GME Electrophone

INSTRUCTION MANUAL

TX4200 SERIES UHF TRANSCEIVER

Complies with SMAS 250

STANDARD COMMUNICATIONS
PTY. LTD.

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SPECIFICATIONS

	476.425 - 477.400 MHz
GENERAL	
Frequency Range:	Microprocessor controlled synthesiser
Frequency Control:	40
	25 kHz
No. of Channels:	50 Ohms
Channel Spacing:	SO239 Cable socket
Antenna Impedance:	10.5 - 15.2 Volts DC
Antenna Connector:	13.8 Volts DC
Voltage Range:	Negative earth
Nominal Voltage:	-10° C to +60° C
Polarity:	171mm(W) x
Temperature Range:	52mm(H) x
Dimensions:	148mm(D)
	2 Amp in-line fuse
Current Protection:	
Reverse Polarity &	Series diode/regulator
Overvoltage	3 Watt 4 Ohm high
Protection:	efficiency front
Speaker:	mounted
	0.1 seconds (10 channels per second)
Scan Rate:	Active Low
Alarm Input:	1 Amp max.
Alarm Output	CCIR compatible
Current:	40 ms
Selcall - Tone Set:	Scrambler
- Tone Period:	
Options:	
TRANSMITTER	5 Watts max. legal power @ 11.5-15.2V
RF Output Power:	Better that ±5 PPM
	FM
Frequency Stability:	
Modulation Mode:	300 Hz - 3 kHz 6dB
Frequency Response:	per octave pre-emphasis + microphone pre-emphasis
Modulation Deviation:	Within ±5 kHz (+20dB limiting @ 300 Hz - 3 kHz)
Hum and Noise:	
Modulation	3% @ ±3 kHz
Distortion:	deviation
	Electret
Microphone:	
Microphone Input	1 Pascal @ 1 kHz for
Sensitivity:	±1.5 kHz deviation
	Better than -70 dBc
Spurious Emissions:	
Current	1.9 Amps
Consumption:	
RECEIVER	
	Double conversion
Circuit System:	Superheterodyne
	1st 21.4 MHz
I.F. Frequencies:	2nd 455 kHz
	Better than ±5 PPM
Frequency Stability:	0.25 uV for 12 dB
Sensitivity:	SINAD
	0.35 uV for 20 dB noise quieting
	-6 dB @ ±7.5 kHz
Selectivity:	-72 dB @ ±25 kHz
	1st IF: -66 dB
Image Rejection:	2nd IF: -75 dB
	Better than -70 dB
Spurious Rejection:	Better than -90 dB @
Blocking:	±200 kHz
	Better than -70 dB
Intermodulation:	-40 dB
Hum and Noise:	
Frequency Response:	300 Hz - 3 kHz with 6 dB per octave de-emphasis
Squelch Range:	Threshold = 0.15 uV
	Tight = 2 uV
Audio Output:	3 Watts undistorted @ 4 Ohms
Current	
Consumption:	Squelched = 200 mA
	Full volume = 680 mA

Specifications are typical unless otherwise indicated and may be subject to change without notice or obligation.

-40 dB

INTRODUCTION

The UHF Citizens Band Radio Service (CBRS) was set up to provide a simple yet reliable form of radio communication for business, farming or private use. A CB radio license is not required.

Your TX4200 operates in the UHF (Ultra High Frequency) 477 MHz band and offers a much higher quality service than 26/27 MHz systems. In addition, by using FM (frequency modulation), voice quality is improved while electrical interference is virtually eliminated.

The range of a UHF FM signal is usually considered 'line-of-sight', but this can be greatly increased by the liberal use of repeaters. Repeaters are special transceivers (transmitter/receivers) installed in high locations. Their job is to automatically re-transmit any signals they receive, thereby extending the range of the original signal. Generally, the range of your UHF radio will vary according to your location and the height of your antenna. UHF signals are easily blocked by hills or large buildings, so you wont get as much range in a valley or built-up city area as you will from a hill or in open country. If you are having trouble contacting someone, try moving to an open space or a higher location. Typical vehicle to vehicle range is around 3 to 10 km depending on the terrain. A base station, because of it's higher antenna installation, could extend it's range to 30 km or more depending on it's location. Once again, the use of repeaters can increase these ranges considerably (up to 100 km or so).

The following functions are standard on most UHF CB radios. Here is what they do.

Volume : Used to adjust the level of sound output from the speaker.

Squelch (sometimes called 'Mute') : The squelch control is used to eliminate any annoying background noise when there are no signals present. When the control is fully counter-clockwise, the squelch is set to minimum and everything can be heard in the speaker. As the control is slowly advanced clockwise, the squelch level increases until it reaches a point where the background noise suddenly disappears. This is known as the threshold. At this point, the radio is quiet when there are no signals being received, but any incoming signals will overcome the squelch and be heard in the speaker. As the squelch control is advanced further clockwise, the squelch level is progressively increased and stronger incoming signals are needed to overcome it. The usual procedure for setting the squelch is to temporarily select an unused channel, adjust the squelch control fully counter-clockwise, then slowly advance it clockwise just past the point where the background noise disappears.

Channels : There are 40 frequencies available in the UHF CB band. To make it easier to identify each frequency, they are allocated channel numbers (channels 1 to 40). The channels are selected by rotating the channel knob. The selected channel number appears on the display.

Duplex : UHF radios have a simplex/duplex function. The *Simplex* mode is used when you wish to talk directly to another radio. It allows the radio to transmit on the same channel as it receives. The *Duplex* mode is used when communicating through repeaters. It causes the radio to transmit and receive on two different channels. Put simply, if you wish to talk directly to another radio select 'Simplex'. To talk to another radio via a repeater, select 'Duplex'.

Push To Talk (PTT) Switch : This is the large button on the side of the microphone. It is used to make the radio transmit. To transmit, hold the microphone close to your mouth, press the PTT switch, then talk into the microphone in a normal voice. When you have finished talking, release the PTT switch and the radio will return to the receive mode.

Scan : The scan function allows you to listen for signals on a number of channels in quick succession. The radio monitors each channel for just long enough to check for signals. If no signals are present, it switches to the next channel in sequence. If a signal is heard, the radio pauses on that channel so the signal can be heard. After the signal disappears, the radio resumes scanning. The TX4200 scans at up to 10 channels per second and allows *you* to select which channels you wish to scan.

GENERAL DESCRIPTION

The GME Electrophone TX4200 UHF transceiver has been wholly designed and manufactured in Australia by Standard Communications Pty. Ltd to exceed all the requirements of the UHF CB service, while withstanding the forces of the harsh Australian and New Zealand environments.

The TX4200 incorporates the very latest in CAD/CAM (computer aided design, computer aided manufacturing) techniques to produce a UHF CB transceiver with outstanding specifications and performance.

The new TX4200 incorporates amongst other things, a liquid crystal display and fully programmable scanning . In addition, the TX4200 has a number of innovative signalling features including fully user programmable Selcall system with full 5 digit received Ident display, separate priority channel programming and a group call feature.

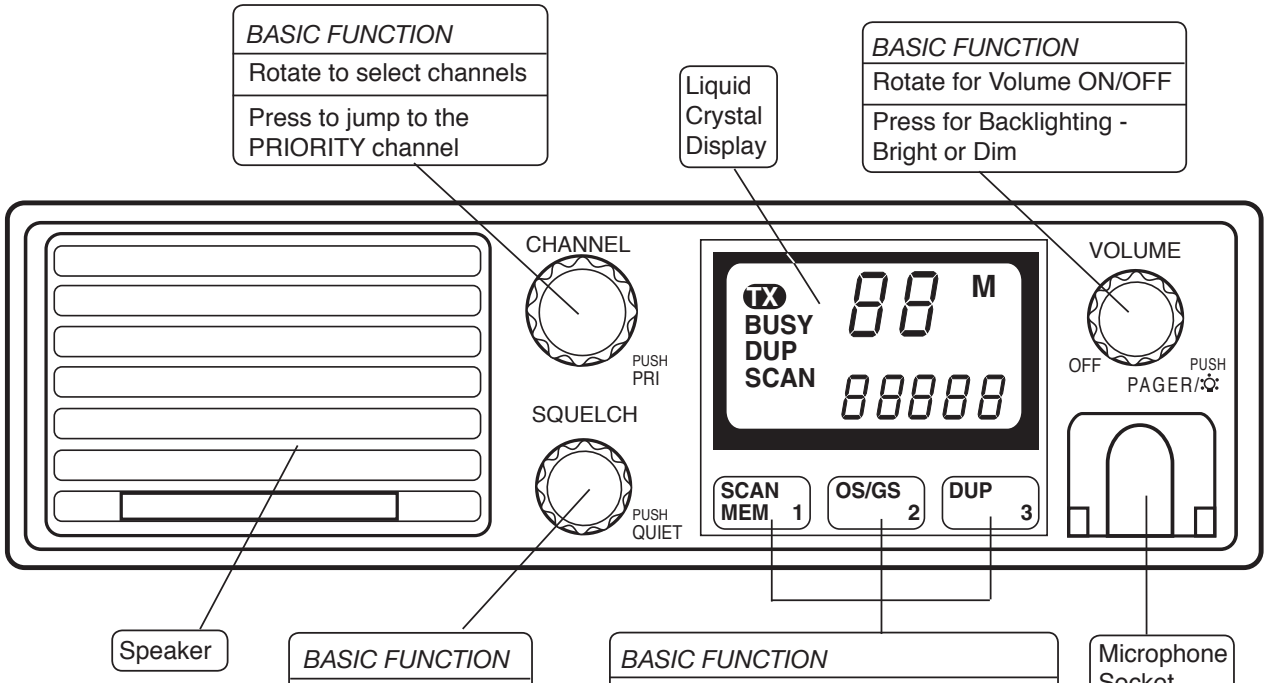
Remarkably, with all these features the TX4200 remains a very compact unit.

FEATURES

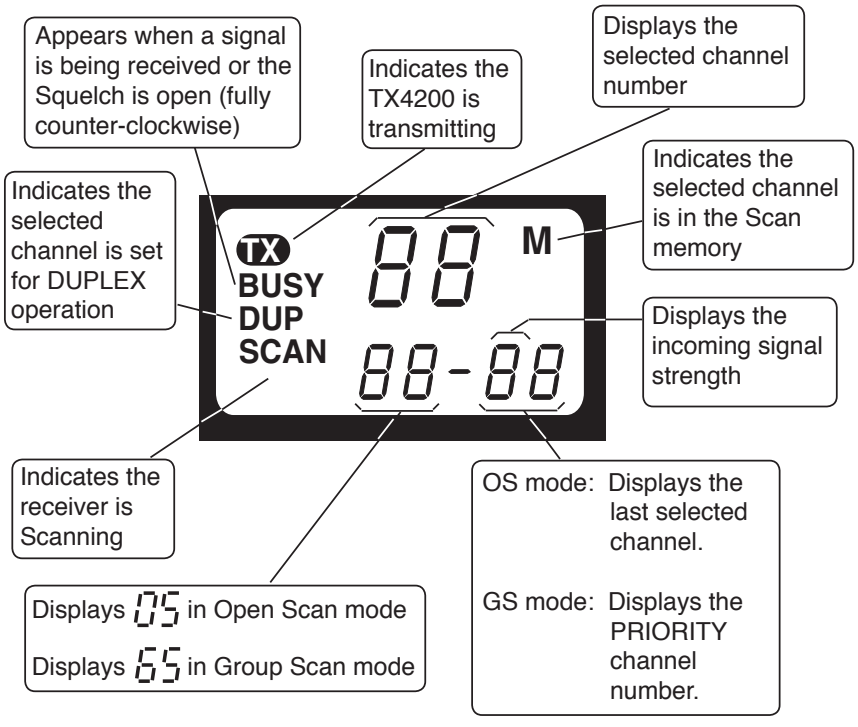
- *Microprocessor Controlled Frequency Synthesiser:* Allows user programmable control of scanning and channel memory storage.
- *Non volatile EEPROM memory:* All dealer and user settings are stored inside an EEPROM.
- *User Programmable multi-tone Selcall Function:* CCIR tone compatible and built-in to the TX4200 microprocessor.
- *SELCALL 'QUIET' mode programmable on individual channels:* Allows mixed monitoring and scanning of QUIET and OPEN channel combinations with audible alarm when called.
- *Three SELCALL memories:* User programmable storage of three frequently called SELCALL Idents.
- *Open Scan and Group Scan modes:* The original GME scan functions are now even better, fully programmable and faster than ever.
- *Liquid Crystal Display:* Fully detailed LCD provides a visual indication of all selected functions at a glance.
- *High Contrast Backlighting:* Not just the LCD but all rotary controls are fully backlit for hassle free operation at night.
- *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.
- *Digital Signal Strength Meter:* An improvement on the old 5 segment bar type meter, the digital signal strength meter provides a numeric signal strength indication in numbers from 0 to 9.
- *Low Profile Microphone Plug:* The 'new generation' low profile microphone plug provides a stronger attachment and a more compact appearance.
- *Surface Mount Microchip Technology:* Only the very latest techniques in surface mount component selection, assembly and quality assurance are used to ensure the highest quality and reliability is achieved and maintained.
- *Designed and Manufactured in Australia:* The TX4200 is totally designed and manufactured in our factory at Gladesville, NSW to meet the demanding needs of the Australian and New Zealand communities.

BASIC OPERATION

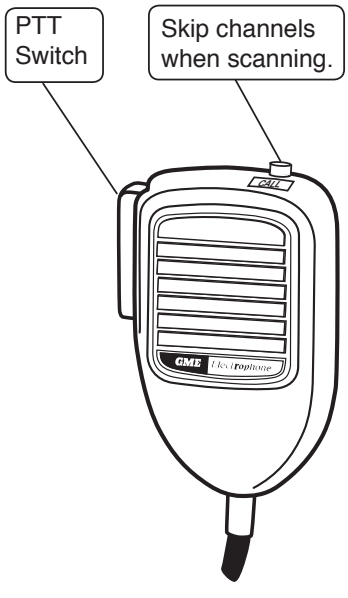
CONTROLS

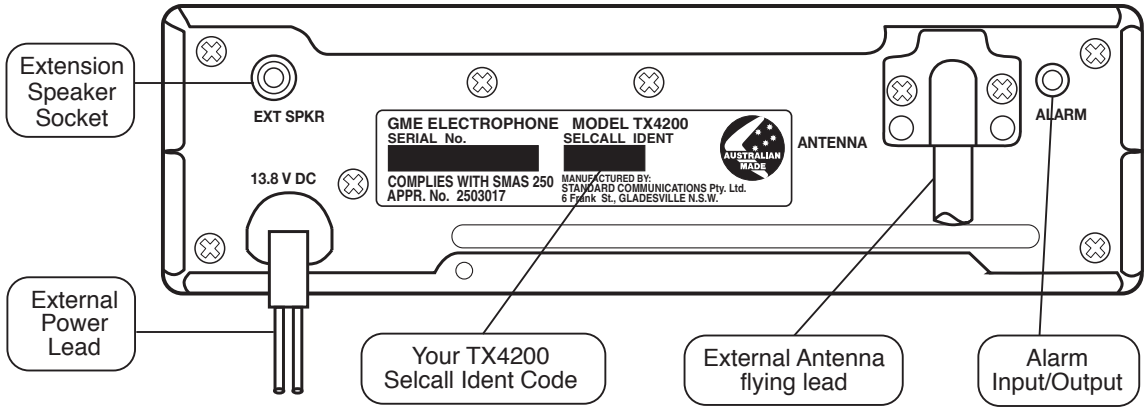


LIQUID CRYSTAL DISPLAY



MICROPHONE





VOLUME

Rotate the Volume control clockwise past the "click" to turn the TX4200 on. Adjust the Volume control for a comfortable listening level.

(If no sound is heard, adjust the Squelch control fully counter-clockwise, then readjust the Volume control).

BACKLIGHTING

The TX4200 features built-in backlighting of the Liquid Crystal Display (LCD) and all controls. The backlighting can be toggled bright or dim by momentarily pressing the Volume knob.

When the radio is turned off, the backlighting setting is retained and will be restored when the radio is turned on again.

SQUELCH

The Squelch control is used to eliminate any annoying background noise when there are no signals present. To adjust the Squelch, first rotate the Squelch fully counter-clockwise until the background noise is heard and the BUSY indicator on the LCD is displayed. Then advance the Squelch control clockwise until the noise just disappears and the BUSY indicator is extinguished. At this point the receiver will remain quiet under "no signal" conditions, but an incoming signal will overcome the Squelch action and be heard in the speaker. As the control is further advanced clockwise, the squelch action is progressively increased and stronger incoming signals are needed to overcome it. To receive extremely weak signals or to disable the squelch, simply turn the Squelch control fully counter-clockwise.

CHANNEL

Select the required channel by rotating the Channel selector switch clockwise or counter-clockwise. Rotating clockwise selects higher channels and counter-clockwise selects lower channels. The selected channel is displayed on the LCD.

SIGNAL STRENGTH METER

The TX4200 has a digital signal strength meter built into the LCD. When in the normal receive mode (scan not selected), the received signal strength is displayed as numbers from 0 to 9 (with 9 being the strongest) on the bottom right of the LCD.

DUPLEX

Duplex operation allows the TX4200 to transmit on a different channel to that which it receives. This allows operation through any repeater stations in your area. Repeaters automatically re-transmit your signal providing greatly increased range. *(See section on repeaters on page 30).*

The Duplex function operates only on channels 1-8. When Duplex is selected on one of these channels, the TX4200 receives on the selected channel but actually transmits 30 channels higher.

e.g.

Channel Selected	1	2	3	4	5	6	7	8
Receive Channel	1	2	3	4	5	6	7	8
Transmit Channel	31	32	33	34	35	36	37	38

The TX4200 allows you to programme Duplex

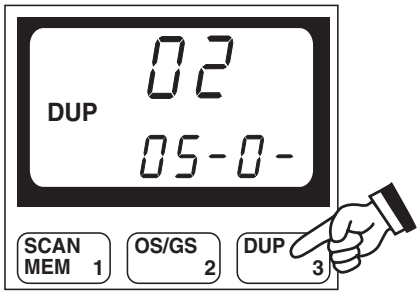
operation on individual channels rather than the usual method of programming either all 8 channels or none. This is particularly useful in country areas where there may only be one or two repeaters. These repeater channels can be programmed as Duplex and the rest can be left as normal (simplex) channels for use as normal direct radio to radio communications.

To programme an individual channel for Duplex operation:

1. Select the required channel (1 - 8)

2. Press *DUP*

A high beep will be heard and '*DUP*' will be displayed. Now whenever that channel is selected, it can be used as a Duplex (repeater) channel.



To cancel Duplex on the selected channel, press *DUP* again. A low beep will be heard and '*DUP*' will disappear from the display on that channel.

Note: The TX4200 will not allow Duplex to be selected on any channels other that channels 1 to 8. If *DUP* is pressed on any other channels, a low beep is heard and the command is ignored.

PRIORITY CHANNEL

The TX4200 allows you to store a priority channel which can be instantly recalled at the press of a button. This could be your normal working channel or your local repeater channel.

To STORE a channel in the Priority channel memory:

1. Select the required channel using the channel selector switch.

2. Press and hold the channel selector knob. The channel display will flash for a few seconds then a high beep will be heard. The selected channel is now stored in memory.

To Recall the Priority Channel:

Press the Channel selector knob at any time. The radio will immediately jump to the Priority channel. If the radio was scanning, the scan function will be cancelled.

To Change the Priority Channel:

Simply select a new channel, then press and hold the channel selector knob again. The new priority channel will overwrite the old one.

***NOTE:** If at any time you feel you have lost control of your TX4200, simply press the channel selector knob. The radio will switch to the priority channel and all functions will reset.*

SCANNING

The TX4200 is provided with a scan function to allow groups of user programmable channels to be scanned for activity. Channels are scanned at a rate of 10 channels per second. If a busy channel is found, scanning will pause to allow the signal to be heard. Scanning will then resume 5 seconds after the channel becomes clear again.

Two scanning modes are available - Open Scan (*OS*) and Group Scan (*GS*). Each scan mode has it's own separate user programmable scan memory. Once programmed, the channels stored in these memories can be scanned using the *SCAN* button.

***NOTE:** If you do not need to use the **SCAN** function or are confused by it's operation, simply ignore the **SCAN** button on the front panel. The TX4200 will continue to operate in it's basic mode as a standard UHF CB transceiver.*

If at any time you feel you have lost control of your TX4200, simply press the channel selector knob. The radio will switch to the priority channel and all functions will reset.

If in doubt, turn to the trouble shooting section at the back of this manual.

PROGRAMMING SCAN MEMORIES

The Open Scan and Group Scan modes have their own separate user programmable scanning memories. This means that you can freely add or remove channels from one scan group without fear of affecting those channels programmed into the other group. In both scan modes, any channel in the range of 1 to 40 (up to a maximum of 40 channels) can be programmed into or removed from the scanning memories.

The sequence for adding or removing channels in the scanning memory is identical for both OS and GS modes.

1. Check that the TX4200 is not presently scanning. If it is, press *SCAN* to cancel the scan function.

2. Press *OS/GS* to select the Open Scan (OS) or Group Scan (GS) mode. '*OS*' or '*GS*' will be displayed.

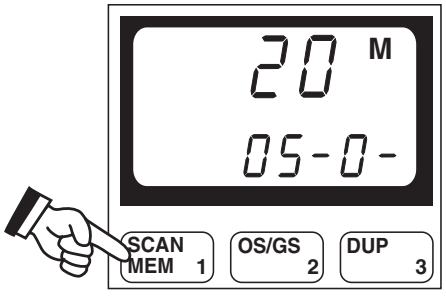
3. Rotate the channel selector switch until the required channel is displayed.

- *If* ***'M'*** *is displayed, then the selected channel is already in the scan memory.*

  To ***remove*** it, press and hold *MEM* until a low beep is heard. '*M*' will disappear from the display indicating the channel is no longer in memory.

- *If* ***'M'*** *is <u>not</u> displayed, then the selected channel is <u>not</u> presently in the selected scan memory.*

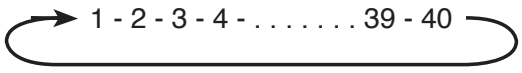
  To ***add*** it, press and hold *MEM* until a high beep is heard. '*M*' will appear in the display indicating the selected channel is now in the memory.



OPEN SCAN (OS) MODE

Open Scan mode allows up to 40 channels to be scanned in an ascending sequence.

Scanning is performed at a rate of 10 channels per second.



The TX4200 is supplied with all 40 UHF CB channels pre-programmed into the OS memory. Any channels not required can be removed as necessary.

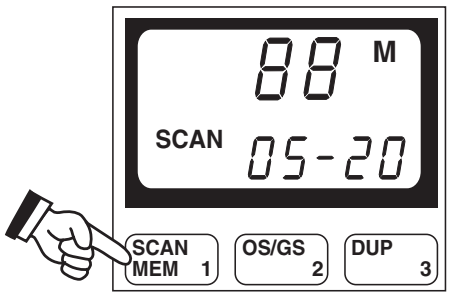
SCANNING IN THE OPEN SCAN MODE

To scan in the Open Scan (OS) mode:

1. Press *OS/GS* so that '*OS*' is displayed.

2. Adjust the squelch control so that the background noise disappears.

3. Press *SCAN*. '*SCAN*' will be displayed.



When scanning in the OS mode, the TX4200 will display rapidly changing channel numbers indicating each channel as it is being scanned. In addition, it will display '*OS*' to indicate that it is in the Open Scan mode, along with the last channel you selected before pressing SCAN. *(It is to this channel that the TX4200 will return when you exit the Scan mode).*

If a busy channel is found, the receiver will 'lock' onto it and will remain there for as long as the channel remains busy, and for 5 seconds after the transmission ceases. This allows the TX4200 to hold the channel during short breaks in the conversation. Once the channel has remained clear for 5 seconds, the radio will

resume scanning.

If you don't wish to listen to a busy channel, you can skip over it with a quick press of the *CALL* button (on the microphone). The receiver will immediately resume scanning.

- To manually hold a busy channel, briefly press the *PTT* switch on the microphone. '*M*' will be displayed and the scan function will pause, causing the radio to stay on the channel indefinitely. You can now transmit and receive on that channel in the usual way.

  ***NOTE:* '*SCAN*'** *is still displayed to remind you that the radio is still in the Scan mode and that the Scan function is only inhibited temporarily.*

- To resume scanning, briefly press the *CALL* button. '*M*' will disappear and the receiver will begin scanning again.

- To cancel the Scan function, press *SCAN*.

  If the radio was scanning, it will exit Scan and return to the last selected channel.

  If the radio was stopped on a busy channel, it will exit Scan and remain on that channel.

NOTES:

1. At any time while scanning, you can immediately cancel scanning and jump to the priority channel by briefly pressing the channel selector knob.

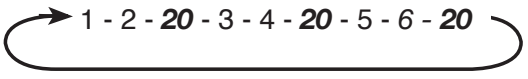
2. While the receiver is scanning (i.e. not stopped on a busy channel) the transmitter is disabled. Pressing the PTT switch will result in a low beep.

GROUP SCAN (GS) MODE

Group Scan mode allows you to transmit and receive normally on your Priority channel, but between breaks in the conversation, the radio can scan and listen to several other channels. The receiver will continue to scan the other channels stored in the GS memory ONLY WHILE THERE ARE NO SIGNALS ON THE PRIORITY CHANNEL.

The Priority channel is scanned after every 2 group scan channels.

e.g. Using priority channel 20 with GS channels 1, 2, 3, 4, 5 and 6.



The TX4200 is supplied with a blank group scan memory, allowing you to programme your own channel group as required. Programming the Group Scan channels is described under *"Programming Scan Memories"* on page 9.

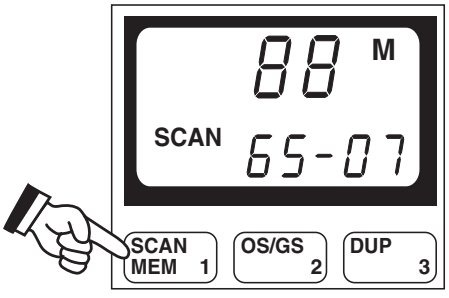
SCANNING IN THE GROUP SCAN MODE

To scan in the Group Scan (GS) mode:

1. Press *OS/GS* so that '*GS*' is displayed.

2. Adjust the squelch control so that the background noise disappears.

3. Press *SCAN*. '*SCAN*' will be displayed.



When scanning in the GS mode the TX4200 will display rapidly changing channel numbers indicating each channel as it is being scanned. In addition, it will display '*GS*' to indicate that it is in the Group Scan mode, along with the Priority channel number. *(It is this channel that is being monitored with the GS channels and it is to this channel that the TX4200 will return when you exit the Scan mode).*

The Priority channel is scanned after every 2 Group Scan (GS) channels have been scanned.

If a busy GS channel is found, the receiver will 'lock' onto it and will remain there for as long as the channel is busy, and for 5 seconds after the transmission ceases, AS LONG AS THERE ARE NO SIGNALS ON THE PRIORITY CHANNEL. During this time, the receiver will continue to check the Priority channel for signals every 2 seconds, resulting in a series of small 'breaks' in the reception of the 'locked' channel. If no signals are heard on the locked channel after 5 seconds, the radio will resume scanning.

If, while locked on a GS channel, a signal appears on the Priority channel, the receiver will switch straight to the Priority channel and will give 3 short beeps. This is to warn you that the channel you are *now* listening to has changed from the GS channel you *were* listening to just a few moments earlier. The receiver will now continue to monitor the Priority channel for a long as it is busy. During this time you can transmit on the Priority channel in the usual way. However, if there has been no activity on the Priority channel for 5 seconds (i.e. no signals are being received and you are not transmitting), the radio will resume scanning the other channels.

- To skip over a busy GS or Priority channel and resume scanning, briefly press the *CALL* button (on the microphone).

- To talk on the Priority channel, even while scanning, press the *PTT* switch. The radio will jump to the Priority channel and will remain there for as long as the channel is active, and for 5 seconds after the channel becomes clear. During this time you may converse normally on the channel even though the Scan function is still selected. After the channel has been inactive for 5 seconds, the radio will resume scanning.

- To manually hold a busy GS channel, press *SCAN*. The radio will exit the Scan mode and will remain on the busy GS channel.

  NOTE: You will no longer be monitoring the Priority channel because the receiver is no longer in the Scan mode.

- To cancel the Scan mode, press *SCAN*.

  If the radio was scanning, it will exit Scan and return to the Priority channel.

  If the radio was stopped on a busy channel, it will exit Scan and remain on that channel.

CHECKING WHICH CHANNELS ARE IN MEMORY

The following method can be used to identify which channels are stored in memory.

1. Press *OS/GS* to select the required Scan mode.

2. Turn the Squelch control fully counter-clockwise so that the receiver noise is heard.

3. Press *SCAN*. The TX4200 will begin scanning but will lock onto the first Scan channel in the memory.

4. Briefly press the *CALL* button to reveal the next Scan channel in memory. In this way you can step through all channels stored in the memory.

If you wish to add or remove channels from the memory, you will first need to cancel the Scan mode, then follow the directions described under 'Programming the Scan Memories'.

TRANSMITTING

To transmit, press the *PTT* switch. Hold the microphone 2 - 6 cms from your mouth and slightly to one side, so that your voice does not project directly into the microphone. Speak at a normal voice level. The TX4200 microphone is an electret type which is quite sensitive to normal voice levels. It is not necessary to raise your voice or shout into the microphone.

You will find that the TX4200 will not allow you transmit when some modes or functions are selected. This is to prevent accidental transmissions over the top of others. If you press the *PTT* switch during one of these modes or functions, the TX4200 will simply produce a low beep until the *PTT* switch is released.

ADVANCED FEATURES

The TX4200 contains a number of built-in advanced signalling features, many of which are normally only available in expensive commercial communications equipment.

The following features are included in the TX4200 at no extra cost.

- Built-in sequential tone signalling system.
- 100% compatible with 40ms CCIR 5 tone systems.
- Factory programmed receiver Selcall Identification number (Selcall Ident).
- User programmable 4 digit 'Call To' Ident with dealer option to make 5 digit.
- Display up to 5 digits of callers Selcall Ident.
- Audible warning of incoming call.
- Quiet mode programming on user selected channels.
- Mixed scanning of both quiet and open channels.
- 3 memories for user storage of frequently called Selcall Idents.
- Base to Base, Base to Mobile, Mobile to Mobile, and Mobile to Base calling.
- External alarm interface socket.
- Remote Paging facility.

While this list of features may seem daunting to those who are unfamiliar with them, this section has been written to explain these features and show you how to use them to increase your communications efficiency. Remember, your TX4200 already has these features built-in so why not use them to your advantage.

Selective Calling (General)

Selective calling (Selcall) is a multiple frequency sequential tone signalling system designed to provide quiet transceiver operation on a normally busy shared channel.

In it's basic form, the Selcall signal consists of 5 short tones transmitted in a sequence. There are 10 different tones to choose from (numbered from 0 to 9). By combining any 5 of these tones in a sequence, a code is created. The code can be identified by the numbers of the tones.

e.g. Combining tones 1, 4, 6, 2 and 3 in that order would create the code 14623.

A receiver which is designed to use Selective calling is programmed with it's own unique code. Whenever the receiver hears a 5 tone Selcall transmission, it compares the incoming code with it's own code. If the two codes match, the radio knows it is being called and sounds an alarm to let the operator know.

In addition, the receiver can be programmed to listen to a busy channel but not allow any sound to reach the speaker unless it receives it's Selcall code. In this way the radio can monitor a busy channel without disturbing you, but still let you know if you are being called.

Your radio also allows you to transmit these codes in any sequence you desire so that you can call others who are also using a Selcall system.

*TX4200 Selcall Identification Numbe*r

Your TX4200 is factory programmed with it's own Selcall Identification number (Selcall Ident). This Ident identifies your radio from others in your area. You will need to make your Selcall Ident known to anyone who may need to call you using Selcall.

Your Selcall Ident

The Selcall Ident for your radio is printed on the label affixed to your radio's rear panel. You can also recall your Selcall Ident directly from the radio and display it on the LCD as follows:

1. Press the *CALL* button briefly to select the 'CALL TO' mode.

2. Briefly press the *SQUELCH* knob. Your TX4200's Selcall Ident will be displayed.

3. Press the *CALL* button again to return to normal operation.

Note: Although your radio is pre-programmed with it's own Selcall Ident, you can arrange to have your dealer change it if required *(see section on dealer programmable options).*

Receiver Quiet Mode (Q)

The TX4200 has a selectable 'Quiet' sound muting system. It is this which keeps your radio quiet, even on a busy channel. The Quiet function takes priority over the normal Squelch control. This means that with the Quiet mode set, the radio will remain quiet even if signals are being received or the Squelch control is disabled (fully counter-clockwise). When the Quiet mode is set, you may often see the BUSY indicator appear and signal strengths displayed indicating that the channel is being used. However, unless someone transmits your radio's Selcall Ident, nothing will be heard in your radio's speaker.

If a signal containing your Selcall Ident is received, the Quiet mode will be disabled, and an alarm will sound to announce that you have been called. You will then be able to converse normally on that channel.

Selective Channel Quieting

The TX4200 is unique in that you can individually programme which channels will be set as Quiet and which channels will remain Open (open channels are those where all signals will be heard). This means that as you change channels you don't have to turn the Quiet function on or off to suit specific channels. Your TX4200 does it for you - automatically.

Call Modes

The TX4200 has two Call Modes. These are '*CALL TO*' and '*CALL FROM*'.

'CALL TO' Mode

The 'Call To' mode is used to make a selective call to another radio.

When the 'Call To' mode is selected, a 5 digit Selcall Ident is displayed. If you have just received a Selcall, the Ident will be that of the person who called, otherwise it will be the last Ident you transmitted. The TX4200 allows you to programme all 5 digits of the Ident to match the code of the radio you wish to call. This means there are no restrictions on who you can call. However, unless the person calling you has had his ident changed, you will most often find their first Selcall digit is 1 because this is the factory default

'CALL TO' Memory

Three Selcall Ident memories are installed in the TX4200. They are user programmable and are accessed via the three numbered buttons beneath the LCD. Any frequently call Idents can be programmed into these memories and recalled at the press of a button when in the 'Call To' mode.

'CALL FROM' Mode

The 'Call From' mode is activated automatically whenever your TX4200 receives and

successfully decodes it's Selcall Ident. When activated, the words 'Call From' will appear in the display and directly beneath them will be the last 4 digits of the callers Selcall

Ident. You are therefore immediately informed of the identity of the person calling. This is particularly useful if the radio was temporarily unattended when the call was received because, on your return, you can identify the caller and can then call them back.

'CALL FROM' Alarm

Each time the 'Call From' mode is activated, an alarm will sound to alert you to the call. This is designed to get your attention if you are near the radio when the call is received. Initially, the alarm will beep urgently for about 10 seconds. It will then slow to about 1 beep every 3 seconds and will continue to beep indefinitely until you reset it *(see the section on dealer programmable options in the back of this manual).*

'CALL FROM' Acknowledge

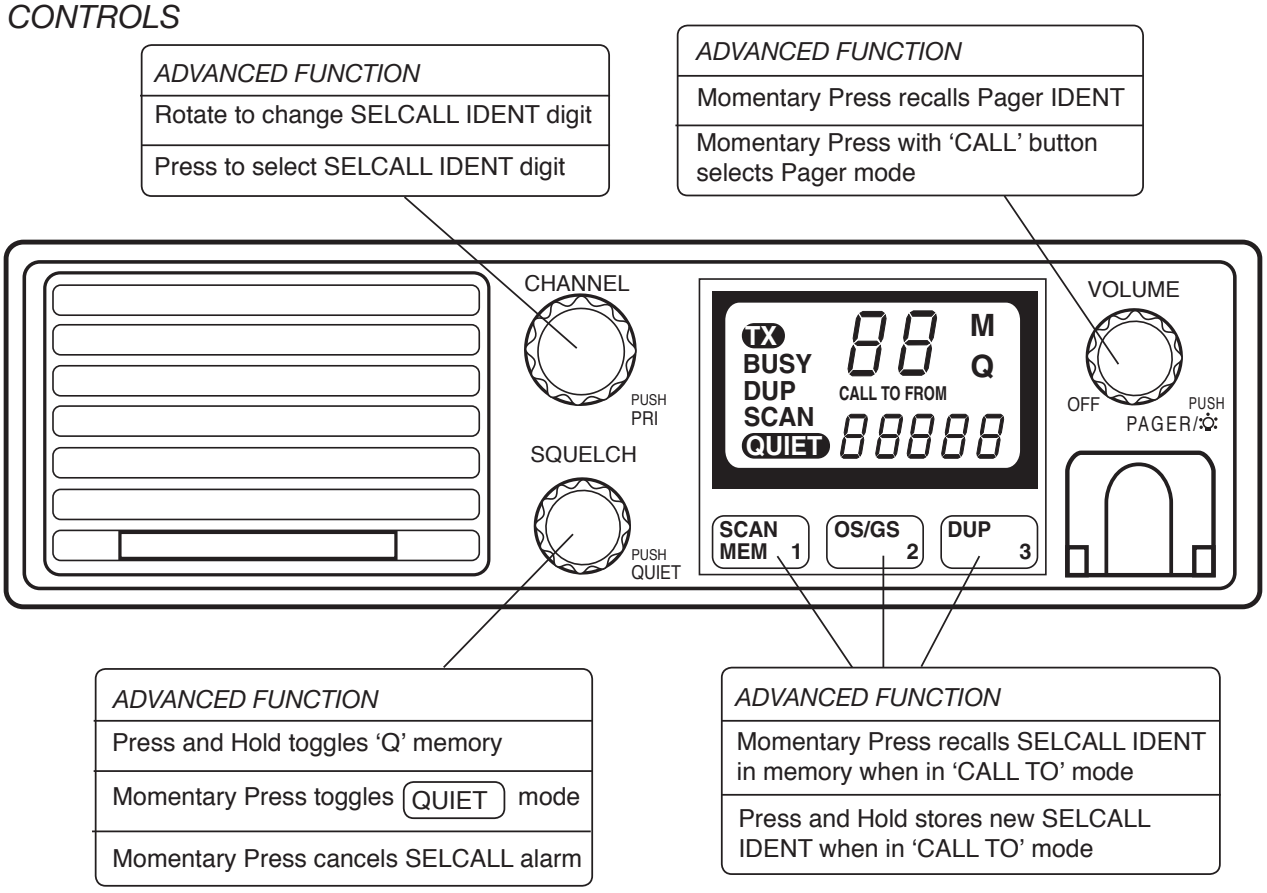
Whenever your TX4200 successfully decodes a Selcall signal, it automatically transmits an acknowledge response back to the caller. This informs the caller that their Selcall transmission has been successful and that your radio is alerting you to the call. The acknowledge signal is heard at the callers end as two quick beeps.

ADVANCED OPERATION

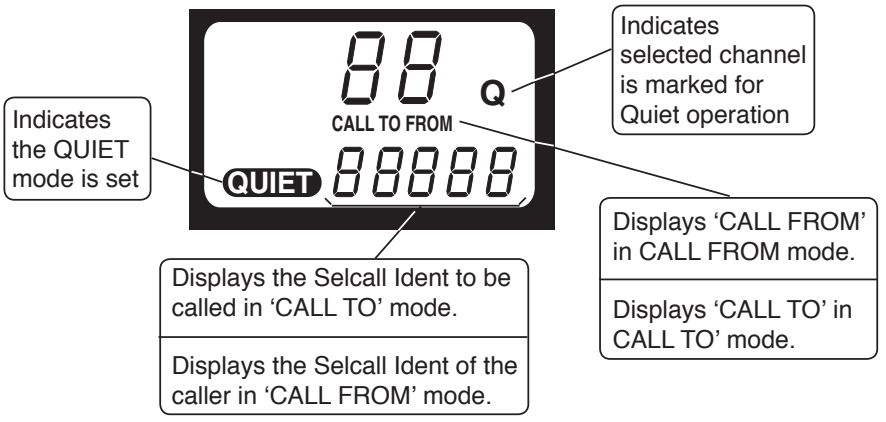
The following section describes the operation of the TX4200's advanced features. We recommend that you become comfortable with the basic operation of you radio before using these features.

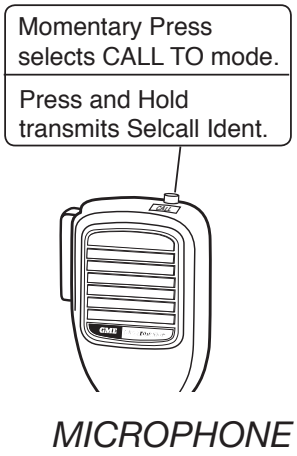
The operation of the signalling features have been designed so that once they have been programmed, an inexperienced operator can quickly learn to send and receive Selcalls with ease. As experience grows, you will quickly learn to make full use of all the features.

CONTROLS



LIQUID CRYSTAL DISPLAY





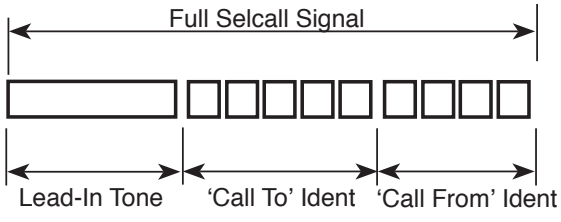
MICROPHONE

Selcall Ident

Before anyone can call you using Selcall you will need to give them your Selcall Ident number. The Selcall Ident number is printed on the label attached to the radio's rear panel. We suggest you write this number on the inside front cover of this manual in case the label is no longer accessible after the radio is installed. You can also view your Selcall Ident on the LCD using the procedure described on page 12.

Transmitting a Selcall Ident

When your TX4200 transmits a Selcall signal, a tone sequence is sent which consists of a 'Lead-in' tone, a 'Call To' Ident and a 'Call From' Ident. The 'Call To' Ident is the Ident of the radio you are calling and the 'Call From' Ident is your own radio's Ident.



The 'Lead-in' tone is there simply to ensure that the other person's receiver has enough time to lock onto the Selcall signal before the actual Ident codes are sent.

The 'Call To' Ident is the Ident of the radio you are calling. It is this code that will activate the alarm in the other persons receiver.

The 'Call From' Ident is the last 4 digits of your own radio's Ident. This is used to display your Ident on the other receiver's LCD to inform them of who it was who called.

Thankfully, your TX4200 handles all of this automatically. All you need to do is tell your radio who it is you want to call.

Note: The TX4200 Selcall system adheres to the 40ms CCIR 5 tone standard. This means that is compatible with the 5 tone Selcall systems used in other radios. The only difference is that only the TX4200 (and the earlier model TX4000) has the ability to transmit and display the callers Ident. If a radio with a standard Selcall system receives a Selcall from a TX4200 it will decode it normally and will simply ignore the extra 'Call From' Ident attached to the end of the signal. Similarly, if your TX4200 receives a standard Selcall signal, it too will decode normally except that there will be no 'Call From' Ident displayed on your LCD.

Selecting the Selcall 'Call To' Mode

The 'Call To' mode is used to make a Selcall transmission or to programme the Selcall Ident of the radio you wish to call.

- Select the 'Call To' mode by briefly pressing the CALL button on top of the microphone. A high beep will be heard and 'Call To' will be displayed, along with a 5 digit number. This number represents the Selcall Ident to be transmitted. If you have just received a Selcall, then this Ident will be the callers Ident, otherwise it will be the last Ident you called.

- To cancel the 'Call To' mode, briefly press the CALL button again.

NOTE: *If your radio is left untouched in this 'Call To' mode it will automatically cancel back to the normal mode after about 20 seconds.*

Programming the 'Call To' Ident

The Selcall Ident you wish to call can be programmed as follows:

1. Select the 'Call To' mode by briefly pressing the CALL button. 'CALL TO' will be displayed

   The right hand digit of the 5 digit Ident is now flashing. This flashing digit indicates the digit to be programmed.

2. Select the number required in the flashing digit position by rotating the channel selector switch left or right.

3. When the required number is displayed, briefly press the channel knob. A high beep will be heard and the next digit will flash.

4. Repeat steps 2 and 3 to programme all 5 Selcall Ident digits as required.

Once the Ident has been entered, you have 20 seconds to transmit it (otherwise the 'Call To' mode will be cancelled and the Ident will be lost).

Transmitting the Selcall Ident

To transmit the Selcall Ident you must be in the 'Call To' mode.

1. Select the 'Call To' mode by briefly pressing the CALL button.

2. Check that the Selcall Ident displayed is the one you want to send. If it is not, re-programme it as described earlier.

3. Now press and hold the CALL button for about 1.5 seconds until a high beep is heard. The TX indicator will appear and the Ident will be transmitted. You don't need to continue to hold the CALL button down once the TX indicator appears. The TX4200 will keep transmitting by itself until the complete Ident has been sent.

If the Selcall was successfully received by the radio you were calling, it should automatically acknowledge by transmitting one or two quick beeps back to you (the response you hear will depend on the brand of radio you are calling). This confirms that your signal has been received and the other radio's alarm is now beeping.

Answering an Incoming Selcall using Selcall

If you have been away from your radio and you return to find 'CALL FROM' displayed, along with an Ident, you can call the person back as follows:

1. Select the CALL TO mode. The last 4 digits of the callers Ident will be transferred to the 'CALL TO' mode. Your TX4200 then assumes the first digit is the same as yours and inserts it automatically.

2. Press and hold the CALL button until the Selcall is sent.

NOTE: If you get no response after several tries, it is possible that the first digit of the callers Ident was not the same as yours. In this case, briefly press CALL to recall the Ident and try reprogramming another number as the first digit.

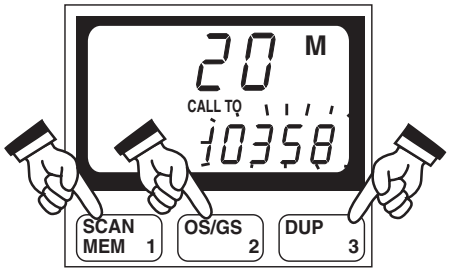
Storing Selcall Idents in the Ident Memory

Your TX4200 is fitted with 3 Selcall Ident memories. This allows you to store 3 frequently called Idents. The Ident memories can be programmed as follows:

1. Select the 'Call To' mode. CALL TO will be displayed along with a 5 digit Ident.

2. If required, programme the displayed Ident as described earlier.

3. When the required Ident is displayed, press and hold (for about 3 seconds) one of the three buttons below the display labelled 1, 2 or 3. While the button is being held, all 5 Ident digits will flash, then a high beep will be heard as the Ident is stored.



Recalling Selcall Idents from Memory

1. Select the 'Call To' mode. CALL TO will be displayed.

2. Briefly press memory button 1, 2 or 3 (whichever contains the Selcall Ident you wish to recall). The recalled Ident will be displayed.

3. To transmit the recalled Ident, press and hold the CALL button.

SELCALL QUIET MODE

The Selcall Quiet mode can be programmed for operation on individual channels. This means that some channels can be set for quiet operation (will only unmute when your Selcall Ident is received) while others can be left open (allowing ALL signals to be heard).

Two programming steps are required for full Quiet operation.

Step 1 allows you to mark the required QUIET channels with a '*Q*'. This indicates that only these marked channels will be fully muted when the QUIET mode is selected.

Step 2 activates the QUIET mode. When the QUIET mode is activated, only those channels marked with '*Q*' will remain muted to all signals unless your Selcall Ident is received. Channels NOT marked with '*Q*' will remain as open channels and will allow ALL signals to be heard even though the QUIET mode is active.

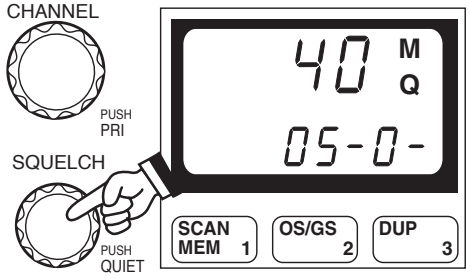
When your TX4200 leaves the factory, it does not have any channels programmed with '*Q*' .

Marking Channels for QUIET operation

To programme an individual channel so that it will operate as a QUIET channel when the QUIET mode is activated:

1. Select the required channel. (If the receiver is Scanning or in another operational mode, cancel the mode and return to normal operation).

2. Press and hold the Squelch knob until a high beep is heard. '*Q*' will appear on the display to the right of the channel number indicating the channel is now set for QUIET operation.



3. Repeat steps 1 and 2 to programme any other channels required for QUIET operation.

Unmarking Channels set for QUIET Operation

The procedure for unmarking QUIET channels is exactly the same as for marking them:

1. Select the channels you wish to unmark. There will be a '*Q*' on the display when that channel is selected.

2. Press and hold the Squelch knob until a low beep is heard. '*Q*' will disappear from the display indicating the channel is no longer set for QUIET operation.

Operating in the QUIET Mode

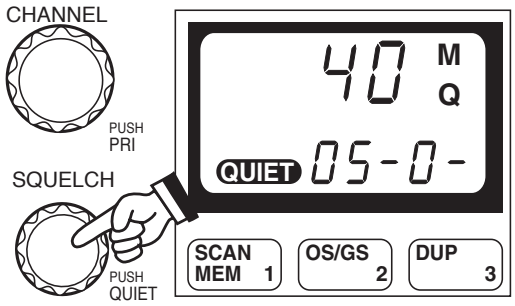
Channels marked with a '*Q*' will not actually operate as QUIET channels until the QUIET

mode is activated.

To activate the QUIET mode:

1. Rotate the channels switch until a channel marked with '*Q*' is displayed.

2. Briefly press the Squelch knob. A high beep will be heard and '*QUIET*' will appear on the display.



Now, any channels marked with '*Q*' will remain muted to all signals unless your Selcall Ident is received. You can confirm this by rotating the channel selector switch and noting that '*QUIET*' is only displayed on channels which are also marked '*Q*'.

Note: The QUIET mode cannot be activated unless there is at least 1 channel marked with '*Q*'.

Deactivating the QUIET Mode

1. Select a channel with '*QUIET*' displayed.

2. Briefly press the Squelch knob. A low beep will be heard and '*QUIET*' will disappear from the display.

Receiving a Signal in the QUIET Mode

- If a signal is received on a QUIET channel but your Selcall Ident is not detected, the channel will appear busy but no sound will be heard from the speaker. This means you will not be disturbed by the signal because it was not meant for you.

- If a signal is received on an open channel, the signal will be heard whether it was meant for you or not because that channel has not been marked with '*Q*'.

- If a signal containing your Selcall Ident is received on any channel - OPEN or QUIET - the QUIET mode will be cancelled and the alarm will beep to alert you to the call. In addition, the callers Ident will be displayed. The channel will now be open for normal transmission and reception.

To cancel the alarm, briefly press either the Squelch knob or the PTT switch. The 'Call From' Ident will remain on the display so you will know who called.

Returning the Call

If you want to call the person back using Selcall:

1. Briefly press the *CALL* button. The callers Ident will be transferred to the 'Call To' mode.

2. Now press and hold the *CALL* button. The Selcall will be transmitted.

Scanning in the QUIET Mode

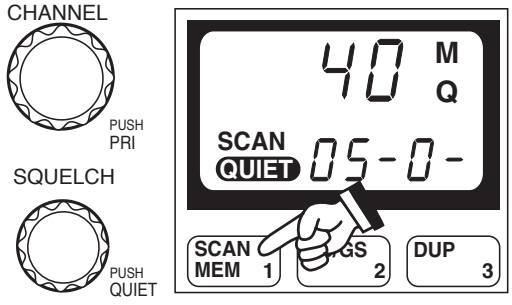
The TX4200 will allow you to scan while the QUIET mode is active. This lets you monitor a group of QUIET channels or a combination of QUIET and OPEN channels.

To Scan in the QUIET mode:

1. Select the required scan group by pressing OS/GS. Ensure the channels you wish to monitor are programmed into the scan group you have selected.

2. Select the channels you want to be QUIET and mark them with '*Q*' by pressing and holding the Squelch knob.

3. Press SCAN. The radio will begin scanning



and ‘SCAN’ will be displayed.

4. Now activate the QUIET mode by briefly pressing the Squelch knob. '*QUIET*' will be displayed indicating the receiver is now scanning in the QUIET mode.

- If a signal is received on an OPEN channel but your Selcall Ident is not detected, scanning will pause while the channel is busy and will resume 5 seconds after the channel becomes clear again.

- If a normal signal is received on a QUIET channel but your Selcall Ident is not detected, it will be ignored and scanning will continue.

- If a signal containing your Selcall Ident is received on any channel - OPEN or QUIET - both SCAN and QUIET modes will be de-activated and the receiver will lock onto that channel. In addition the alarm will beep to alert you to the call and the callers Ident will be displayed. The channel will now be open for normal transmission and reception.

To cancel the alarm, briefly press either the Squelch knob or the PTT switch. The 'Call From' Ident will remain on the display so you will know who called.

To resume scanning in the QUIET mode, press SCAN, then briefly press the Squelch knob. '*SCAN*' and '*QUIET*' will be displayed.

Important Tips on Scanning in the QUIET Mode

For your TX4200 to decode a Selcall signal, it needs to be listening on the channel that the Selcall is transmitted on. This is normally just a matter of selecting a specific channel and then telling others which channel number they should call you on. However, if your radio is scanning a number of other channels as well, it may not be listening on the correct channel at the time the Selcall transmission starts. This means that by the time the receiver gets around to scanning the *correct* channel, some of the Selcall Ident tones may be missed. If this happens, the Selcall will not be recognised and you will miss the call.

The TX4200 gets around this by transmitting a half second ‘lead-in’ tone at the start of it's Selcall transmission. This tone delays the sending of the Selcall Ident to give the receiver more time to scan the *correct* channel. If the receiver is able to scan the *correct* channel in time, it will then be able to successfully detect the Selcall Ident which follows. It is this feature which allows you to scan groups of channels while in the QUIET mode and still receive Selcalls.

However, despite the fast scanning speed of the TX4200 (10 channels per second), it can only scan 5 channels in half a second. Therefore, for reliable selcall detection when scanning, it is recommended no more than 5 channels be scanned in any group>

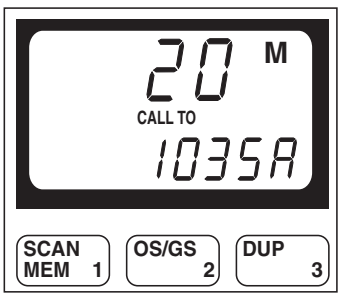
i.e. 5 channels in OS mode

or 2 channels plus the Priority channel in the GS mode.

GROUP CALLS

The TX4200's Selcall system includes a Group Call function which allows you to call up to 10 radios simultaneously. This could be useful in an emergency situation where you may need to transmit a message to all radios in your group.

The group function works by allowing you to programme a special group code into the last digit of the Selcall Ident you are transmitting. When this group code is received it will substitute for any other number in the last digit position. Provided the first 4 digits of the transmitted Selcall Ident match those of the in-built receiver Ident, the Selcall alarm will be



activated as if the full 5 digit Ident had been received.

The group code appears as an 'A' in the last digit of the Selcall Ident when displayed on the LCD.

Example

Transmitting the Ident 12037 will only activate the receiver which is programmed with the Ident 12037

However, transmitting 1203A will activate all receivers with Idents 12030 through 12039 (a total of 10 receivers).

To make use of the group call function, your TX4200 fleet should have Selcall Idents which are in sequence.

i.e. 12030, 12031, 12032 etc

If the receivers in your TX4200s do not have sequential Selcall Idents and you need to make use of the group call function you can arrange for you dealer to re-programme your TX4200s *(see section on dealer programming options).*

Programming and Sending a Group Call

Programming and sending a group call is identical to the normal Selcall operation.

1. Select the 'Call To' mode by briefly pressing the CALL button.

2. Programme the Selcall Ident as described earlier. Ensure the last digit is programmed with 'A'.

3. Now press and hold the CALL button for about 1.5 seconds until a high beep is heard. The TX indicator will appear and the group call will be transmitted.

There will be no acknowledge response from the other radio's when sending a group call. This is to prevent all the radios from trying to acknowledge at the same time.

Receiving a Group Call

Receiving a group call is identical to receiving a standard Selcall except that a low beep alarm sound is heard instead of the standard high beep alarm. The Caller's Ident will be displayed on the LCD in the usual way.

PAGING FUNCTION

The PAGE function is primarily designed to be used when you need to leave your radio unattended but need to be informed immediately if a call specifically intended for you is received. The PAGE function allows your TX4200 to automatically call another UHF receiver whenever your TX4200's Selcall Ident is received. To receive the Paging call you will need a second UHF receiver with a CCIR compatible Selcall fitted (such as the GME PG4000 paging receiver or another TX4200).

If your TX4200 receives it's Selcall Ident while in the PAGE mode, it temporarily switches to a paging channel, checks that the channel is not in use, then transmits a programmed PAGING Ident to the other receiver. It then returns to the channel on which the original call was received, activates it's own Selcall alarm and displays the Caller's Ident. *(If the Page channel is busy, your TX4200 will wait until it is clear, then transmit the Page Ident).*

NOTE: *To allow your TX4200 to operate in the PAGE mode while your vehicle is unattended, your TX4200 must be wired so that it has a continuous 13.8 Volt power source even when the vehicles ignition is switched off (please see installation instructions).*

Example: You have your TX4200 installed in your vehicle but you often have to leave your vehicle unattended. Each time you leave your vehicle, you set your TX4200 to the PAGE mode and you carry a GME PG4000 paging receiver with you (your TX4200 has previously been programmed with a Paging channel and a Selcall Ident that matches the Paging receiver).

When your TX4200 receives a call containing it's Selcall Ident it quickly switches to your Paging receiver channel and transmits your Paging receiver's Selcall Ident. Your TX4200 then returns to the channel on which the call was received and sounds it's own alarm. Meanwhile, your Paging receiver is beeping to

inform you of the call.

When you return to your vehicle, your TX4200 is displaying the callers Ident and is sitting on the channel on which the call was received. You are then able to return the call.

Similarly, the Page function can be used to alert you to calls made to your TX4200 Base station. This leaves you free to walk around your office, building or property with a Paging receiver, knowing that you will be alerted to any calls made to your base station.

Page Channel

The Page channel is factory set to UHF CB channel 23 *(see section on dealer programmable options)*. If channel 23 is not suitable for use in your area you can arrange for your dealer to reprogramme it to another of the 40 UHF CB channels. If using the TX4200 with the PG4000 paging receiver we recommend you leave it set to channel 23 because this is the channel on which the PG4000 is set.

Programming the PAGE Ident

The PAGE Ident can be programmed and stored in it's own separate Page memory. It is programmed exactly the same as any other Selcall Ident and is stored by pressing the Volume knob.

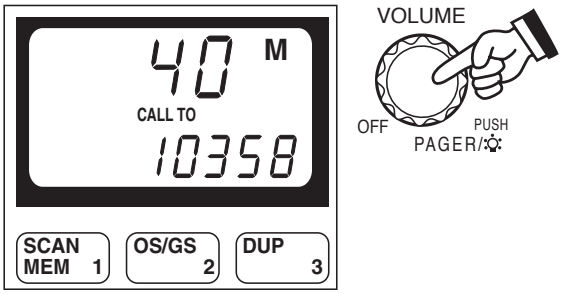
The Page Ident must be programmed to match the Ident of the receiver you will use to receive the Paging call.

1. Select the 'Call To' mode by briefly pressing the *CALL* button. '*CALL TO*' will be displayed.

   The right hand digit of the 5 digit Ident is now flashing. This flashing digit indicates the digit to be programmed.

2. Select the number required in the flashing digit position by rotating the channel selector switch left or right.

3. When the required number is displayed, briefly press the channel knob. A high beep will be heard and the next digit will flash.



4. Repeat steps 2 and 3 to programme all 5 Paging Ident digits as required.

Once the Ident has been entered, you have 20 seconds to store it (otherwise the 'Call To' mode will be cancelled and the Ident will be lost).

- To store the Ident into the Page memory, press and hold the Volume knob for a few seconds. During this time the Page Ident will flash, after which a high beep will be heard. The Ident is now stored.

Viewing the Page Ident Memory

To view the Ident stored in the Page memory:

1. Select the CALL TO mode using the *CALL* button.

2. Briefly press the Volume knob.

   The Page Ident will appear under '*CALL TO*' on the display.

Selecting the Page Mode

The Page function can be used either while monitoring a single channel or while scanning in either of the two scan modes.

Single Channel Use

1. Check that you have the correct Pager Ident stored in the Page memory *(see "Viewing the Page Ident memory")*. Unless you have specifically reprogrammed it, it should not have changed.

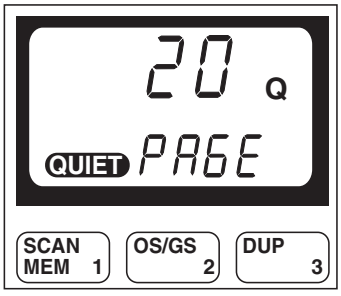
2. Rotate the channel selector switch to select the channel you wish to monitor.

3. Select the Page mode as follows:

• Press and hold the *CALL* button on the microphone.

• Briefly press the Volume knob.

• Release the *CALL* button.



'PAGE' will appear on the display and the LCD backlighting will dim to conserve power (in case the TX4200 is to be left in Page mode for an extended period)

When the Page mode is selected, the receiver will operate normally and will monitor all signals on the selected channel. In addition, if the selected channel is marked with 'Q', the QUIET mode will also be selected. The receiver will then remain in that state unless it receives your Selcall Ident (or unless you manually deselect it).

NOTE: *You cannot transmit while PAGE mode is selected.*

If your Selcall Ident is received, your TX4200 will:

• Quickly acknowledge back to the caller with two quick beeps.

• Change to the Page channel and transmit the Page Ident.

• Return to the selected channel and sound the radio's Selcall alarm. *'CALL FROM'* will be displayed.

To cancel the alarm, briefly press the Volume knob. The PAGE mode and the alarm will be cancelled and the caller's Ident will be displayed.

• If you wish to return the call:

Briefly press the *CALL* button. The TX4200 will enter the 'CALL TO' mode and the caller's Ident will automatically be inserted ready for calling. Press and hold the *CALL* button to make the call.

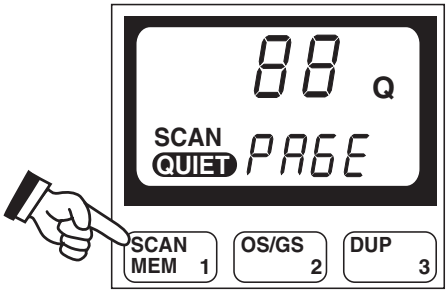
• If you don't wish to return the call:

Briefly press the Squelch knob to clear the caller's Ident.

Scanning in the PAGE mode

You can scan in the PAGE mode as follows:

1. Select the required scan mode using the OS/GS button.



2. Check that the required scan channels are programmed into the selected scan memory, then press *SCAN*.

   (see "Important tips on scanning in the QUIET mode").

3. Now select PAGE mode.

   As in the single channel mode, *'PAGE'* will appear and the backlighting will dim. In addition SCAN will be displayed and the channel numbers will change rapidly as they are being scanned. If any of the channels are marked with 'Q', the QUIET mode will also be selected.

If your Selcall Ident is received on one of the scanned channels, your TX4200 will:

• Quickly acknowledge back to the caller with two quick beeps.

• Change to the Page channel and transmit the Page Ident.

- Return to the channel on which the call was received and sound the radio's Selcall alarm. The Scan function will be cancelled and *'CALL FROM'* will be displayed.

To cancel the alarm, briefly press the Volume knob. The PAGE mode and the alarm will be cancelled and the caller's Ident will be displayed.

- If you wish to return the call:

  Briefly press the *CALL* button. The TX4200 will enter the CALL TO mode and the caller's Ident will automatically be inserted ready for calling. Press and hold the *CALL* button to make the call.

- If you don't wish to return the call:

  Briefly press the Squelch knob to clear the caller's Ident.

ALARM FUNCTION

The TX4200 is fitted with a 3.5mm stereo socket on the rear panel to allow connection to external equipment. The socket provides a Selcall ALARM output and an External ALARM Trigger Input..

SELCALL ALARM OUTPUT

The Alarm output is an electronic switching circuit controlled by the TX4200's Selcall function. It is designed to activate an external alarm device (bell, horn, buzzer or lamp) whenever your TX4200's Selcall Ident is received. This will alert you to the call in situations where you may not be within listening range of your TX4200's internal speaker.

Example 1

Your TX4200 is unattended inside an office and the internal speaker alarm cannot be heard in the workshop or warehouse.

Example 2

Your TX4200 is installed in your vehicle and the internal speaker alarm cannot be heard when you are away from your vehicle.

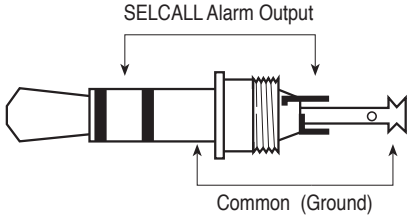
Operation

When your TX4200 receives it's Selcall Ident, the normal internal speaker alarm will sound urgently for about 10 seconds. It will then slow to about 1 beep every 3 seconds until you manually cancel it *(see section on programmable dealer options)*. The External Alarm output only activates during the Urgent period of the Selcall Alarm and will cause the External Alarm device to pulse on and off for about 10 seconds. The External Alarm then stops although the Internal Speaker Alarm will continue to beep slowly until cancelled manually.

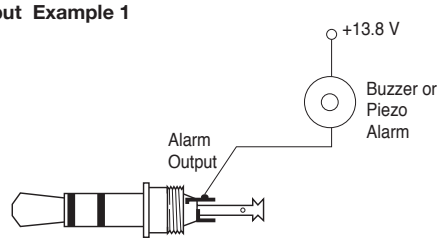
Connection

The following diagrams suggest methods of connecting various External Alarm devices.

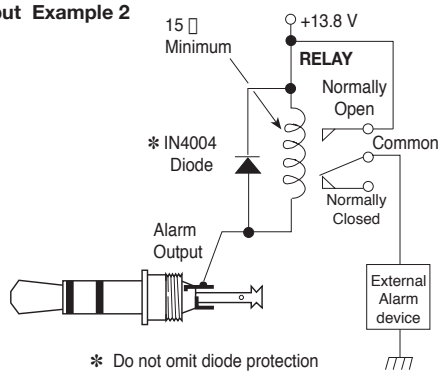
ALARM OUTPUT PLUG WIRING



Alarm Output Example 1



Alarm Output Example 2



WARNING: *The External Alarm Output is for connecting to loads of no more than 1 Amp. This is sufficient to drive piezo alarm units, small buzzers etc. If you need to connect a more powerful device, we recommend you connect a slave relay as shown below so that the relay contacts can provide the high current switching. Damage to the Alarm output switching circuit caused by connection to excessive loads may not be covered under warranty.*

External Trigger Input

The TX4200's external trigger input has been designed to accept an "active low" input from an external alarm device. "Active low" means the radio can detect an input which switches to ground (0 Volts). When the "active low" input is detected, the TX4200 will automatically switch to the Page channel and will transmit the Page Ident 3 times *(see section on dealer programmable options*) just to make sure it gets through over momentary noise or interference.

A receiver programmed with the Page Ident which is monitoring the Page channel (such as the GME PG4000 Paging receiver) will then be activated to alert you to the alarm condition.

To get the most benefit from the alarm function, the TX4200 should be connected to a continuous 13.8 Volt supply so that it is always ready to be activated by the external trigger input.

Input Alarm Priority

Activation of the Alarm Input function takes priority over all other functions. Whenever an Alarm input is detected, the TX4200 gives priority to transmitting the Alarm signal.

If your TX4200 has been turned OFF with the Volume/On/Off switch, IT WILL EVEN TURN ITSELF ON AGAIN AUTOMATICALLY to transmit the Alarm signal, then turn itself Off again (as long as it is connected to a continuous 13.8 Volt supply).

Input Alarm Operation

If the TX4200 detects an Alarm input, it will:

- Turn itself ON (if it was turned OFF).
- Select the Page channel (usually Ch 23)
- Check that the channel is clear. If the channel is busy, it will wait for a suitable break in the transmission.
- Transmit the Page Ident.

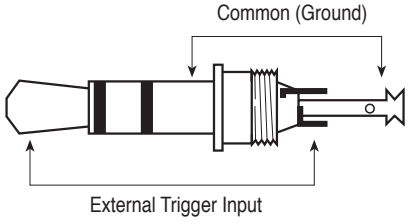
The radio will then return to whatever it was doing and 'AL' will be displayed to indicate that an alarm signal has been sent.

If the radio was turned OFF when the alarm input was detected, it will return to the OFF mode after the alarm has been sent. When the radio is turned on again using the Volume/On/Off switch, it will have retained it's last used settings and 'AL' will be displayed to indicate that an alarm signal has been sent.

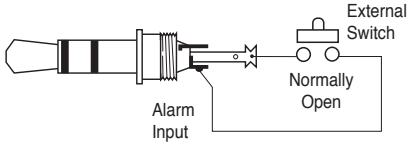
The 'AL' can be cancelled by pressing any knob or button on the front panel.

Connecting to an External Device

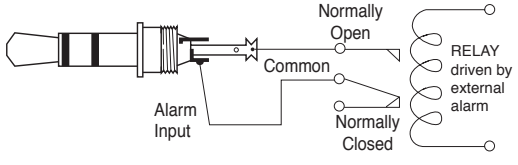
ALARM INPUT PLUG WIRING



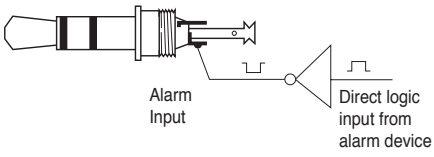
Alarm Input Example 1



Alarm Input Example 2



Alarm Input Example 3



DEALER PROGRAMMABLE OPTIONS

The TX4200 is provided with a wide variety of programmable functions. During the development of the TX4200, extensive research was conducted to identify specific user requirements and shortfalls in current UHF transceiver technology. The result is a transceiver that can be optioned to meet a wide range of applications and personal tastes.

Many of these options can be selected directly by using the TX4200's controls. However, some options can only be set using an external programmer.

The following is a list of available options indicating which are user selectable and which are dealer programmable. The initial factory settings are also indicated. Below the list are descriptions of how to use those options which are not factory defaults (operation of the factory default options are already described in this manual).

FUNCTION	*FACTORY SETTING*	*USER PROG.*	*DEALER PROG.*
Channel Memories			
Pre-programmed Open Scan (OS) Channels:	All	Yes	Yes
Pre-programmed Group Scan (GS) Channels:	None	Yes	Yes
Pre-programmed Priority Channel:	Ch 40	Yes	Yes
Pre-programmed Duplex Channels:	Ch 1-8	Yes	Yes
Selcall.			
Selcall Enabled/Disabled:	Enabled	No	Yes
Pre-programmed Receiver IDENT:	1XXXX	No	Yes
Pre-programmed Selcall Memories (M1 - M3):	None	Yes	Yes
Enable/Disable reception of Group Calls:	Enabled	No	Yes
Allow reception of Group Calls of up to 10 radios:	Enabled	No	Yes
Allow reception of Group Calls of up to 100 radios:	Disabled	No	Yes
Enable/Disable transmission of Group Calls:	Enabled	No	Yes
Allow transmission of group Calls to 10 radios:	Enabled	No	Yes
Allow transmission of group calls to 100 radios:	Disabled	No	Yes
Allow reception of full 5 digit appended Ident:	Enabled	No	Yes
Allow transmission of full 5 digit appended Ident	Disabled	No	Yes
Quiet Function			
Pre-programmed Quiet channels:	None	Yes	Yes
Open receiver when Selcall received:	Enabled	No	Yes
Re-enter Quiet mode after 10 seconds if no response:	Disabled	No	Yes
Paging			
Pre-programmed Page Ident:	1XXXX	Yes	Yes
Enable/Disable Page function:	Enabled	No	Yes
Pre-programmed Page Channel:	Ch 23	No	Yes
Group Scan Mode			
Either - Enable Group Scan mode:	Enabled	No	Yes
Or - Enable Call Waiting mode:	Disabled	No	Yes
(Cannot have both enabled or disabled at the same time)			

Using the Dealer Programmable Options

Up to this point, this manual has only described the operation of the functions and features programmed into the TX4200 when it leaves the factory. The alternative 'Dealer Programmable Features' described above were not included in the main section of the manual to prevent confusion.

If you decide to have your TX4200 re-programmed to one of the dealer programmable options, you should refer to this section for a description on how to use the new feature.

Group Scan Mode Options

Group Scan Mode ***(factory setting).***

This is the standard factory setting. A full description of the factory default Group Scan mode is described on page 10 of this manual.

Call Waiting Mode
(dealer programmable option)

The 'Call Waiting' mode is a variation on the original Group Scan mode. It allows you to scan a group of channels and monitor the Priority channel. As with the standard 'Group Scan' mode, the Priority channel is scanned after every second 'group' channel. If a signal appears on a 'group' channel, the receiver will 'lock' onto it, and will remain there while the channel is busy, AS LONG AS THERE ARE NO SIGNALS ON THE PRIORITY CHANNEL. During this time, the receiver will continue to check the priority channel for signals every 2 seconds, resulting in a series of breaks in the reception of the locked channel. If no further signals are heard after 5 seconds, the radio will resume scanning.

If a signal appears on the priority channel at this time, the receiver will switch straight to the priority channel and will give 3 short beeps to warn you that the channel you are listening to has changed. It will then stay on the Priority channel for as long as it remains busy. However, if no further signals are heard after 5 seconds, the radio will resume scanning.

If a signal appears on any channel (group or Priority), and the receiver 'locks' onto it, you can pick up the microphone and talk on that channel.

- If the 'locked' channel is the Priority channel, the scan function will pause indefinitely and the radio will remain on that channel. When you have finished with the Priority channel, press the *SKIP* button on the microphone to resume scanning.

- If the 'locked' channel is a 'group' channel, transmitting on that channel enables the 'Call Waiting' mode. You can now communicate on the channel in the usual way and the receiver will continue to check the Priority channel for signals every 2 seconds. If a signal appears on the Priority channel, the receiver will give you 3 short beeps to warn you that the Priority channel is *now busy, but will not switch over*. Instead it will remain on the 'group' channel, giving you the option of staying where you are or *manually* switching over to the Priority channel. During this time, the lower section of the display will flash as a visual reminder that the Priority channel is busy. If the Priority channel remains busy, the radio will repeat the 3 beeps at 15 second intervals.

  Once you have finished your conversation on the 'group' channel, simply wait a few seconds. Normal scanning will then resume automatically.

  To switch to the Priority channel while in the 'Call Waiting' mode, briefly press the Channel selector *PRI* knob. Scan will be cancelled.

NOTE: If the PTT switch is pressed *while scanning*, it will be ignored and a low beep will be heard.

Appending 4 or 5 digit Idents to your Selcall Signal

When your TX4200 transmits a Selcall to another TX4200, it attaches it's own Ident to the end of the signal. This allows the other radio to display your Ident so they will know who it was who called (see "Transmitting a Selcall Ident"

on page 15).

The factory setting of the TX4200 is to attach the last 4 digits of your 5 digit Selcall Ident to the end of your Selcall signal. This is to ensure 100% compatibility with the large quantity of TX4000 radios currently in service that are designed to display only the last 4 digits of the callers Ident. In the majority of cases, this is perfectly suitable because almost all radios transmit and receive Selcall signals with the same first tone.

However, for those situations where you may need to talk to or receive Selcall signals from radios with a variety of first tone values, the TX4200 can be programmed to append the full 5 digits of your Selcall Ident to your Selcall signal. Then, when your signal is received by another TX4200, your entire 5 digit Ident will appear on their display.

Your TX4200 is able to identify whether the incoming appended Ident contains 4 or 5 digits and will automatically display it in the correct sequence. If the Ident is a 4 digit type, the first digit will be replaced with a dash '-'.

NOTE: *If you intend to communicate with TX4000 radios using Selcall, it is recommended that you stick to using 4 digit appended Idents. This is because the TX4000 was not designed to expect more than 4 appended digits. If 5 digits are sent, the TX4000 will simply decode the first 4 digits and wrongly display them. The last digit will be lost.*

i.e. If your TX4200 appended your Ident as:

12345

a TX4000 would display it as:

1234

when it should have been displayed as:

2345

SENDING AND RECEIVING GROUP CALLS TO UP TO 100 RADIOS

The TX4200 is factory set to allow you to send and receive Group Calls to up to 10 radios. If there are more than 10 radios in your fleet and you need to Group Call them, your dealer can reprogramme your radio to send and/or receive Group Calls to up to 100 radios. If required, your dealer can also disable the Group Call function completely or arrange to receive Group Calls but not send them (or vice versa).

Warning: *Careless use of the Group Call option can cause interference to other radios who are not in your group but whose Selcall Ident falls within your Group Call range.*

The TX4200 makes Group Calls to up to 100 radios using the same method as for 10 radios (see "Group Calls" on page 19), except that you must programme an *'A'* into *fourth* digit position of the Selcall Ident *(instead of the fifth)*. When this Group Call is received, the 'A' will substitute for any digit in the fourth and fifth digit positions.

Example

Transmitting the Ident 12537 will only activate the receiver which is programmed with the Ident 12537

However, transmitting 125A- will activate all receivers with Idents 12500 through 12599 (a total of 100 receivers).

To make use of the group call function, your TX4200 fleet should have Selcall Idents which are in sequence.

i.e. 12500, 12501... 12502 etc

If the receivers in your TX4200's do not have sequential Selcall Idents and you need to make use of the group call function you can arrange for you dealer to re-programme your TX4200's *(see section on dealer programming options).*

If your radio has been programmed to let you make Group Calls to up to 100 radios, you can call them as follows:

1. Briefly press the *CALL* button to enter the 'CALL TO' mode. The last used Ident will be displayed and the last (fifth) digit will be

flashing.

2. Briefly press the channel selector once so that the next (fourth) digit flashes.

3. Rotate the channel selector until *'A'* is displayed in the flashing digit position. The fifth digit will automatically change to a '-'.

4. Now press and hold the *CALL* button to make the call.

   Note:*You will not hear any acknowledge beeps from radios you called in Group Call mode (otherwise they would all try to call back at once.*

SETTING THE WAY YOUR RADIO RESPONDS TO A SELCALL WHEN IN THE 'QUIET' MODE

Normally, if your TX4200 is in the *'QUIET'* mode when it receives it's Selcall, the *'QUIET'* mode will be automatically cancelled to allow you to talk to the person who called (see page 18) and the radio will beep continuously until you cancel it. This is fine if you are always near your radio. But if you leave your radio unattended for long periods of time and a Selcall is received, the radio will remain "open' until you get back allowing any chatter on the channel to be heard in the speaker. In addition, the Selcall alarm warning beeps will continue until you return. If the radio is in your vehicle, this could attract the attention of undesirable people. In an office environment it could be very annoying to others.

If you find these situations occurring, you can arrange for your dealer to modify the way your radio responds to a Selcall when it is the QUIET mode. The following options are available:

- *Re-enter QUIET mode after 10 seconds:* This setting is normally *disabled* (radio <u>does NOT</u> re-enter QUIET mode after 10 seconds and the Selcall-alarm beeps continuously).

  If you change this setting to enabled, your radio will 'open' (leave the *QUIET* mode) whenever it's Selcall Ident is received but will automatically re-enter the *QUIET* mode after 10 seconds if you have not responded to the call. In addition, the Selcall 'alarm beeps' will also reset after 10 seconds. This gives you time to respond to the call if you are nearby. If you <u>do</u> respond in time (by picking up the microphone and answering the call), the radio will then remain 'open' until you manually re-select *'Quiet'*

  If you <u>do not</u> respond in time, the radio will automatically re-select the *'Quiet'* mode.

- *Open the Receiver when a Selcall is received :* This setting is normally *enabled* (the radio opens when a Selcall is received).

  If you change this setting to *disabled*, your radio will NOT open at all when it's Selcall Ident is received but will remain in the *QUIET* mode.

The two options above can be used in any combination to provide up to 4 types of response as shown in the table below.

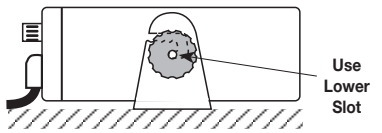
DEALER PROGRAMMABLE MODE		*RESULT*
Open Receiver when Selcall Received.	*Re-enter QUIET mode after 10 seconds*	*Radio's Response to a Selcall when in Quiet mode*
~~Enabled~~	Enabled	Receiver Opens on Selcall but re-enters QUIET mode and resets Alarm beeps after 10 seconds if no response.
~~Enabled~~	Disabled	Receiver Opens on Selcall and stays Open. Alarm Beeps continuously.
~~Disabled~~	Enabled	Receiver does NOT Open on Selcall. Alarm beeps for 10 seconds then resets.
~~Disabled~~	Disabled	Receiver does NOT Open on Selcall. Alarm beeps continuously.

INSTALLATION

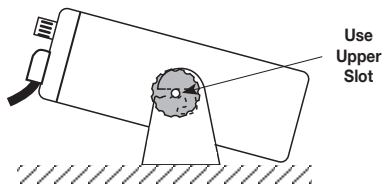
MOUNTING INSTRUCTIONS

The TX4200 is supplied with a double action mounting bracket and vibration proof washers. The mounting bracket can be secured in any convenient location (i.e. under the dash, above the dash, on the centre console etc).

The TX4200 mounting bracket is designed with a unique dual position gimbal mounting slot. This design not only allows the TX4200 to be tilted over a much greater range, but also provides a slim, low profile mounting position for installations where space is very limited.



LOW PROFILE MOUNTING



RAISED/ TILT MOUNTING

Avoid mounting close to heaters or air conditioners.

The vibration proof washers have an adhesive backing on one side. This allows them to remain in the correct position when removing or refitting the radio.

FITTING THE MICROPHONE

The microphone utilises a miniature 6 pin telephone style plug and socket.

To fit the microphone:

1. Remove the microphone socket cover by gently squeezing the two tabs together, then lifting the cover out from the bottom.

2. Position the microphone plug so the plastic tab faces downward, then press the plug into the socket until it “clicks”.

3. Refit the cover by first locating the two tabs at the cover’s top edge with the two slots in the front panel, then press the cover into place until it “clicks”.

To remove the microphone plug:

First remove the microphone socket cover as described above. Then lift the tab on the mic. plug upwards towards the plug to unlock it, and gently slide the plug outwards.

DC POWER CONNECTION

The TX4200 is designed for 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. If you intend to make use of the built-in Selcall features, the TX4200 must be installed so that it’s 13.8 Volt supply remains ON when the vehicles ignition is off. This is necessary to allow your radio to receive a Selcall signal when you are away from the vehicle. However, if you will not be using the Selcall functions or you do not wish to receive Selcall messages when you are absent, you can wire the radio so that it automatically turns off with the vehicles ignition switch.

RADIO REMAINS ON WHEN THE IGNITION SWITCH IS OFF

Connect the radio’s negative (black) lead to the vehicles chassis, or if preferred, directly to the batteries negative terminal

The radio’s positive (red) lead should be connected directly to the battery’s positive terminal. Alternatively, the positive lead could be

connected into the fuse box at a point which has +13.8 Volts continuously available (preferably the battery side of the ignition switch).

RADIO TURNS OFF WITH IGNITION SWITCH

Connect the radio's negative (black) lead to the vehicles chassis, or if preferred, directly to the battery's negative terminal.

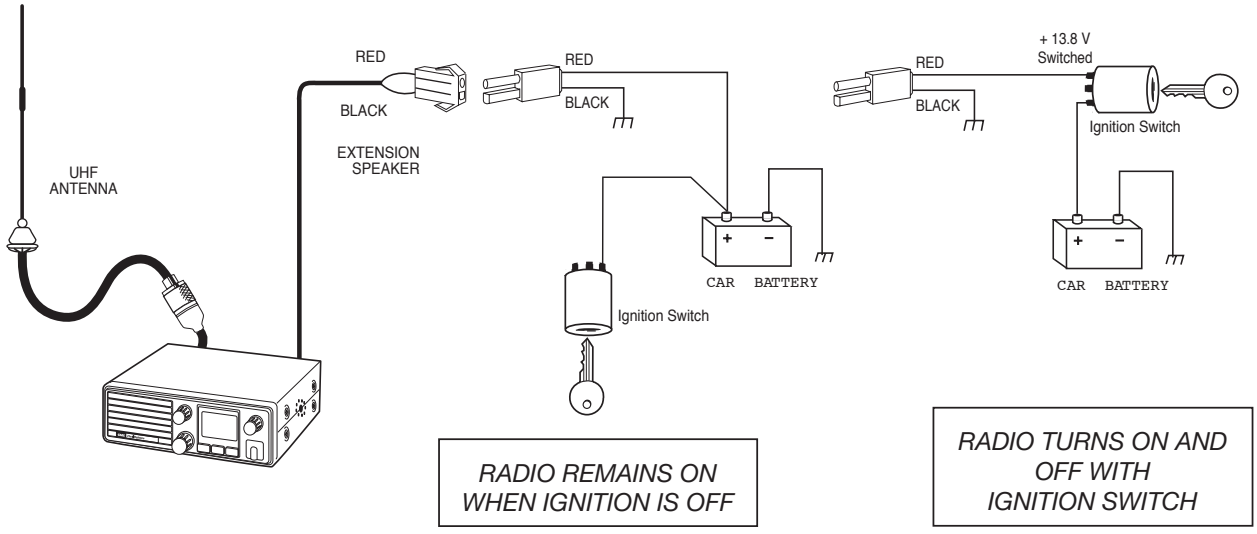
The radio's positive (red) lead should connect to an accessory point in the vehicle's fuse box. This point should supply +13.8 Volts *only when the ignition switch is ON or in the ACCESSORY position.*

ANTENNA CONNECTION

GME Electrophone can supply a wide range of mobile and base station antennas designed specifically for UHF CB communications.

The antennas are fitted with a PL259 coaxial

NEVER TRANSMIT WITHOUT AN ANTENNA CONNECTED OTHERWISE DAMAGE MAY RESULT TO THE TRANSCEIVER



REPEATERS

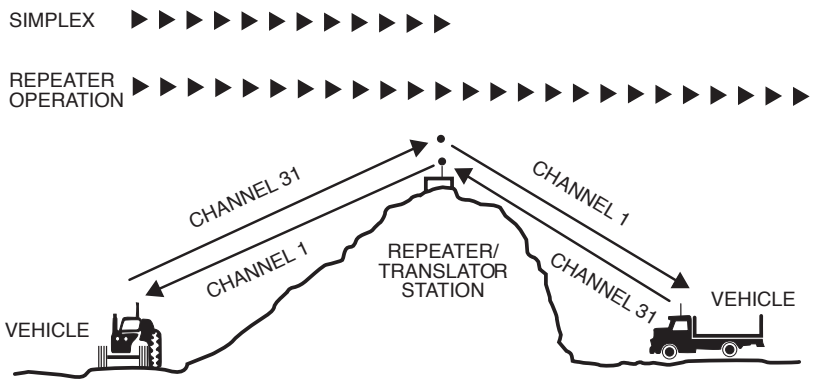
A repeater consists of a transmitter/receiver system installed in a prominent location. The repeater is designed to receive signals on a designated channel and re-transmit them on another channel.

Repeaters are usually located on hills, mountains or tall buildings. The increased elevation greatly improves the range of the repeater beyond that of normal base or mobile installations. This means that repeaters are able to receive and re-transmit signals between UHF CB stations that would otherwise be out of range of each other.

Normally, UHF transceivers transmit and receive on the same channel. This is known as SIMPLEX. However, to communicate through repeaters, your transceiver must be able to transmit and receive on different channels (known as DUPLEX). Your TX4200 is fitted with a Duplex button to allow you to operate through repeaters.

The Duplex function only operates on channels 1 to 8. When Duplex is selected your TX4200 receives on the selected channel (e.g. channel 1) but automatically transmits 30 channels higher (i.e. channel 31). The UHF CB repeater then receives your signal on channel 31 and re-transmit it on channel 1 for others to hear.

SIMPLEX/DUPLEX RANGE COMPARISON



TROUBLE SHOOTING GUIDE

Because the TX4200 contains a wide variety of functions, it is possible to be confused by the symbols on the display when learning to operate the unit. If this happens, simply reset each function and start again. The TX4200 can't be reset just by turning it off because it remembers all settings when you turn it back on. The following chart will help identify each symbol with it's function and key press. Simply locate the symbol that is being displayed on your TX4200 and read across the table to identify the function that is selected and the associated access key. Pressing this key will cancel the function.

*If all else fails, press the channel **PRI** knob. This resets most functions and takes you straight to the Priority channel.*

TX4200 DISPLAY	*FUNCTION*	*TO CANCEL*
Q	The displayed channel is marked for QUIET operation.	Press and Hold the Squelch knob.
M	The displayed channel is in Scan memory.	Press and Hold the SCAN button.
QUIET	The QUIET mode is set	Briefly press the Squelch knob.
OS	Open Scan mode is selected.	Briefy press the OS/GS button.
GS	Group Scan mode is selected.	Briefly press the OS/GS button.
TX	The radio is transmitting.	Release the PTT switch.
CALL TO	The radio is ready to send the displayed Selcall Ident.	Briefly press the CALL button.
CALL FROM	The radio has just received a Selcall from a radio with the displayed Ident.	Briefly press the Squelch knob *(if beeping, briefly press the Squelch knob twice).*
SCAN	The radio is Scanning.	Briefly press the SCAN button.
PAGE	The PAGE mode is selected.	Briefly press the Volume knob.
DUP	The selected channel is set for DUPLEX operation.	Briefly press the DUP button.
BUSY	The radio is receiving a signal or the Squelch is set too far counter-clockwise.	Wait for the channel to clear or rotate the Squelch control further clockwise.

Note: Some functions activate when the key is pressed while others activate when it is released.

WARRANTY

GME ELECTROPHONE limit this warranty to the original purchaser of the equipment.

GME ELECTROPHONE warrant this product to be free from defects in material and workmanship for a period of twelve (12) months from the date of purchase from their authorised dealer.

Should the product require servicing during this period, all labour and parts used to effect repairs will be supplied free of charge. GME ELECTROPHONE reserve the right to determine whether damage has been occasioned by accident, misuse or improper installation whereby the warranty would be void, including:

Transceivers which have been damaged due to:

(a) Incorrect or reverse polarity connection to a battery or power supply;

(b) Connection to incorrect supply voltage.

(c) Operation without an antenna or by connection to an antenna which has been incorrectly installed, resulting in damage to the transceiver's output transistors.

(d) Effects of water or moisture penetration.

(e) Non-factory modifications.

(f) Use of incorrect replacement fuse.

Procedure to be followed by claimant: In the event of a defect occurring during the twelve (12) month warranty period, the original Purchaser may return the defective unit along with suitable proof of purchase date (i.e. receipt, docket, credit card slip etc.) and a full description of the defect to the Dealer from whom the unit was purchased.

All freight charges incurred for transportation by the Dealer or GME ELECTROPHONE are the Purchaser's responsibility.

The Dealer will forward it to the closest authorised GME ELECTROPHONE Service Depot in your particular State.

GME ELECTROPHONE AFTER SALES SERVICE

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

GME Electrophone

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