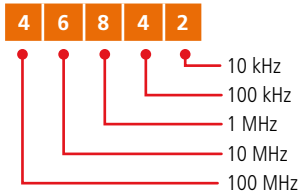
4. To advance through the frequencies more quickly, briefly press the **Channel knob** (or ⏧ LVL/PRI ⏧ key). The frequency will now adjust in 1 MHz steps. As you approach the desired frequency, briefly press the **Channel knob** (or ⏧ LVL/PRI ⏧ key) again to return the original 25 kHz/12.5 kHz steps.

5. Once your desired frequency is displayed, press and hold the **Channel knob** (or ⏧ LVL/PRI ⏧ key) until the radio beeps. The frequency is now stored under your selected channel number.

```
45832 90
```

e.g. 458.325 MHz stored under CH 90

6. Repeat steps 1 – 5 to program other channels.

**NOTE:** The frequency tuning is live which means the radio is actually listening to the frequencies you are selecting. You can use this feature to locate and store active frequencies while you are tuning.

To program more than 19 channels, you will need to switch to another channel bank. Simply press the **MENU** key repeatedly until the **RX-** Channel Bank option appears then select another Channel Bank. Once selected, press the **MENU** key repeatedly to return to the frequency programming option and continue programming your preferred frequencies.

**To close the Channel Editor**

Switch the radio OFF then ON again to close the channel editor and restore normal operation. Your programmed frequencies will now be accessible from the **Channel knob** (or ▲ and ▼ keys). Remember, if you have stored channels into different channel banks, you will need to select the appropriate channel bank to access them.

**NOTE:** Under normal operation, only those channels that have been programmed with frequencies will be visible. Channels that were marked with –OFF- in the channel editor will no longer be visible.

### Deleting an RX-Only channel

To delete an RX-Only channel;

1. Enable the Channel Editor.

2. Select the channel you wish to delete.

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

4. Rotate the **Channel knob** all the way to the left (or press ▼ repeatedly) until –OFF– is displayed.

5. Press and hold the **Channel knob** (or [LVL PRI] key) to store the new setting.

6. Switch the radio OFF then ON again to restore normal operation.

The deleted channel will no longer be visible.

### Displaying the RX-Only channel's frequency or Alpha label

By default the radio displays the Signal Strength meter to the left of the channel number. You can configure the display to show the Frequency or the Alpha name of the selected channel.

Before starting, ensure the radio is in the Numeric mode (press **F** then **ALPHA** so that 'NUMER' is displayed).

1. Select an RX-Only channel (the following menu option is only available when an RX-Only channel is selected).

2. Press and hold **MENU** until the radio beeps.

3. Briefly press **MENU** repeatedly until **S-MET** appears.

4. Rotate the **Channel knob** to the right (or press ▲ ) until **ALPHA** is displayed.

5. Press the **PTT** to exit the **Menu**.

The radio will now display the channel frequency to the left of the channel number whenever an RX-Only channel is selected.

### To display the channel's ALPHA label

Briefly press **F** then **ALPHA**. 'ALPHA' will appear briefly then the channel's Alpha label will be displayed to the left of the channel number. If the Alpha label is blank, then an Alpha label has not yet been set for this channel. Follow the steps right to enter your preferred Alpha label.

### Adding names to your RX-Only channels

**NOTE:** You do not need to activate the channel editor to make changes to RX-Only channels that have already been programmed.

1. Select an RX-Only channel. The channel frequency will be displayed to the left of the channel number.

2. Press **F** then **ALPHA** to switch to Alpha mode. 'ALPHA' will be displayed briefly.

3. Press and hold the **MENU** key until the radio beeps. The cursor will flash in the left character position.

4. Rotate the **Channel knob** (or press ▲ or ▼ ) to select the required character. Press the **Channel knob** (or [LVL PRI] key) to advance to the next character position.

5. When the desired name is displayed, press and hold the **Channel knob** (or [LVL PRI] key) to store the name.

6. Briefly press the **PTT** to exit and return to normal operation.

$$45832\ \mathbf{90}$$

RX-Only channel frequency (458.325 MHz)

$$CAR-4\ \mathbf{90}$$

RX-Only channel label

When viewing RX-Only channels, briefly press **F** then **ALPHA** at any time to toggle between the channel frequency and the Alpha name.

### CONFIGURATION MENU

The configuration menu controls preset functions in the radio.

To access the menu, press and hold the **MENU** key until a beep is heard. Selected menu options are displayed to the left of the channel display. Briefly press the **Menu** key to step through the available menu options. Rotate the **Channel knob** (or press

the ▲ or ▼ keys) to change the selected menu option. After viewing or making changes, briefly press the **PTT** to exit the menu (or simply wait a few seconds for the menu function to time-out).

The following settings are available.

| Menu Option | UHF CB Channel | RX-Only Channel |
|---|---|---|
| RX Only Frequency /Alpha Label: | NA | Frequency, Alpha Label |
| CTCSS/DCS: | CTCOF, CTC01-CTC50, DT001-DT104 | |
| Voice Scrambler: | ENCOF, ENCON | |
| Beep Tone Level: | BEEP 0 – BEEP 9 | |
| RX Only Frequency Step : | NA | 25.0 K, 12.5 K |
| Filter Bandwidth: | WBFLT, NBFLT | – |
| Dynamic Volume Control: | DVCOF, DVCON | |
| Display Mode Options: | S-MET, S-LIN, BATT | S-MET, S-LIN, BATT, ALPHA |
| Busy Lockout: | BLKOF, BLKON | |
| RX Only Channel Banks: | NA | RX-A, RX-B, RX-C, RX-D, RX-E |

### Frequency/Alpha label

(only available on receive-only channels)

Allows editing of the channel frequency or Alpha label of the selected receive-only channel.



Frequency 458.325 MHz          Alpha label "FIRE 1"
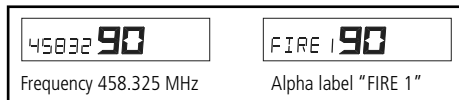
### CTCSS/DCS tone selection

Enables and selects CTCSS or DCS tones. To switch CTCSS or DCS tones OFF rotate the **Channel knob** fully to the left (or press ▼ repeatedly) until 'CTCOF' is displayed.



◄───── Rotate left ───────── Rotate right ─────►

CTCOF ↔ CTC50 ↔ DT 104

CTCSS Off          CTCSS Tone 50          DCS Tone 104

### Voice Scrambler

Enables or disables the Voice Scrambler.

ENCOF                    ENCON

Scrambler Encoder OFF          Scrambler Encoder ON

### Beep tone level

Adjusts the volume level of the beep tones associated with key presses.

BEEP0                    BEEP9

Beep level 0          Beep level 9
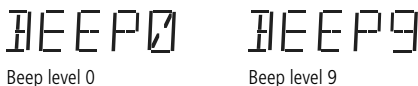
### Frequency step selection

(only available on receive-only channels)

Sets the frequency spacing of receive-only channels to 12.5 kHz or 25 kHz (default).

25.0 K                   12.5 K

25 kHz steps          12.5 kHz steps

**Note:** This option does not affect the standard 80 CB channel spacing

### Filter bandwidth

(only available on CB channels)

Selects the receiver bandwidth filter on channels 1-40.

WBFLT                    NBFLT

Wideband Filter selected          Narrowband Filter selected

## Dynamic Volume Control (DVC)

When enabled, automatically compensates for variations in received audio level to provide a constant audio output level to the speaker.

$$\Box V C \Box N \qquad \Box V C \Box F$$

DVC ON                DVC OFF

## Display mode options

The display can be configured to show several different options in the lower left of the display when receiving.

- **S-MET:** Shows received signal strengths in standard digital format from 0 (no signal) to 9+ (very strong signal).
- **S-LIN:** Shows received signal strengths with extended resolution from 0 (no signal) to approximately 63 (very strong signal). A change of 1 digit in this mode corresponds to around a 10% change in signal strength.
- **BATT:** Displays the battery voltage.
- **ALPHA:** (only available on receive-only channels): In Numeric mode, displays the frequency of the selected RX-Only channel. In Alpha mode displays the Alpha label associated with the selected RX-Only channel.

**Note:** The ALPHA selection is only visible when an RX-Only channel is selected.

$$5-MET \qquad 5-LIN$$

Standard S Meter        High Resolution Linear
                        S Meter

$$\Box ATT \qquad ALPHA$$

Battery Voltage         RX-Only channel frequency or
                        Alpha name

## Busy Lockout

Busy Lockout prevents your radio from transmitting if the channel is busy. If the PTT is pressed while the channel is busy, a beep tone will be heard and the radio will not transmit.

$$\Box LK\Box F \qquad \Box LK\Box N$$

Busy Lockout Off        Busy Lockout On

## Channel banks

Selects the current receive-only channel bank. The receive-only channel memory consists of 5 banks of 19 channels. Channel banks are labelled **RX-A** to **RX-E**.

$$RX-A \qquad RX-B \qquad RX-C$$

CH Bank A        CH Bank B        CH Bank C

$$RX-D \qquad RX-E$$

CH Bank D        CH Bank E

---

### INSTALLATION

#### GENERAL

Your radio is supplied with a slim, slide on mounting cradle. As the radio contains a built-in speaker, the cradle can be screwed or bolted to any convenient location in your vehicle's cabin (under or above the dash or on the centre console) using the mounting slots provided in the cradle.

In the case of the remote mount TX3520, the remote head can be installed in a convenient location inside the cabin allowing the main unit to be hidden away under the seat, in the glove box or even in the boot if required. In this case an extension speaker will also be required.

When planning your installation, avoid locations that are close to heaters or air conditioners.

#### TX3510 & TX3540 INSTALLATION

For maximum sound projection from the internal speaker, we recommend the cradle be mounted above the radio to minimise any obstruction of the speaker. Alternatively, if it is necessary to mount the unit in a less audible location, an extension speaker can used. The extension speaker plugs into the extension speaker socket on the radio's rear panel.

## 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.
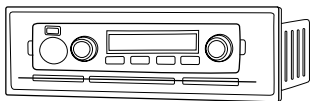


Din Adapter MBD001

## Installing the cradle

Screw the mounting cradle to a firm surface then slide the radio's main unit into the cradle from the front until it clicks into place. Finally, connect the power lead, antenna cable and extension speaker (if required) to the sockets on the radio's rear panel.

## Mounting the cradle
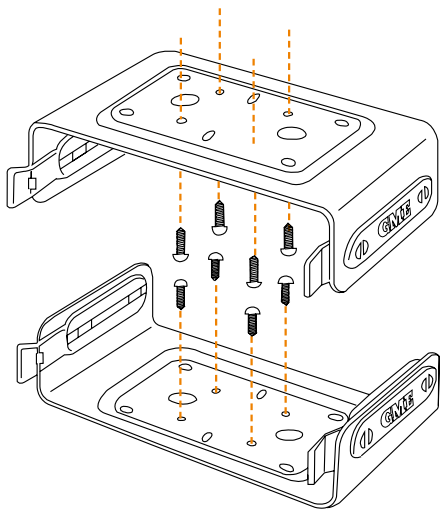


## Fitting the radio

Slide radio fully into cradle until it clicks into place.



## Removing the radio



Gently spread tabs

Slide radio from cradle

Gently spread tabs
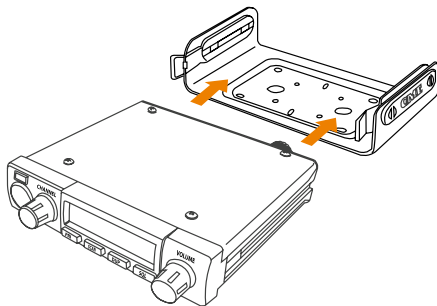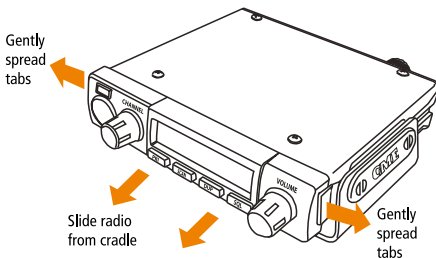
## TX3520 INSTALLATION

The TX3520 remote head can be installed inside the cabin with the main unit hidden away in the glove box, under the seat or in the boot if required. Install the remote head bracket into a convenient location near your driving position using screws or double sided tape. Loosen the gimbal knobs and slide the remote head into the slots in the bracket. Adjust the remote head for the desired angle then tighten the knobs.

The mounting of the main unit is identical to that of the TX3510 and TX3540 models. If the main unit is installed in a remote location, you will also need to install an extension speaker inside the cabin. The extension speaker plugs into the extension speaker socket on rear panel of the main unit.

Main Unit
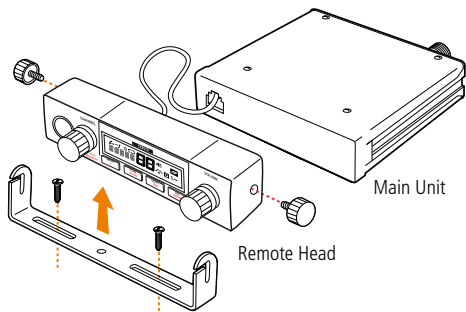
Remote Head

The remote head cable uses an 8 pin telephone style connector. Plug the cable from the remote head into the socket in the FRONT of the MAIN unit. Plug the MICROPHONE (6 pin plug) into the front of the REMOTE HEAD unit. (Alternatively the microphone can be plugged into the rear microphone socket on the main unit.

**NOTE:** The remote head socket (8 pin) is different to the microphone socket (6 pin). Do not attempt to plug the microphone into the front of the main unit as it will not fit

### MICROPHONE

The TX3510 and TX3520 uses a standard microphone fitted with a 6 pin telephone style plug. The standard microphone will fit the 6 pin socket in the front of the TX3510 and TX3520 radio panels. Alternately the standard microphone can be plugged into the microphone socket on radio's rear panel.. If connecting the microphone to the rear socket, an optional extension cable LEM6P is available if required to bring the microphone connection to a more accessible location.

The TX3540 uses a controller microphone which has an 8 pin telephone style plug. This microphone can only be plugged into the 8 pin socket on the front of the TX3540 main unit. The controller microphone cannot be plugged into the rear microphone socket.

#### Fitting the standard 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. Retain the cover in case you require it later on.

2. Position the microphone plug so the plastic tab faces downwards, and press the plug into the socket until it 'clicks'.



Plastic tab
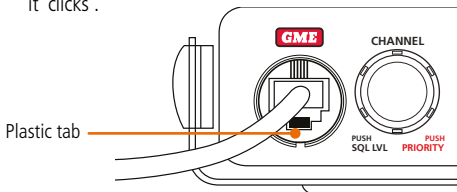
3. Gently press the rubber strain relief into the hole surrounding the socket so that the slot around the strain relief fits neatly inside the lip of the hole.

#### 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. Position the microphone plug so the plastic tab faces downwards, and press the plug into the socket until it 'clicks'.



Lift microphone cover
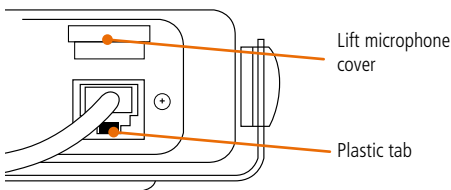
Plastic tab

#### Removing the microphone

1. For front panel connections, first squeeze the rubber strain relief near the front panel to disengage the slot, and slide the strain relief back along the microphone cord.

2. For both connections, 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.

### Fitting the controller microphone

Plug the 8 pin plug into the socket on the front of the main unit or alternatively you can use the adapter and extension cable supplied with the radio. If the main unit is not easily accessible this adapter will allow you to bring the microphone socket to a more convenient position

Attach the microphone clip to a convenient location near your driving position using screws. Slide the bollard on the back of the microphone into the clip to secure it.



### DC POWER CONNECTION

The radio 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.
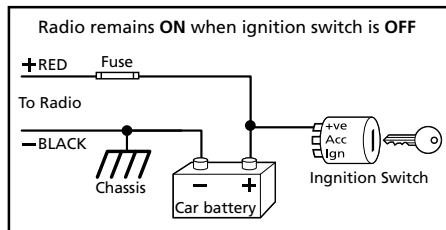


### Radio turns ON and OFF with the ignition switch

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.
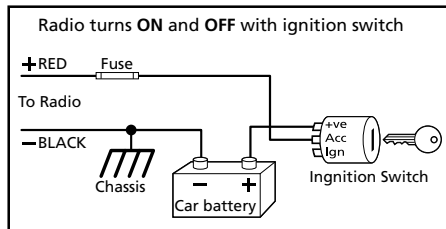


### High voltage detection

The radio 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 radio 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 radio OFF then ON again to reset it.

**Note:** The power source should never exceed 30 volts.

**TX3510 Main Wiring**



Extension Speaker

RED +

Fuse

Coax Cable

Antenna Socket

-BLACK

UHF Aerial

Connector Plug

DC Socket

**TX3520 Main Wiring**



Extension Speaker

12 V DC

RED +

UHF Aerial

Fuse

-BLACK

Connector Plug

**TX3540 Main Wiring**



Extension Speaker

12 V DC

RED +

Coax Cable

UHF Aerial

Fuse

-BLACK
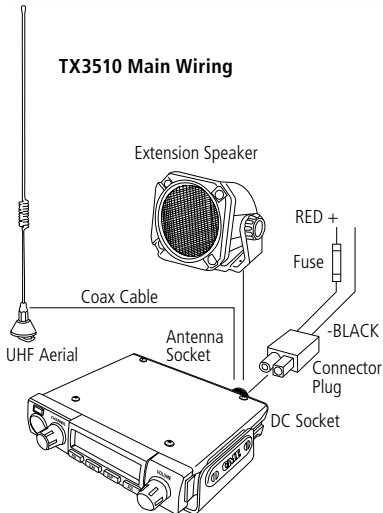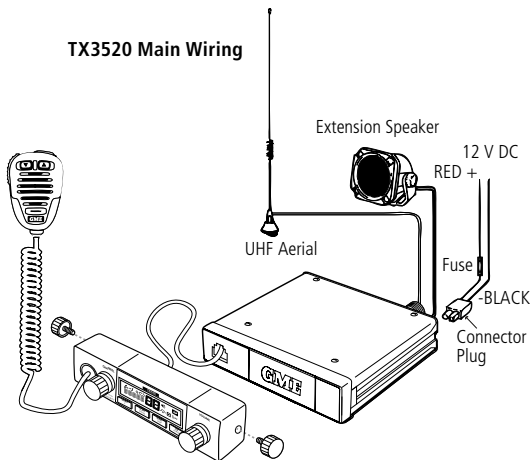
Connector Plug
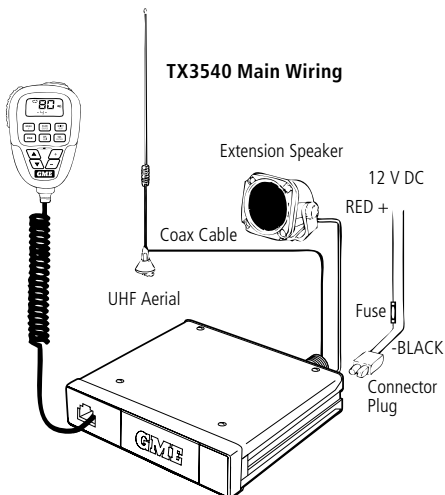
### ANTENNA CONNECTION

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 4365.201

### 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 |
| Over Voltage 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 Ohms 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 | Antenna: | SO239 Panel Socket |
| Weight: | 450 grams | External Speaker: | 3.5 mm Mono Jack |
| 12 Volt Power Supply: | Two core cable with bulkhead connector in rear panel. | Microphone Port: | 6 Way telephone style with rubber strain relief. |

Specifications are subject to change without notice or obligation

## STANDARD COMMUNICATIONS CONTRACT WARRANTY

### 1. Statutory Warranties

1.1 The Trade Practices Act Part V, Division 2A and other legislation imply conditions, warranties and other obligations on us to consumers that cannot be excluded, restricted or modified.
Those provisions apply to the extent required by law.

1.2 We exclude all other conditions, warranties and obligations which would otherwise be implied concerning the activities covered by this agreement.

1.3 We limit our liability where we are allowed to do so. Examples of where we are allowed to limit liability are -
(a) you acquire goods from us for re-supply;
(b) the goods or services we supply are not of a kind ordinarily acquired for personal, domestic or household use or consumption.

1.4 Where we are allowed to limit our liability, 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 payment of the cost of repairing the goods or of acquiring equivalent goods;
  (iv) the payment of the cost of having the goods repaired; or
(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 payment of the cost of having the services supplied again.

### 2. Additional Warranties

2.1 The warranties in this clause are in addition to the statutory warranties referred to in the previous clause.

2.2 We warrant our goods to be free from defects in materials and workmanship for three years from the date of original sale (or another period we agree to in writing). During this period and as our sole liability to you under this warranty, we agree to, at our option, either repair or replace goods which we are satisfied are defective. We warrant replacement parts for the remainder of the period of warranty for the goods into which they are incorporated.

2.3 We warrant our other repairs to be free from defects in materials and workmanship for three months from the date of the original repair. During this period and as our sole liability to you for the repair, we agree to repair or replace (at our option) repaired goods which we are satisfied are defective.

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

2.5 If you want warranty service under this clause you must give us an original or copy of the sales invoice from the transaction or some other evidence showing details of the transaction.

### 3. Other Limitations

3.1 You may not rely on any representation, warranty or other provision by or for us which is not covered by clause [ 1 ] or repeated in this agreement in clear terms.

3.2 We are not liable (nor are our employees, contractors and agents) for any damage, economic loss or loss of profits whether direct, indirect, general, special or consequential -
   (a) arising out of any breach of any implied or express term, condition or warranty; or
   (b) suffered as a result of our negligence (or that of our employees, contractors or agents) - apart from liability as set out in the previous two clauses.

3.3 The liability of a party under this agreement (whether arising in contract, tort or by statute) is to be reduced by the same proportion as represents the proportion of the loss or damage caused or contributed to by the other party, its contractors or agents.

## GME AFTER SALES SERVICE

Your GME UHF CB radio is especially designed for the environment encountered in mobile applications. The use of all solid state circuitry, careful design and rigorous testing, result in high reliability. Should failure occur however, GME maintain a fully equipped service facility and spare parts stock to meet the customer's requirements long after expiry of the warranty period.



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

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

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| Dandenong South | Thebarton | 10-12 Harvard Way | 89-101 Factory Rd. | 22-24 College St. | East Tamaki |
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| | | F: (08) 9455 3110 | F: (07) 3278 6555 | F: (02) 9816 4722 | 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