T2000 Programming Software
User's Manual

PGM2000

(T2000-20-A12)

439-22000-03

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About this Guide

Welcome to PGM2000, the Tait radio programming software for T2000 Series II mobile radios. This software provides an easy way to enter settings and features into T2000 Series II radios, using a standard IBM PC (or compatible). This introductory section provides background information that you should read before using this guide.

Overview

This guide is intended as an installation guide and overall reference to the programming software. It provides the following information:

- An overview of the software
- Installation instructions and hardware setup
- Basic usage instructions
- A reference guide to all parameters and settings

Who Should Read this Guide?

This guide is designed for use by Tait retailers and distributors who are programming mobile radios for customers. Other audiences include radio fleet managers and network managers who may need to know the specific settings available for Tait T2000 Series II mobile radios.

What Do You Need to Know?

Users of the Tait radio programming software should be familiar with the following:

- Trunked and conventional radio systems
- Radio system and radio network settings and parameters
- General PC operation

What's Included?

This guide has four chapters, one appendix, and the Tait Software License Agreement.

Chapter	Description
Chapter 1	Introduces the software and provides installation and connection instructions.
Chapter 2	Provides general usage information for the software, including navigation, file saving, and printing. Explains the programming procedure for T2050 dual mode radios.
Chapter 3	Provides a complete reference to T2010 and T2015 conventional mobile radio settings.
Chapter 4	Provides a complete reference to T2020 conventional mobile radio settings.
Chapter 5	Provides a complete reference to T203x and T2040 trunked mobile radio settings.
Chapter 6	Provides a complete reference to T2060 trunked mobile radio settings.
Appendices A to F	Provide additional reference information.
License	Tait Software License Agreement

Conventions

This guide uses the following conventions:

Convention	Description
Initial Capitals	Screen fields, field names and screen buttons.
Italic	Specific entries and available settings for screen fields.
[ ]	Radio keys
ALL CAPITALS	Specific radio mode settings, the names of computer files and directories, and PC keys.

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1 Getting Started

About this Chapter

This chapter introduces the Tait Programming Package for T2000 Series II trunked and conventional mobile radios, and provides an overview of its features. It covers the following topics:

- An Overview of the Software
- Software Compatibility
- Features and Capabilities
- Components
- System Requirements
- Installing the Software
- Installing a Mouse
- Connecting the Radio

An Overview of the Software

PGM2000 is a collection of software programs, each of which is targeted to specific radio models in the T2000 Series II product range. These programs permit you to tailor a radio to your customer's specifications, and to maintain a record of settings. This record can be used to program other radios in the fleet to the same settings.

The programming package incorporates a standard Graphical User Interface (GUI) or optional text-based user interface, with item selection by keyboard or mouse. It is supported by a complete Help system.

Software Compatibility

This release of PGM2000 contains the following software versions:

- PGM201x v1.24
- PGM2020 v2.32
- PGM203x v1.37
- PGM2040 v2.48
- PGM2060 v1.03

Note: The actual software versions on the install disk may change, as new software releases are included in the package.

Features and Capabilities

The Tait programming package provides the following:

- Easy programming of all supported Tait T2000 Series II models.
- A complete Graphical User Interface (GUI) environment that does not require Microsoft Windows.
- Context-sensitive Help.
- Capability to maintain a reference copy of all radio settings.
- Full printing capability to maintain a hardcopy of your settings.

Components

Your programming package should contain:

- A 3.5” high density (1.44MB capacity) program install disk.
- A computer interface cable with a 25 pin serial plug at one end and a telephone style plug at the other.

If either of these components is missing, contact your Tait supplier.

System Requirements

The PGM2000 software requires the following:

- An IBM compatible PC with an 80386 microprocessor.
- MS-DOS version 5.0 or higher.
- 2MB of RAM. DOS and any TSRs should be loaded in high memory (consult your DOS manual for how to do this).
- A VGA colour graphics display.
- A hard disk drive with 3.5MB free space.
- A single floppy disk drive (1.44MB capacity or higher).
- A printer (if hardcopy output is required).
- A Microsoft or compatible mouse and driver (optional).

Installing the Software

Installation Requirements

PGM2000 cannot be run directly from the distribution disks. It must be installed, either on a hard disk (full or partial installation).

To perform a full installation on a hard disk you need approximately 3.5MB of free disk space.

Running the Install software

To begin installation, place the program disk in the floppy disk drive and type A:INSTALL (if the disk is in drive A) or B:INSTALL (if the disk is in drive B) at the DOS prompt. Press ENTER.

The installation program guides you through the installation process. Read the information presented on the screen carefully.

After installing the software, place the original distribution disk in a safe place.

Drive and Path options

You will be asked to enter the drive and path to which you want the software installed. If you do not change the default then the files will be placed in the \TAITPGM directory on the target drive.

We recommend that you use the default directory setting, especially if you have already installed, or intend to install, other Tait programming and support software packages.

If you are installing the programs on a hard disk you may wish to include the \TAITPGM directory in the DOS search path. This permits you to start PGM2000 from any directory. If this is not the first time you have installed PGM2000 on your computer you can check whether or not the directory is already in the search path by typing PATH at the DOS prompt (look for C:\TAITPGM).

Consult your DOS manual for information on how to add the directory to the search path if it is not already present.

Installing a Mouse

Some computers do not have a mouse driver loaded at the MS-DOS prompt. This means the mouse will not function while running the PGM2000 software.

To install the mouse, use the installation disks provided with your mouse to install the correct mouse driver. Some installation programs add a line to your AUTOEXEC.BAT file, so that the mouse driver is loaded automatically, while some programs leave this to the user.

Once the mouse driver is loaded into memory, the mouse will work in the PGM2000 software. Although the mouse is not required for use in the software, it is recommended.

Connecting the Radio

The programming kit contains an interface cable which connects the radio to the PC. Plug one end of the cable into the serial port on your computer, and the other into the microphone connector on your radio.

You can plug the connector into either the COM1: or COM2: port on your computer. (If you select COM2:, you must change the software configuration. See “Setup” in Chapter 2.)

The connector is supplied with a 25 pin serial connector. If your computer has a 9 pin serial port, you need an adaptor cable. This is generally available from your PC dealer.

When the radio is attached, it can be programmed. Make sure you turn it on first, since it must be operating for the memory to be read.

2 General Operations

About this Chapter

This chapter describes the basic operation of the Tait programming software. The operations detailed here are common to both the trunked and conventional packages. These operations are as follows:

- Program Operation Under Windows 95
- Setting Up Windows 95 Desktop Short-Cuts
- Starting the Program
- Navigation
- Using the Menu Bar
- Loading and Saving Files
- Setting Up Your System
- Reading and Programming the Radio
- Exiting the Program
- Programming T2050 Dual Mode Radios

Program Operation Under Windows 95

To run the PGM2000 software, it is first necessary to exit Windows 95, as follows.

In Windows 95, click on the Start button, and the Shut Down Windows window appears. Choose the option *Restart the computer in MS-DOS mode*, then Windows 95 will exit and restart at the DOS prompt. The software can now be run as described in the section “Starting the Program”.

Note: If Windows 95 is exited by choosing Programs then MS-DOS Prompt under the Start menu, PGM2000 will not run reliably.

Setting Up Windows 95 Desktop Short-Cuts

Windows 95 desktop short-cuts to the PGM2000 programs can be used, provided the short-cut is configured as follows.

Click on the short-cut with the right mouse button, select Properties, then TAB to the program. Click on the Advanced button and select the box MS-DOS Mode.

When the short-cut is activated, the PGM2000 program will run, after first exiting Windows 95. Windows 95 will restart when the PGM2000 program is exited.

Starting the Program

Change to the Tait programming software directory by typing CD\TAITPGM at the DOS prompt.

Start the software by entering one of the following commands, depending on the type of radio you wish to program:

Radio	DOS Command
T201x	**pgm201x**
T2020	**pgm2020**
T2030, T2033, T2035	**pgm203x**
T2040	**pgm2040**
T2060	**pgm2060**

Note: If you have modified the DOS path as described in the Installation section, then you do not need to change to the TAITPGM directory first.

By default the program provides a graphical user interface. If you do not have a graphics screen, or would prefer a text display, you can force the program to start in text mode by adding /T after the program name (for example PGM2010 /T). There must be a space between the program name and the slash (/).

When you enter the program name, the startup screen appears, displaying information about the program. You should quote the software version number shown there when consulting with your Tait supplier about programming issues.

When starting up PGM203X or PGM2040 you will be asked to enter a password. This password determines which of the programming items you are allowed to change. Refer to the chapter on Trunked Settings for more information.

Navigation

This programming package can be used with a mouse or a keyboard or both. To navigate through the program using a mouse, simply place the arrow on the screen onto the menu option you wish to choose (or the option button you wish to press), and click the left mouse button once.

All functions can be selected using the keyboard, according to the following tables:

General Operations

Key	Function
F1	Access Help. A single press calls Help for the current field. A double press
F2	Insert a row into an array box
F3	Delete a row from an array box
F5	Refresh the display
Alt-F1	Help
Alt-F5	Restore window size to normal
Alt-F7	Move window
Alt-F8	Re-size window
Alt-F10	Maximise window
Alt-Space	Open a keyword drop-down menu

Edit Functions

Key	Function
Insert	Toggle insert/overtype mode (default is insert)
Delete	Delete character to the right
Backspace	Delete character to the left
Enter	End edit and validate new value
Esc	Close a window
Alt	Select the window menu bar. Access menu bar keywords by pressing the underlined character (‘hot key’).

Navigation

Key	Function
Tab	Move to next window object
Shift-Tab	Move to previous window object
Home	Go to top of screen
End	Go to bottom of screen
Ctrl-Home	Go to beginning of line
Ctrl-End	Go to end of line
Page Down	Go down one page in current screen
Page Up	Go up one page in current screen
	Scroll up in a vertical list or pop up menu
	Scroll down in a vertical list or pop up menu
	Move left along menu items in the menu bar
	Move right along menu items in the menu bar

Control Keys

Key	Function
Ctrl-F2	Insert an element into an array box
Ctrl-F3	Delete an element from an array box
Ctrl-Break	Immediate exit from program
Ctrl-C	Exit from program
Ctrl-Arrow	Moves scroll bars within an array

Using the Menu Bar

Most of the software features are available from the keywords on the menu bar. The File keyword lets you create, save and load files, the Radio keyword lets you read and program a mobile radio, the Edit keyword lets you change programmable options, and the Utility keyword lets you print results and change some of the facilities in this program.

The Quit keyword takes you out of the program and back to the DOS prompt. The keywords on the Menu bar can be selected by clicking on them with the mouse, or by holding the ALT key and pressing the underlined letter (*F* for File, for example).

Online help is available by pressing the F1 key. Help is "context sensitive," meaning that the type of information displayed is always relevant to the point in the program where you pressed the F1 key. Pressing F1 twice provides general help information, including an overview of keyboard commands.

The box that appears in the centre of the screen when you first start the program tells you the version number of this software. If you experience any problems while using the software, you should note this number before contacting your Tait dealer for assistance.

Using Text Fields

Text fields appear as simple boxes on the screen. To enter data into a text box, select the box using TAB or click on it with the mouse. The text cursor appears within the box. Type in the data, and press ENTER to set the new value.

Using Screen Buttons

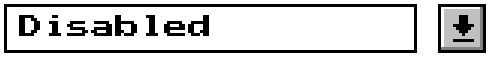
Some options use screen buttons for settings. A screen button is simply a grey box on an option screen containing a default setting such as *Enabled*.

These buttons simply toggle between two settings. Click once on the button, and it changes to the alternate value.

Control menus and dialogue boxes also use screen buttons for commands. These are easily recognisable, and contain such entries as OK and Clear. Click on the button to activate the command or select it with the TAB key, and press ENTER.

Using List Boxes

Many of the options screens provide a range of available settings in a list box. A list box is a field on the screen that has an arrow at the right side, as in the following example.

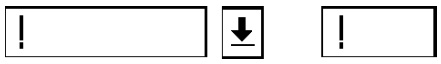


To use a list box with a mouse, click on the arrow to the right of the field to obtain a drop-down menu containing selections. Click on the appropriate selection to set the new value.

To use the keyboard, move to the list box with the TAB key. Press ENTER to obtain the drop-down menu. Use the arrow keys to scroll to the required value and press ENTER to set the selection.

Using Array Boxes

Option screens that require entry of many lines of data, each containing the same type of information, often use array boxes. An array box consists of lines of other types of data entry fields and appears on the screen as in the following example.



Where a line of data entry fields is shown with exclamation points in each, it means that there is currently no data in the array box.

To enter data into an array box, you must first add a new line by pressing F2. This inserts a line into the array and reveals its default settings. Some fields will become list boxes or screen buttons, while others will become text entry fields. You can delete a line from an array by selecting any field on the line and pressing F3.

Loading and Saving Files

The File keyword menu enables you to store and retrieve the options you program into a particular mobile.

This lets you keep a copy of a customer's requirements in an easily reusable form if you are required to program more of the same type of mobiles at a later date. The files may be stored on hard disk or on a floppy disk that you can store in a safe place for future use.

All filenames are automatically given the extension ".DAT" unless you specify something else.

Note: The use of filenames greater than 8 characters is not supported.

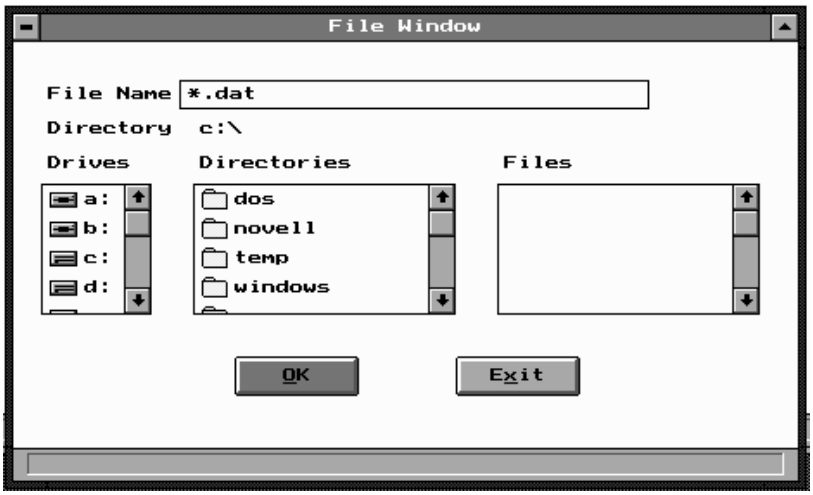
Creating a New Specification File

Use the New option from the File keyword menu to create a new specification file. This sets all fields to their default values, so it is important that you save any work you have entered first.

Loading Specification Files

Use the Load option from the File keyword menu to retrieve a mobile specification file from disk. Click on Load, and the File window appears.

From this window, you can enter a filename directly in the Filename box or search for a file to load. The Files list displays the files in the current directory in alphabetical order. To search for a filename use the scroll arrows. You can use the DOS wildcard characters "*****" and "**?**" to aid in your search.



The Drives list box allows you to search all of the drives attached to your computer. Select the drive to be used for file searches by using the cursor keys or mouse.

The Directories list box shows all of the directories immediately available. If you select a directory, the next (included) level of directories appears. The previous level of directories is marked by the ".." symbol. Selecting this with the mouse or cursor and ENTER keys returns you to the previous directory level.

Saving Specification Files

Use the Save option from the File keyword menu to save the mobile specification file that you are currently working on. If the file has been saved to disk already, the program saves it with the same filename, overwriting the original file. If it has not been previously saved, the File window appears, permitting you to specify a name for the file.

In either case, the Validation window appears, asking whether you wish to validate the file. You should select Yes to avoid saving a file which may cause the mobile to malfunction as a result of illogical or impossible options.

It is especially important to run a final validation check if you have not run validation after completing work in the Edit windows.

The Save As option calls up the File window so that you can save your file by a different name. This is useful if you wish to use an existing specification file as a template for other files.

Setting Up Your System

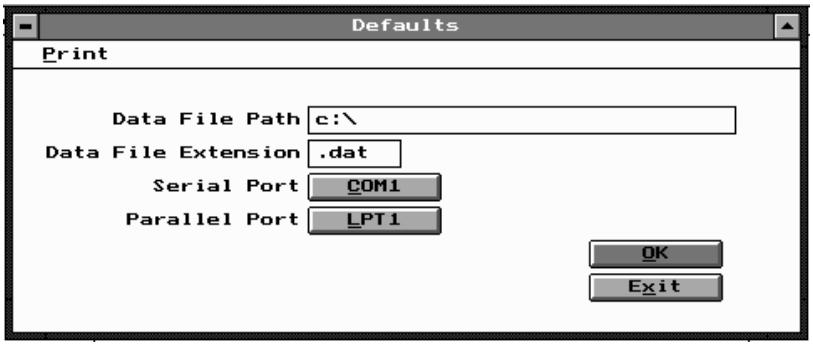
The Tait programming software permits you to alter certain settings to match your computer setup and operations. These settings are the file and port defaults, and the screen appearance and colour. Changes are made using the menu from the Utility keyword. The Default menu item lets you change port and file location settings; the Colours item lets you set the overall appearance of your screen.

The Print option on the Utility keyword menu lets you print the data you have entered.

Setting Defaults

The file location and extension can help you organise your programming data. The port locations are most important because they determine the location of your printer and the specific hardware connection used in attaching a radio to your system for programming.

File and port settings can be changed by using the Defaults window, which appears when you click on Default from the Utility keyword menu.



Available settings are as follows.

Available Default Settings:

Option	Description
Data File Path	The data file path determines the default directory on your hard disk that will be used for storing radio data files.
Data File Extension	The data file extension determines the default filename extension for data files.
Serial Port	The serial port is the hardware connection to which all data will be sent for programming radios. It can be either COM1: or COM2:. The default is COM1:. If your mouse or a modem is using COM1:, you may need to change this setting. To change the setting, click on the Serial Port button.

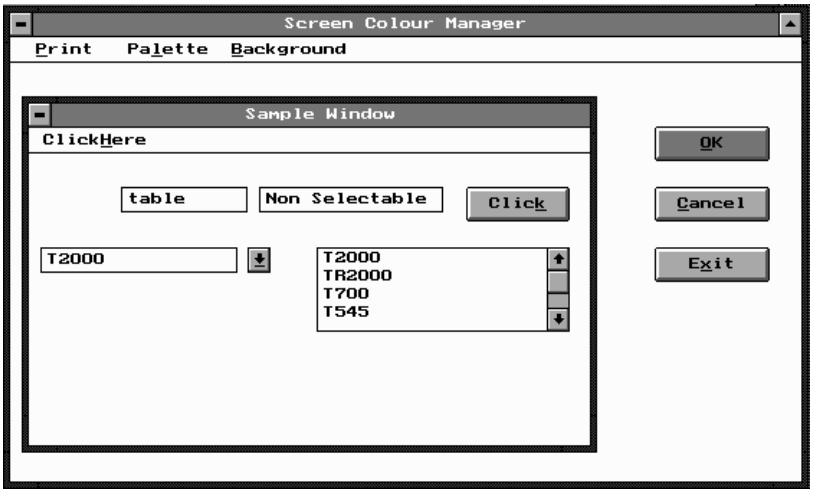
Available Default Settings: *(continued)*

Option	Description
Parallel Port	The parallel port setting here determines where data to be printed is sent. The default setting is LPT1. If you are using several printers, you may wish to change this setting to send data to the preferred printer. To change the setting, click on the Parallel Port button and choose LPT2.

Setting Screen Colours

Each PGM2000 package permits you to change the appearance of the screen to suit your own preferences. Screen changes are made through the Screen Colour Manager, which you access from the Utility keyword menu by selecting Colours.

You can change the palette or background colour. A sample of the current setting appears in the Sample Window. Use the Palette and Background keyword menus to make your changes. To complete your colour changes, click on the OK button.



Printing Current Data

Select the Print option from the Utility keyword menu to print all of the radio settings that you have stored. Printing cycles through all of the settings windows and sends the settings in plain ASCII form to the default parallel port. (See "Setting Defaults" earlier in this section if you need to change the port).

Note that the text is printed as a simple ASCII stream. You may have to change your printer settings to accept plain ASCII text.

Reading and Programming the Radio

The Radio keyword enables you to store the operating information you create in this programming package in the mobile with the Program command. It also enables you to retrieve that information from a mobile in order to change it, with the Read command.

Reading Radio Settings

Select the Read option from the Radio keyword menu to read current settings from the mobile using the serial communications port specified in the Utility menu.

The Radio window appears with the message "*Establishing Serial Link to Radio...*" in the status bar. A box is provided for some information specific to the mobile but this will remain blank until the program has successfully read the file from the mobile.

For the program link to be established, the following items must be correct:

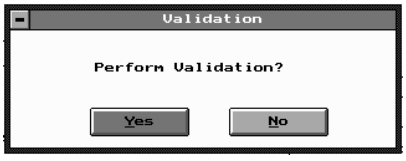
- The correct serial port must be selected using the Utility menu.
- The radio programming cable must be connected to the correct serial port.
- The radio programming cable must be connected to the accessory connector on the mobile.
- The radio type must match the software being used.
- The radio must be turned on.

When the communications link is established, this is indicated on the mobile control head in the following ways:

Radio	Control Head Indications
T2010	All channel indicators illuminate.
T2015	"00" appears in the display window.
T2020, T2040 & T2050	"- - PROG - -" appears in the display window.
T2030	SVC, WAIT, GO, TX and C1 indicators illuminate.
T2035	"-UU" appears in the display window.
T2060	All indicators illuminate and the display window is blank.

Programming the Radio

Select the Program option from the Radio keyword menu to transfer the settings to your radio. When you select this option, the Validation window appears first.



Select Yes to run a final validation of your settings. This is important because it avoids the problems that can occur with impossible or conflicting radio settings.

During validation, the program cycles through all of the settings screens, then loads the data into the radio.

Leaving the Program

To leave the program, escape from the current menu, then click on the Quit. A window appears, asking whether you wish to quit. Click on Yes or press ENTER, and you will return to the DOS prompt.

Programming T2050 Dual Mode Radios

T2050 Series II radios combine all the features of the T2020 conventional and T2040 trunked radios. The T2050 is first programmed using PGM2020, while the radio is in T2020 mode, then programmed using PGM2040, while the radio is in T2040 mode.

To change mode, follow these steps.

1. Press the Function (Fn) key on the T2050 control head. The Scrolling Available (▲▼) indicator appears in the T2050 display window.
2. You are now able to use the cusor (*/#) keys to scroll through a list of choices.
3. When the "*Mode Chg*" option appears, select by pushing the Enter (↵) key. You will now see the new mode (either "*T2020*" or "*T2040*") in the T2050 display window.

Note: The T2050 cannot operate in T2020 and T2040 mode simultaneously.

3 T201X Settings

About this Chapter

This chapter describes the settings that may be selected when programming a T2010 Series II or T2015 Series II mobile radio, using PGM201X.

Note: T2010 and T2015 Series II radios are programmed with test channels before leaving the factory. For this reason, the control head display will not function correctly until the radio is first programmed.

Settings are divided into the following groupings under the Edit keyword:

- Specifications
- Options
- Channels
- Enhanced Scanning Setup (T2015 Only)
- Selcall Identity I
- Selcall Identity II
- Selcall Setup

The Enhanced Scanning Setup and Selcall options are Disabled (grey) and cannot be used unless set to *Enabled* (Enhanced Scanning), or *Fitted* (Selcall), in the Specification Screen.

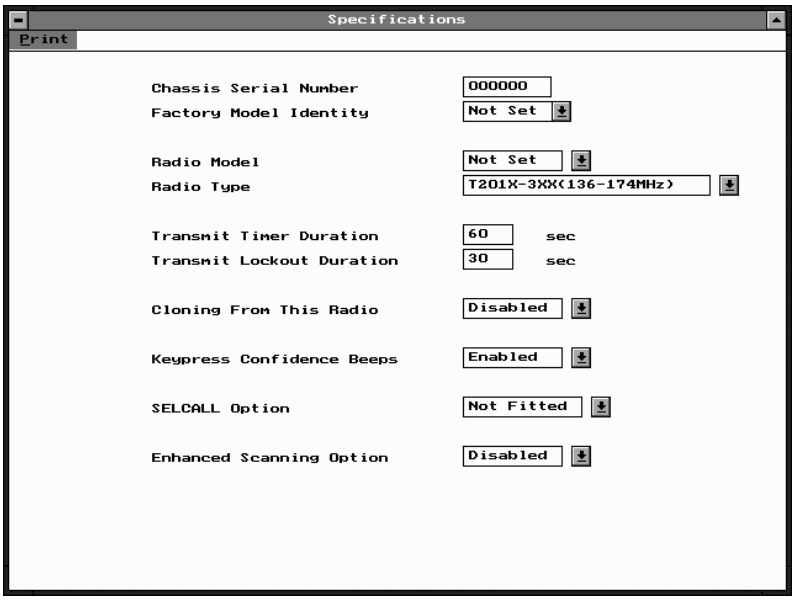
Radio Software Compatibility

- PGM201X can be used to program either a T2010 Series II or a T2015 Series II, provided the radio is fitted with version 2.xx, or higher, radio firmware.
- T2015 Series II radios must be programmed with version 2.2x radio software before the enhanced scanning option is available.
- T2010 and T2015 radios fitted with version 1.xx radio firmware must be programmed with the appropriate PGM2010 or PGM2015 software. Contact your local Tait dealer for programming information.

Specifications

Use the Specifications screen to specify the radio model and frequency band, and to change some basic settings. To open this screen, click on Specifications on the Edit keyword menu.

The Specifications screen appears as follows:



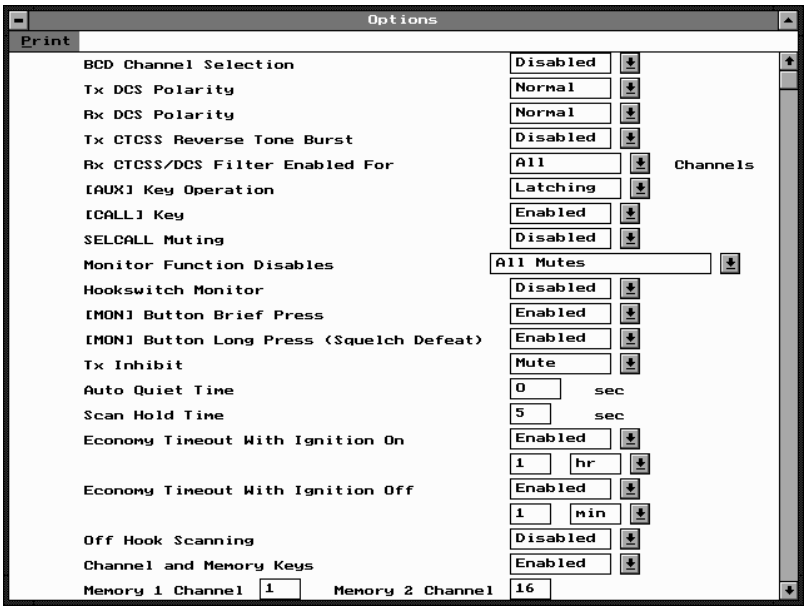
The Specifications settings are as follows:

Field	Description	Settings
Radio Model	Records the radio model.	*T2010* or *T2015.*
Radio Type	Records the radio frequency band.	Select from the available options.
Transmit Timer Duration	Sets the longest allowable continuous transmission by the mobile. When this time has almost ended, the mobile emits warning tones.	Enter a time between *0* and *250* seconds. A duration of *0* places no limit on the duration of transmissions.
Transmit Lockout Duration	Transmit Lockout Duration determines how long the mobile will be prevented from transmitting after the transmit timer has expired. This setting has no effect if the transmit timer has been *Disabled*.	Enter a time between *0* and *250* seconds. Enter *0* to disable this function.
Cloning From This Radio	Enables and disables the direct transfer of programmed settings between radios, without use of a PC.	Select *Enabled* or *Disable*d.
Keypress Confidence Tones	Enables and disables the audible confidence indicators that sound whenever a key is pressed. (This setting does not effect warning or other tones.)	Select *Enabled* or *Disabled*.
Selcall Option	Records whether on-board selective calling hardware has been Fitted to the mobile. **CAUTION** Do not set this field to *Fitted* if you do not have Selcall hardware Fitted in the radio	Select *Fitted* or *Not Fitted*. If Selcall is *Not Fitted*, then Selcall Identity and Selcall Setup screens will not be available and the Selcall facilities will be *Disabled*.
Enhanced Scanning Option	Records whether on-board software supports the enhanced scanning option.	*Enabled* or *Disabled*.

Options

Use the Options screen to set CTCSS/DCS characteristics, Muting and Monitor functions. To open this screen, click on Options in the Edit keyword menu.

The Options screen, with default settings, appears as follow:



The Options settings are as follows

Field	Description	Settings
BCD Channel Selection	Determines whether the internal BCD channel select lines may be used (for example by an external device) to set the radio channel.	Select *Enabled* or *Disabled*. If BCD Channel Selection is Enabled, the front panel channel keys will be Disabled.
Tx DCS Polarity	Use this setting to invert the polarity of all transmitted DCS codes defined in the Channels screen. Some systems may require transmitted DCS code to be inverted.	Select *Normal* or *Inverted*.
Rx DCS Polarity	Use this setting to invert the polarity of all received DCS codes defined in the Channels screen. Some systems may transmit DCS code that needs to be inverted for correct decoding.	Select *Normal* or *Inverted*.
Tx CTCSS Reverse Tone Burst	If Enabled, permits transmission of a CTCSS reverse tone burst. This increases the speed of shutdown in some repeaters and associated equipment.	Select *Enabled* or *Disabled*. The T201X is unable to detect a CTCSS reverse tone burst.
Rx CTCSS DCS Filter Enabled For	Determines channel settings for the audio filter contained in the mobile. This filter removes any CTCSS or DCS tones which may be present on the received audio. It can be switched off automatically for channels that do not have CTCSS or DCS.	If set for *All Channels*, the CTCSS/DCS filter does not switch and is active continuously. If set for *CTCSS/DCS Channels*, the filter is active only on channels which have CTCSS or DCS programmed on receive.

continued on next page

Options Settings - continued

Field	Description	Settings
[AUX] Key Operation	Selects action that the radio will perform when the AUX function key is pressed.	*Momentary*: AUX key activates the internal AUX line on the options connector in a momentary fashion, for only as long as the key is pressed. *Latching*: AUX key toggles the internal AUX line on the options connector. *External:* AUX key activates the external alert function, if Selcall is Fitted.
[CALL] Key	Determines either: • whether the CALL key initiates a call if the Selcall option is Fitted, or • whether the CALL key operates the radio's internal call-switch line if Selcall is Not Fitted	Select *Enabled* or *Disabled*. Setting this field to *Disabled* prevents the radio from sending a Selcall or operating the internal call-switch line, depending on whether Selcall is Fitted.
Selcall Muting	Selcall Muting quiets the radio until a valid Selcall is received. This function operates in addition to any sub-audible CTCSS or DCS mutes.	Select *Enabled* or *Disabled*.
Monitor Function Disables	Determines which mobile mutes are Disabled when the Monitor function is active.'	Set this field as follows: *All Mutes*: When the Monitor function is activated, both the Selcall mute and any sub-audible coding mute (CTCSS or DCS) are *Disabled*. *Selcall Mute*: When the Monitor function becomes active, only the Selcall mute is Disabled. This can only be selected if Selcall muting is Enabled. *None*: When the Monitor function becomes active, none of the mutes are disabled.

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Options Settings - continued

Field	Description	Settings
Hookswitch Monitor	Determines whether the radio monitor function will be activated by the microphone hookswitch. The setting of this field does not alter any of the other functions of the hookswitch with regard to scanning.	Select *Enabled* or *Disabled*.
[MON] Button Brief Press	If Enabled, a brief press of the Monitor key toggles the state of the Monitor function (as defined by Monitor Function Disables). Note that a brief press of the Monitor key always deactivates the Monitor function if it is active.	Select *Enabled* or *Disabled*.
[MON] Long Press	If Enabled, a long press of the Monitor key activates the squelch override. This overrides the mobile preset squelch, permitting the user to monitor all activity on a channel. This is useful in marginal conditions, where the signal is too weak to reliably override the squelch.	Select *Enabled* or *Disabled*.
Tx Inhibit	Prevents the mobile from transmitting under some radio traffic conditions	Select *None*, *Busy* or *Mute* as follows: *Busy*: Prevents the mobile from transmitting when there is any activity on the channel. • *Mute*: Prevents the mobile from transmitting when there is channel activity, but the radio remains muted. This could be caused by: • An invalid CTCSS or /DCS code • An active Selcall mute • An active external device *None*: No Tx Inhibit of any kind.

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Options Settings - continued

Field	Description	Settings
Auto Quiet Time	Specifies how long the monitor function will remain on if no activity is detected on the channel. This can be used to ensure that the unit may not be accidentally left monitoring a channel indefinitely.	Enter a time between 0 and 250 seconds. The monitor will revert to normal operation as soon as the channel becomes active or a call is made.
Scan Hold Time	Determines how long the mobile remains on a channel after communication ceases, before resuming scanning.	Enter a time from 1 to 25 seconds.
Economy Timeout **With Ignition On** **With Ignition Off**	These fields set your mobile to minimise power consumption by switching off unnecessary circuitry when there is no traffic on the selected channel. If the appropriate vehicle connections are present the radio will detect whether the vehicle's ignition is on or off, and respond appropriately.	Select *Enabled* or *Disabled*. Both timers may be set to values of up to 18 hours.
Off Hook Scanning	Use this field to enable scanning with the microphone off the hookswitch	Select *Enabled* or *Disabled*.
Channel and Memory Keys	T2015 only – Use this field to disable the radio's channel and preset memory keys for external channel changing.	Select *Enabled* or *Disabled*.
Memory 1 Channel **Memory 2 Channel**	These fields associate the two memory keys with channels defined on the Channels page.	Enter any two of the channel numbers defined on the Channels page.

Channels

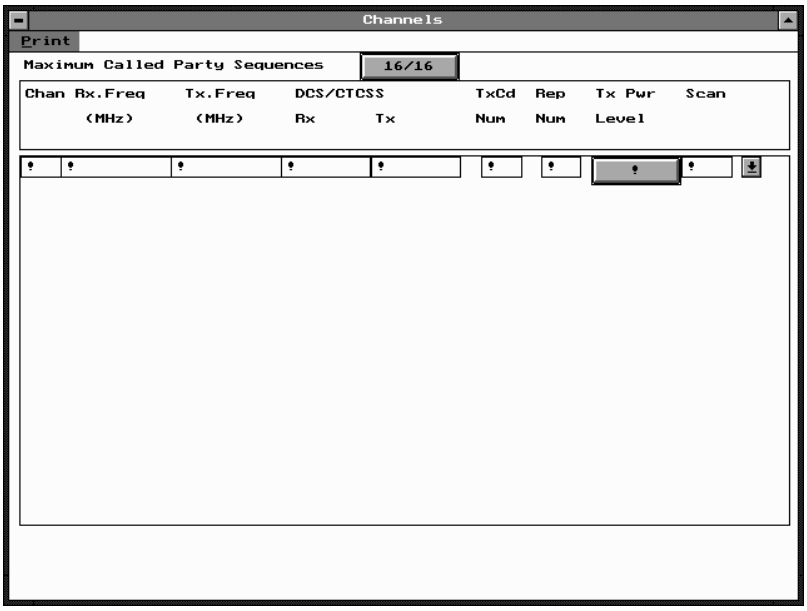
Use the Channels screen to set a list of available channels and settings for the mobile.

Note: T2010 and T2015 radios are programmed with test channels before leaving the factory. Delete these before proceeding.

To open the Channels screen, click on Channels in the Edit keyword menu.

Note: This screen uses Array Boxes for settings. Remember to press the F2 key to insert each line for data entry.

The Channels screen appears as follows:



The Channels settings are as follows:

Field	Description	Settings
Maximum Called Party Sequences	This button shows two items separated by a slash (/). The first is the maximum number of called party Selcall sequences you can set for the radio. The second is the maximum number of channels you can set for the radio. In the T2010, these variables are set to 4 each, i.e. *4/4.* In the T2015 you may toggle between two settings.	T2015 only – choose from: • *16/16 (max. 16 called party sequences / max. 16 channels), or* • *4/24* (max. 4 called party sequences / max. 24 channels). T2010 – preset to *4/4*.
Chan	Sets the channel number.	Channel numbers must be: • unique • made up of the digits 1 to 9.
Rx. Freq (MHz)	Sets the receive frequency. Frequencies must be between the upper and lower frequency limits defined by the mobile type in the Specification screen. **Note:** *There are physical constraints on the frequencies which the T2010/T2015 can receive. While the model selected may operate outside of its specified limits, operation is not guaranteed.*	Enter a frequency. This must be a multiple of either 5kHz or 6.25kHz. Enter *0* to disable the channel.

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Channels Settings - continued

Field	Description	Settings
Tx. Freq (MHz)	Sets the transmit frequency. Frequencies must be between the upper and lower frequency limits defined by the mobile type in the Specification screen. **Note:** *There are physical constraints on the frequencies which the T2010/T2015 can transmit. While the model selected may operate outside of its specified limits, operation is not guaranteed.*	Enter a frequency. This must be a multiple of either 5 kHz or 6.25 kHz. If a value of *0* is entered, the transmitter is Disabled on this channel.
DCS/CTCSS Rx	Sets the Receive Sub Audible Coding. This is the CS code or CTCSS code which the mobile must receive before the activity will be regarded as valid.	Enter a valid CTCSS frequency or a valid DCS code. Leave blank to indicate no sub-audible tone to be used on receive. (See Appendix A, "Valid CTCSS/ DCS Codes.")
DCS/CTCSS Tx	Sets the Transmit Sub Audible Coding. This is the DCS code or CTCSS tone accompanying each transmission.	Enter a valid CTCSS frequency or a valid DCS code. Leave blank to indicate no sub-audible tone to be used on transmit. (See Appendix A, "Valid CTCSS/ DCS Codes.")
TxCd Num	Selects a transmit Selcall sequence from those specified in the Selcall ID II screen. The mobile will send this sequence each time it initiates a Selcall.	Set this to one of the sequences defined on the Selcall Identity II screen by entering a number from 1 to 16.

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Channels Settings - continued

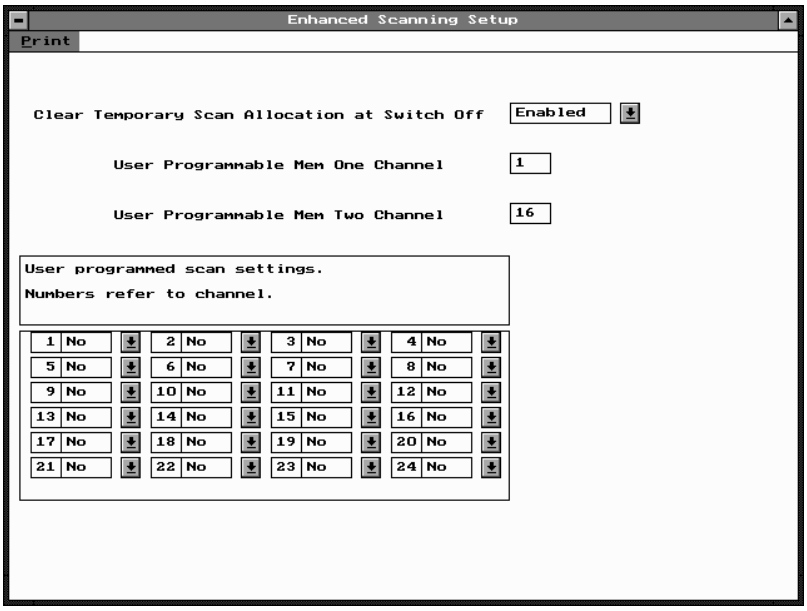
Field	Description	Settings
Rep Num	Selects a repeater Selcall sequence from those specified in the Selcall ID I screen. This is the required repeater sequence allocated to this channel.	Set this to one of four defined sequences by entering a number from 1 to 4. If no repeater sequence is required, enter *N*.
Tx Pwr Level	Sets the transmit power level.	Select *High*, *Low*, or *Off*. The high power setting delivers nominally 15W for the T2000-800 and 25W for all the other bands. Output on the low setting depends on how the radio is preset internally. Select *Off* to disable transmission for a channel. **Note:** *For low power versions the high setting delivers 7W.*
Scan	Determines whether the channel will be automatically scanned for activity when the mobile's scanning facility is activated.	Select *No* to exclude the channel from being used in the scanning operation. Select *Yes* to include the channel in the group of mobile channels to be scanned. Select *Pri* to make the channel the primary priority scan channel. Select *Sec* to make the channel the secondary priority scan channel.

Enhanced Scanning Setup

T2015 Only

Use the Enhanced Scanning Setup screen to set scanning options. To open this screen, click on Enhanced Scanning Setup in the Edit keyword menu.

The Enhanced Scanning Setup screen, with default settings, appears as follow:



The Enhanced Scanning Setup settings are as follows:

Field	Description	Settings
Clear Temporary Scan Allocation at Switch Off	Decides whether modification to the scan list by the user will be lost when the radio is switched off. Holding the PTT key down when the radio is switched on will clear the user modifications.	*Enabled* or *Disabled*.
User Programmable Mem One Channel	This is the channel that the user selects when the [M1] key is selected. This can only be changed if "Clear Temporary Allocation at Switch Off" is *Disabled* and "Channel and Memory Keys" in the Options page is *Enabled*.	Channels *1* to the maximum number of channels.
User Programmable Mem Two Channel	This is the channel that the user selects when the [M2] key is selected. This can only be changed if "Clear Temporary Allocation at Switch Off" is *Disabled* and "Channel and Memory Keys" in the Options page is *Enabled*.	Channels *1* to the maximum number of channels.

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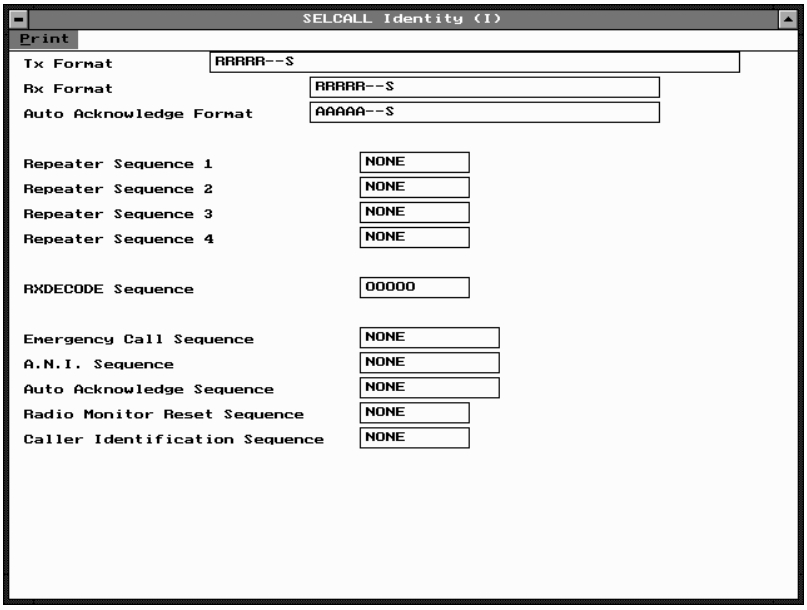
Enhanced Scanning Setup Settings - continued

Field	Description	Settings
User Programmed Scan Settings	Sets up the channels used in the scan operation. While scanning, the radio will cycle through all the selected channels until valid channel activity is detected. When activity is detected, the radio will stop on that channel until the activity stops. It will then wait for the scan hold time (set on the Options page) before returning to scan mode. One channel can be selected as the primary priority scan channel, and one channel can be set as the secondary priority scan channel. They can not be the same channel, and are automatically included in the scan list.	Select *No* to exclude the channel from the scan operation. Select *Yes* to include the channel in the scan operation. Enter *Pri* to make the channel the primary priority scan channel. Enter *Sec* to make the channel the secondary priority scan channel. **Note:** *These scan settings take priority over those set in the Channels page.*

Selcall Identity I

Use the Selcall Identity I screen to set general Selcall formats. To open this screen, click on Selcall Identity I in the Edit keyword menu.

The Selcall Identity I screen, with default settings, appears as follows:



The Selcall Identity I settings are as follows:

Field	Description	Settings
Tx Format	Defines the format of all transmitted Selcalls.	Use the following character codes: *B* Repeater ID *R* Receiver ID *C* Caller ID – Format gaps (no tone) *S* Status Set the format string according to the following rules: 1. There can be up to 7 bursts of characters made up of a group of the same character (such as *RRRRR*). The *R* burst type must always be included in the sequence. 2. The *B*, *R*, *C*, and *S* burst types can occur only once in a sequence, but the gap (-) burst can occur more than once. 3. There can be no more than 8 characters in a row without a gap burst (-). There must be at least one gap between the *C* burst and the *R* burst. 4. The status (*S*) burst has a maximum length of 2 characters. 5. If defined, the repeater burst (*B*) must be placed at the beginning of the sequence and the status burst must always be placed at the end of the sequence. 6. The number of characters in a single burst defines the number of digits of that burst for all calls (e.g. *RRR* defines a 3 digit receiver identity).

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Selcall Identity I Settings - continued

Field	Description	Settings
Rx Format	Defines the required receive format.	Use the following character codes: *C* Caller ID *R* Receiver ID – Format gaps *S* Status Set the format string as follows 1. There can be up to 5 bursts of characters made up of a group of the same character (such as *RRRRR*). The *R* burst type must always be included in the sequence. 2. All burst types except the gap (-) can occur only once in the sequence. 3. The total number of Caller ID (*C*) characters must be less than or equal to the number of Receiver ID (*R*) characters in Tx Format. 4. There can be no more than 8 characters in a row without a gap burst (-). There must be at least one gap between the *C* burst and the *R* burst. 5. If included, status must always be placed at the end of the sequence and must have the length defined in Tx Format. If there is no status in Tx Format, the length of the status burst can be up to two characters (*SS*). 6. The number of characters in a single burst defines the number of digits of that burst to which all incoming calls must conform.

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Selcall Identity I Settings - continued

Field	Description	Settings
Auto Acknowledge Format	Defines the required auto acknowledge format.	Use the following character codes: *B* Repeater ID *A* Auto Acknowledge – Format gaps *S* Status Set the format string according to the following rules: 1. There can be up to 5 bursts of characters where a burst is made up of a group of the same character (such as *AAA*). The A burst type must always be included in the sequence. 2. The *B*, *A*, and *S* burst types can occur only once in a sequence, but the gap (-) burst can occur more than once. 3. There can be no more than 8 characters in a row without a gap burst (-). 4. The status (*S*) burst has a maximum length of 2 characters. 5. The number of characters in a single burst defines the number of digits of that burst (*AAA* defines a 3 digit receiver identity).
Repeater Sequence	Sets sequences for four repeaters. The repeater address length must be as defined in Tx Format (above) by the number of Bs.	Enter the repeater address using the characters *0* to *9*, *B*, *C*, *D*, *E* or *F*.
Rx Decode Sequence	Sets the RXDECODE sequence. The Selcall address length must be as defined in the Rx Format by the number of Rs.	Enter the receive Selcall address using the characters *0* to *9*, *B*, *C*, *D*, or *F*.

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Selcall Identity I Settings - continued

Field	Description	Settings
Emergency Call Sequence	Sets the sequence to be sent when an emergency call is made.	• The number of Rs must equal the number of Rs in the Tx format. • You may add a status digit if the Tx format has status digits defined.
ANI Sequence	Sets the Automatic Number Identification (ANI) Selcall sequence to be sent during transmissions. This may be decoded to identify the mobile. This sequence can be sent at various times during a transmission, depending on ANI Position. The ANI POSITION fields (in Selcall Setup) are made non-selectable if no ANI sequence is specified.	Enter *None* or a valid five digit Selcall sequence, where each Selcall digit is a character from *0* to *9*, *B*, *C*, *D*, *F* or *G*. For the sixth digit, enter a valid Selcall status digit. This can be any one of the Selcall digits in the ranges *0* to *9*, *A* to *F*. If no status Selcall digit is required then that position should be left blank

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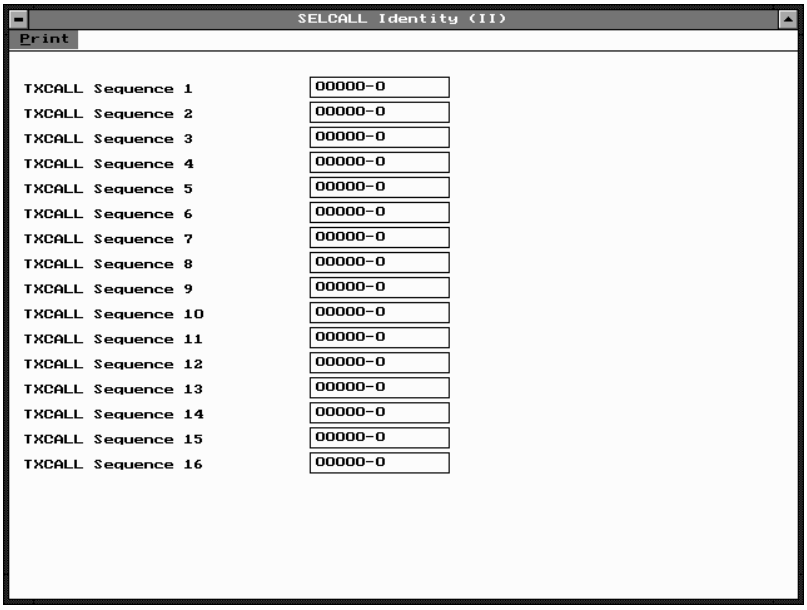
Selcall Identity I Settings - continued

Field	Description	Settings
Auto Acknowledge Sequence	Defines the sequence to be sent when the mobile has decoded a valid Selcall.	Enter the auto acknowledge Selcall address using the characters *0* to *9*, *B*, *C*, *D*, *F* or *G*.
	The address length must be as defined in Auto Acknowledge Format by the number of *A*'s.	If status is required, define it at the end of the sequence, separating it from the Selcall address by a dash. Valid numbers are limited by the maximum number of status digits defined.
		If there is one status digit in Auto Acknowledge Format then the values *0* to *15* can be entered. If two digits are used then the values *0* to *99* can be entered. If variable status is required, enter *V* in place of the number.
		If no auto acknowledge sequence is required, enter *Beep* for a beep acknowledge instead, or enter *None*
Radio Monitor Reset Sequence	Defines the sequence that may be sent to close the monitor.	The sequence must conform to the number of 'R's in the Rx Format.
Caller Identification Sequence	Defines the caller identification sequence. The length of this address must be as defined in the Tx Format by the number of *C*'s.	Enter the caller identification transmit Selcall address using the characters *0* to *9*, *B*, *C*, *D*, or *F*.

Selcall Identity II

Use the Selcall Identity II screen to set a list of TXCALL Sequences. To open this screen, click on Selcall Identity II in the Edit keyword menu.

The Selcall Identity II screen, with default settings, appears as follows:



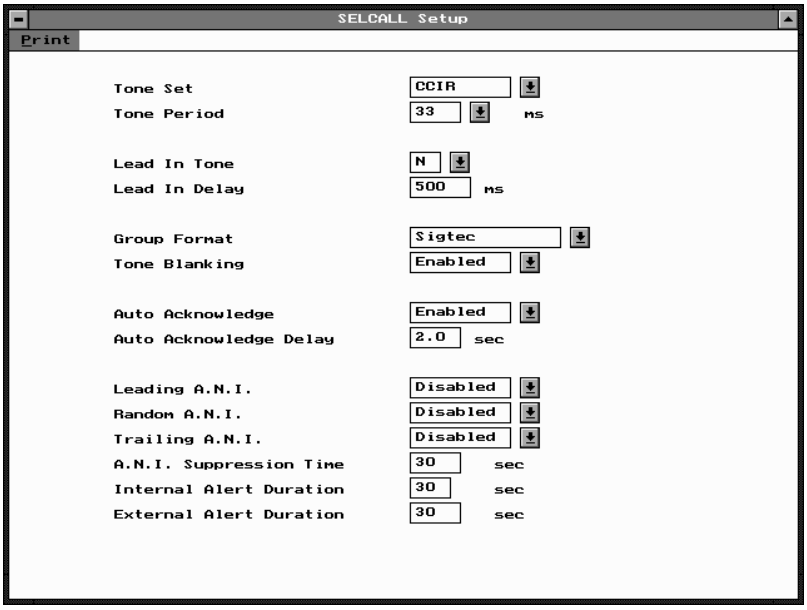
The Selcall Identity II settings are as follows:

Field	Description	Settings
TXCALL Sequence	Determines the TXCALL sequence. The address length must be as defined in Tx Format (see the Selcall Identity I screen) by the number of Rs. The number of sequences is limited by the "Maximum Called Party Sequences" variable defined on the Channel page.	Enter the transmit Selcall address using *0* to *9*, *B*, *C*, *D*, *F* or *G* for group. If status is required define it at the end of the sequence, separating it from the Selcall address by a dash. The dash before the status digit is merely a separator for programming purposes. It is not transmitted. Valid status numbers are limited by the maximum number of status digits defined. If there is one status digit in Tx Format then the values *0* to *15* can be entered. If two digits are used then the values *0* to *99* can be entered.

Selcall Setup

Use the Selcall Setup screen to set basic Selcall characteristics. To open this screen, click on Selcall Setup in the Edit keyword menu.

The Selcall Setup screen, with default settings, appears as follows:



The Selcall Setup settings are as follows:

Field	Description	Settings
Tone Set	Determines the tone set which will be used when all Selcall sequences are encoded or decoded. The particular tone set chosen will depend on the 'setup' of the system in use.	Select one of the following tone sets: *CCIR* *ZVEI-II* *EIA* *ZVEI-III* *EEA* *DZVEI* *ZVEI-I* *PZVEI* *NATEL*
Tone Period	Defines the duration of each tone in the Selcall sequence. This must be the same value for all mobiles in the system.	Select one of the following time periods (milliseconds) *20**, *33*, *40*, *50*, *60*, *70*, *100*. The 20ms tone period is not available for the EIA tone set. * To ensure reliable operation with a 20ms tone period, any inter-burst gap in a multiple sequence transmission should be 3 or 4 tone periods. A 2 tone period gap may not be decoded at the receiver.
Lead In Tone	Defines the tone sent during the lead in delay before the TXCALL sequence and the leading edge of the ANI sequence. If no tone is defined, the mobile transmits for the lead in delay time without sending any tone.	Enter a value from *0* to *9* or from *A* to *F*. Enter *N* for no Tone.
Lead In Delay	Defines the duration of the lead in tone. If no lead in tone is defined, the mobile transmits for this time period but does not send a tone.	Enter a time between *0* and *5000*ms in steps of 20.

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Selcall Setup - continued

Field	Description	Settings
Group Format	Determines the group format. The 'International' and 'Sigtec' group formats differ in the way they encode group calls. The format used depends on the system in use. All mobiles in the system should use the same format. The International group format is not defined for some Selcall tone periods and, if a non-standard tone period is used, the Selcall units may not function correctly. **CAUTION** Do not select "International" if the Selcall unit does not support this format. Otherwise the mobile function is undetermined.	Select *International* or *Sigtec*.
Tone Blanking	If *Enabled*, sets Selcall muting during reception of an incoming Selcall sequence so that only the first two tones will be heard. This has no other effect on the Selcall operation.	Select *Enabled* or *Disabled*.
Auto Acknowledge	Sets the mobile to transmit an auto acknowledge when it receives a valid call. This sequence is transmitted immediately after a Selcall is received and is followed by the internal alert sound. It notifies the person originating the call that the call was received by the mobile. **Note:** *This acknowledge is not sent in response to a group call.*	Select *Enabled* or *Disabled*.

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Selcall Setup - continued

Field	Description	Settings
Auto Acknowledge Delay	Specifies the time delay between receiving a call and transmitting the auto acknowledge.	Enter a value between *0.2* seconds and *8* seconds.
Leading ANI	Specifies whether to send a leading ANI sequence. When leading ANI is Enabled (and the ANI suppression time has expired or is Disabled) this feature is active. When the PTT is pressed, the mobile waits for the specified lead-in delay and then sends the ANI sequence. After this, the operator may talk as normal.	Select *Enabled* or *Disabled*. **Note:** *This field can only be set to Enabled if a valid sequence is defined in ANI Sequence.*
Random ANI	Specifies whether to send a random ANI sequence. When random ANI is *Enabled* the ANI is sent at a random time during the transmission.	Select *Enabled* or *Disabled*. **Note:** *This field can only be set to Enabled if a valid sequence is defined in ANI Sequence.*
Trailing ANI	Specifies whether to send a trailing ANI sequence. When trailing ANI is *Enabled* (and the ANI suppression time has expired or is *Disabled*), the ANI is sent immediately after the PTT is released, before the transmission is stopped.	Select *Enabled* or *Disabled*. **Note:** *This field can only be set to Enabled if a valid sequence is defined in ANI Sequence.*

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Selcall Setup - continued

Field	Description	Settings
ANI Suppression Time	Sets the ANI suppression timer, which determines the minimum time allowed between transmissions of the ANI sequence. This does not affect the mobile in any other way and normal transmissions are not altered. This field is not selectable if the ANI sequence is not specified.	Enter a time from *0* to *155* seconds.
Internal Alert Duration	Sets the maximum duration of the internal alert, which sounds the internal speaker when the mobile receives an individual Selcall. This alert sounds until either the timer expires or the call is answered. This duration has no effect on the internal alert that is sounded when a group call is received. When a group call is received, the mobile will ring only once.	Enter a time from *0* to *30* seconds, in steps of two. Set to *0* for a continuous timer. The alert will sound until the call is answered.
External Alert Duration	Sets the maximum duration of the external alert, which sounds an external device, if connected, when the mobile receives an individual Selcall. The external alert becomes active after the internal alert timer has expired. This field is not selectable if the internal alert duration has been set to *0* (continuous).	Enter a time from *0* to *30* seconds, in steps of two.

PGM201X

4 T2020 Settings

About this Chapter

This Chapter describes the settings that may be selected for a non-trunked T2020 Series II mobile radio. Settings are divided into the following groupings under the Edit keyword:

- Specifications
- Options I
- Options II
- Options III
- Channels I and II
- Scan Groups
- Alpha Symbols
- CCI Setup
- DTMF
- Selcall Identity I
- Selcall Identity II
- Selcall Setup
- Selcall Features
- Status Display
- Preset Channel Signalling
- Radio Calibration Parameters

The disabled (grey) options cannot be used until other options have been set to enable them. See the chapters covering each one for more information.

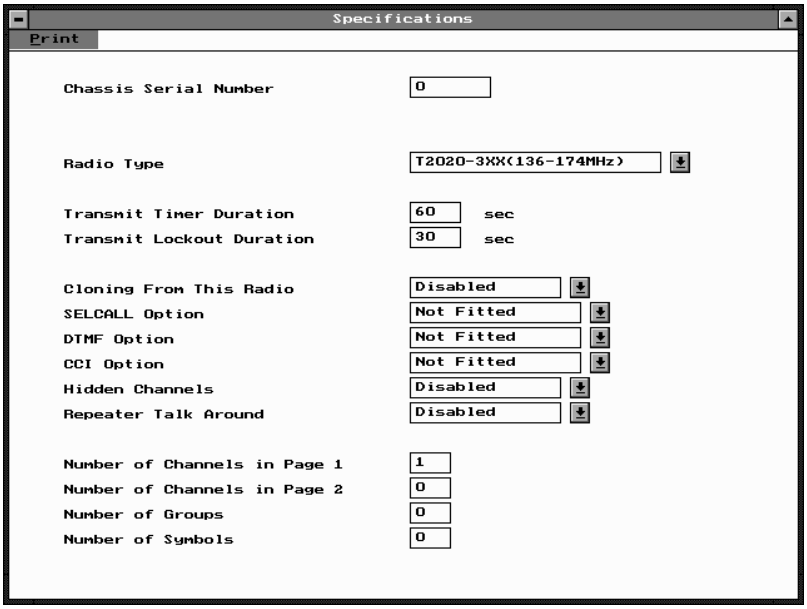
Radio Software Compatibility

T2020 radios fitted with version 2.00, or earlier, radio firmware cannot be programmed with Series II PGM2020 software. Contact your local Tait dealer for programming information.

Specifications

Use the Specifications screen to view the type of radio that this software was built to program, and to make any necessary changes to basic programming settings. To open this screen, click on Specifications on the Edit keyword menu.

The Specifications screen, with default settings, appears as follows:



The Specifications settings are as follows:

Field	Description	Settings
Chassis Serial Number	Records the serial number of the radio.	(read only).
Radio Type	Specifies the radio frequency band.	Select from the available options.
Transmit Timer Duration	Sets the longest allowable continuous transmission by the mobile. When this time has almost ended, the mobile emits warning tones.	Enter a time between *0* and *250* seconds. A duration of *0* places no limit on the duration of transmissions.
Transmit Lockout Duration	Transmit Lockout Duration determines how long the mobile will be prevented from transmitting after the transmit timer has expired. This setting has no effect if the transmit timer has been disabled.	Enter a time between *0* and *250* seconds. A duration of *0* to disable this function.
Cloning From This Radio	Enables and disables the direct transfer of programmed settings between radios, without use of a PC.	Select *Enabled* or *Disable*d.
Selcall Option	Records whether on-board selective calling hardware has been fitted to the mobile. **CAUTION** Do not set this field to *Fitted* if you do not have Selcall hardware fitted in the radio	Select *Not Fitted*, *Predictive* or *Non-Predictive*. If Selcall is *Not Fitted*, then Selcall Identity and Selcall Setup screens will not be available and the Selcall facilities will be *Disabled*.

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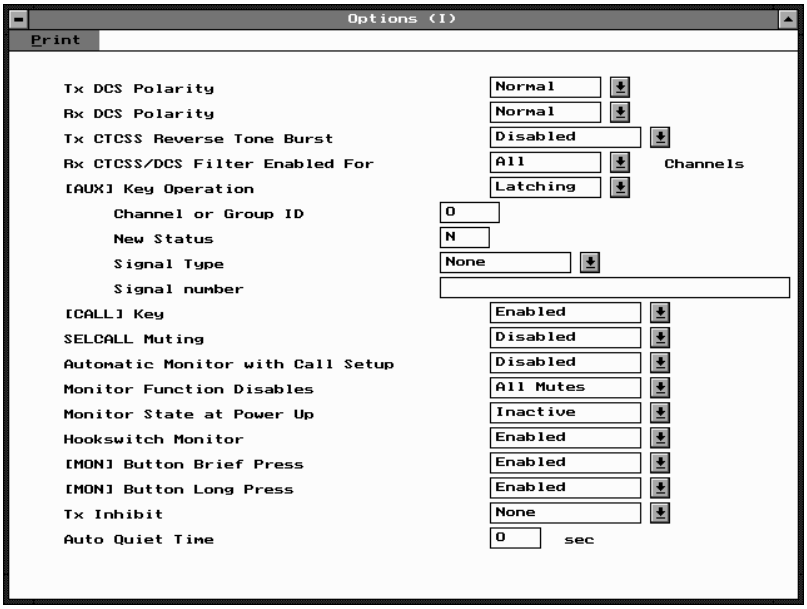
Specifications Settings - continued

Field	Description	Settings
DTMF Option	Specifies whether the Dual Tone Multi-Frequency option has been installed. This may be used for access to the Public Switched Telephone Network (PSTN) or for remote control or paging functions.	Select *Fitted* or *Not Fitted*.
CCI Option	Specifies whether the Computer Controlled Interface option has been installed. This option allows data communication.	Select *Fitted* or *Not Fitted*.
Hidden Channels	Controls whether channels that are used in a scan group are hidden from the user, and may not be selected individually.	Select *Enabled* or *Disabled*.
Repeater Talk Around	Controls whether repeater talk around (with the transmit frequency set to be the same as the receive frequency) can be selected by a long press of the CHAN key during normal radio operation.	Select *Enabled* or *Disabled*.
Number of Channels in Page 1	Sets the number of page one radio channels. (Channels I screen.)	Enter a number between *1* and *50*.
Number of Channels in Page 2	Sets the number of page two radio channels. (Channels II screen.)	Enter a number between *0* and *50*.
Number of Groups	Sets the number of scan groups. (There must be at least two channels to form a group.)	Enter a number between *0* and *20*.
Number of Alpha Symbols	Sets the number of alphanumeric symbols listed in the Alpha Symbols screen.	Enter a number between *0* and *20*.

Options I

Use the Options I screen to set options such as CTCSS/DCS characteristics, muting and monitor functions, and AUX operation. To open this screen, click on Options I in the Edit keyword menu.

The Options I screen, with default settings, appears as follows:



The Options I settings are as follows:

Field	Description	Settings
Tx DCS Polarity	Use this setting to invert the polarity of all transmitted DCS codes defined in the Channels screen. Some systems may require transmitted DCS code to be inverted.	Select *Normal* or *Inverted*.
Rx DCS Polarity	Use this setting to invert the polarity of all received DCS codes defined in the Channels screen. Some systems may transmit DCS code that needs to be inverted for correct decoding.	Select *Normal* or *Inverted*.
Tx CTCSS Reverse Tone Burst	If enabled, permits transmission of a CTCSS reverse tone burst. This increases the speed of shut-down in some repeaters and associated equipment.	Select *Enabled* or *Disabled*.
Rx CTCSS DCS Filter Enabled For	Determines channel settings for the audio filter contained in the mobile. This filter removes any CTCSS or DCS tones which may be present on the received audio. It can be switched off automatically for channels that do not have CTCSS or DCS.	If set for *All Channels*, the CTCSS/DCS filter does not switch and is active continuously. If set for *CTCSS/DCS Channels*, the filter is active only on channels which have CTCSS or DCS programmed on receive.

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Options I Settings - continued

Field	Description	Settings
[AUX] Key Operation	The AUX key may be programmed to perform any of the following tasks: • activate internal or external auxiliary devices • set a new Selcall status for the mobile • change the mobile to a new channel or group ID • send a predefined Selcall or DTMF number • send emergency calls to a predefined Selcall number	Choose one of the following: *Momentary*: AUX key activates the internal AUX line on the options connector in a momentary fashion (i.e. for only as long as the key is pressed). *Latching*: AUX key toggles the internal AUX line on the options connector. *Emergency:* AUX key activates the Selcall emergency function. (May be used instead of a hidden switch). *One Touch*: AUX key initiates a predefined call using the parameters described below under "AUX Key Parameters". *See "AUX Key One Touch Parameters" below*

AUX Key One Touch Parameters:		
Channel or Group ID	Specifies a channel or group ID change for the AUX key One Touch Memory.	Enter any valid channel or group ID. If you wish the mobile to stay on its original channel, enter *0* in this field.
New Status	Specifies a Selcall status digit change for the AUX key One Touch Memory.	Enter one of the mobile's status digits. If you wish the mobile's status to remain the same, enter *0* in this field.
Signal Type	Specifies the type of signalling to be used to send the predefined number described below.	Select *Selcall*, *DTMF* or *None*. Before selecting Selcall or DTMF ensure the appropriate option board is fitted to the mobile and defined on the Specifications screen.
Signal Number	Specifies a number to send when the AUX key One Touch Memory is activated.	The format for this number depends on the signal type defined above, as follows: • *Selcall*: the format must correspond to the Tx format defined on the Selcall identity page • *DTMF:* enter any DTMF number up to 32 digits. The mobile will not send a call if this field is left blank.

Options I Settings - continued

Field	Description	Settings
Emergency Callback Cycling	Enables and disables Selcall emergency cycling. This field affects only AUX key initiated Selcall emergency cycling.	Select *Enabled* or *Disabled*.
[CALL] Key	Determines either: • whether the CALL key initiates a call (if Selcall is fitted), or • whether the CALL key operates the radio's internal call-switch line (if Selcall is not fitted).	Select *Enabled* or *Disabled*. Setting this field to *Disabled* prevents the radio from sending a Selcall or operating the internal call-switch line, depending on whether Selcall is fitted.
Selcall Muting	Selcall Muting quiets the radio until a valid Selcall is received. This function operates in addition to any sub-audible CTCSS or DCS mutes.	Select *Enabled* or *Disabled*.
Automatic Monitor with Call Setup	Specifies whether the monitor function will activate automatically when the mobile sends a Selcall.	Select *Enabled* to activate the monitor whenever a Selcall is successfully transmitted. Select *Disabled* to leave the monitor inactive.
Monitor Function Disables	Specifies which mutes are to be disabled by the Monitor function.	Set this field as follows: *All Mutes*: When the Monitor function is activated, both the Selcall mute and any sub- audible coding mute (CTCSS or DCS) are *Disabled*. *Selcall Mute*: When the Monitor function becomes active, only the Selcall mute is disabled. This can only be selected if Selcall muting is enabled.

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Options I Settings - continued

Field	Description	Settings
Monitor State at Power-up	Specifies whether the monitor is to be active or inactive when the radio is first switched on.	Select *Active* to activate the Monitor when the radio turns on. Select *Inactive* to ensure that the Monitor facility is inactive when the mobile is turned on.
Hookswitch Monitor	Determines whether the radio monitor function will be activated by the microphone hookswitch. The setting of this field does not alter any of the other functions of the hookswitch with regard to scanning.	Select *Enabled* or *Disabled*.
[MON] Button Brief Key Press	If enabled, a brief press of the Monitor key toggles the state of the Monitor function (as defined by Monitor Function Disables). Note that a brief press of the Monitor key always deactivates the Monitor function if it is active.	Select *Enabled* or *Disabled*.
[MON] Button Long Key Press	If enabled, a long press of the Monitor key activates the squelch override. This overrides the mobile preset squelch, permitting the user to monitor all activity on a channel. This is useful in marginal conditions, where the signal is too weak to reliably override the squelch.	Select *Enabled* or *Disabled*.

continued on next page

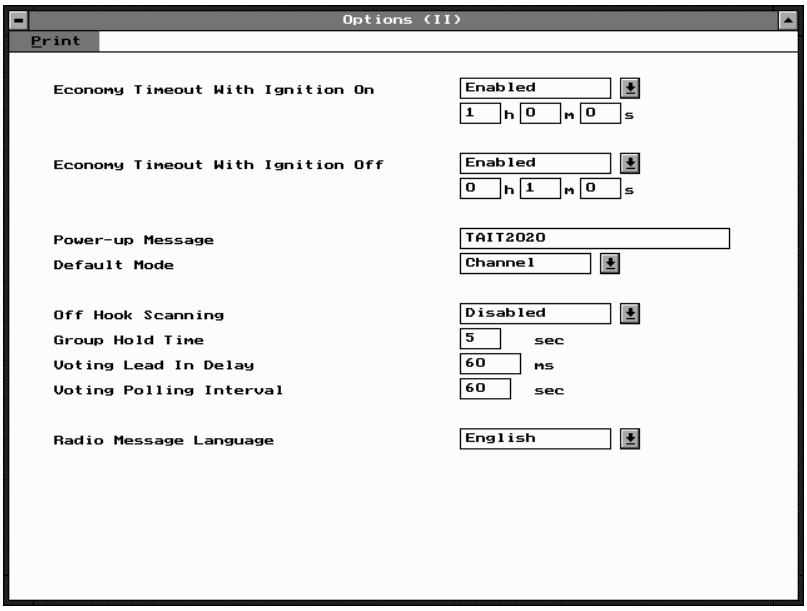
Options I Settings - continued

Field	Description	Settings
Tx Inhibit	Prevents the mobile from transmitting under some radio traffic conditions	Select *None*, *Busy* or *Mute* as follows: *Busy*: Prevents the mobile from transmitting when there is any activity on the channel. *Mute*: Prevents the mobile from transmitting when there is channel activity, but the radio remains muted. This could be caused by: • An invalid CTCSS or /DCS code • An active Selcall mute • An active external device *None*: No Tx Inhibit of any kind.
Auto Quiet Time	Specifies how long the monitor function will remain on if no activity is detected on the channel. This can be used to ensure that the unit may not be accidentally left monitoring a channel indefinitely.	Enter a time between 0 and 250 seconds. The monitor will revert to normal operation as soon as the channel becomes active or a call is made.

Options II

To open this screen, click on Options II in the Edit keyword menu.

The Options II screen, with default settings, appears as follows:



The Options II settings are as follows:

Field	Description	Settings
Economy Timeout **With Ignition On** **With Ignition Off**	These fields set your mobile to minimise power consumption by switching off unnecessary circuitry when there is no traffic on the selected channel. If the appropriate vehicle connections are present the radio will detect whether the vehicle's ignition is on or off, and respond appropriately.	Select *Enabled* or *Disabled*. Both timers may be set to values of up to 18 hours.
Power-up Message	Defines the message which appears on the radio display upon power-up.	Enter a message. Useable characters are: A-Z 0-9 * / - + < > \ space. **Note:** *Some older radios will permit only 8 character power-up messages. In this case only the first 8 characters entered will be programmed.*
Default Mode	Determines the mobile's operating mode for power up. The mobile will also revert to this mode after 10 seconds of user inactivity.	Select one of the following: • *Channel* • *DTMF* • *Selcall* • *Status* • *Alpha Symbol* • *Function* • *None* (allows the radio to remain in the currently selected mode indefinitely).

continued on next page

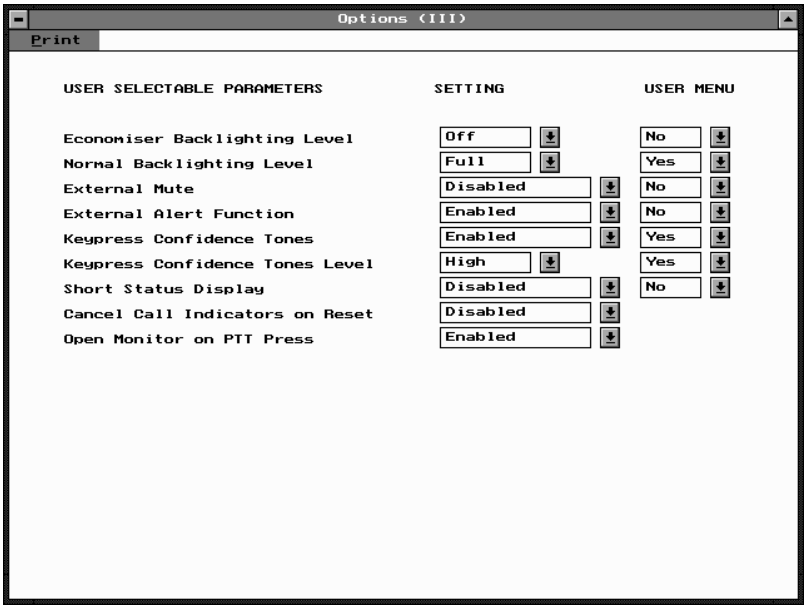
Options II Settings - continued

Field	Description	Settings
Off Hook Scanning	Specifies whether to allow scanning when the microphone is off hook. If the user initiates a call while the mobile is offhook scanning, the mobile will transmit on the home channel as defined on the groups screen.	Select *Enabled* or *Disabled*.
Group Hold Time	Specifies the pause before scanning resumes after valid channel activity ceases.	Enter a time between *0* and *15* seconds.
Voting Lead In Delay	Specifies the delay between the radio detecting activity on a voting channel and voting taking place.	Enter any multiple of ten from *0* to *2550* milliseconds.
Voting Polling Interval	Specifies the time between revalidation voting when the system is busy but carrying invalid sub-audible signalling.	Enter a time between *1* and *250* seconds.
Radio Message Language	Specifies the language to use for displaying messages on the LCD.	Select either *English, French* or *German*.

Options III

The T2020 Series II has a front panel menu that allows the user to alter certain options. Use the Options III screen to set default states for these options, and to set which of the options will appear on the user menu.

The Options III screen, with default settings, appears as follows:



The Options III settings are as follows:

Field	Description	Settings
Economiser Backlighting Level	• **Setting** Column: Specifies a backlighting level for the mobile when it is operating in economiser mode. (Enable economiser mode on the Options II page.)	Select *off* to turn backlighting off in economiser mode. Select *dim* to dim the backlighting in economiser mode.
	• **User Menu** Column: Specifies whether the economiser backlighting level may be altered by the user.	Select *yes* or *no*.
Normal Backlighting Level	• **Setting** Column: Specifies a backlighting level for the mobile when it is operating normally.	Select *full* or *dim* .
	• **User Menu** Column: Specifies whether the normal backlighting level may be altered by the user.	Select *yes* or *no*.
External Mute	• **Setting** Column: Specifies whether the Hush line on the options connector will respond when the radio mute opens. (The Hush line may be used to mute an external device such as a car radio.)	Select *Enabled* or *Disabled*.
	• **User Menu** Column: Specifies whether the user may switch the external mute on and off.	Select *yes* or *no*.

continued on next page

Options III Settings - continued

Field	Description	Settings
External Alert	• **Setting** Column: Switches the mobile's external alert function on or off. (The external alert uses the mobile's Horn line to activate an external device such as the car horn.)	Select *Enabled* or *Disabled*. When enabled, the external alert will operate as specified on the Selcall Setup screen.
	• **User Menu** Column: Specifies whether the user may switch the external alert on and off.	Select *yes* or *no*.
Keypress Confidence Tones	• **Setting** Column: Determines whether the mobile confirms each keypress with a brief confidence tone.	Select *Enabled* or *Disabled*.
	• **User Menu** Column: Specifies whether the user may switch confidence tones on and off.	Select *yes* or *no*.
Keypress Confidence Tones Level	• **Setting** Column: Sets the sound level for keypress confidence tones.	Select *high* or *low*.
	• **User Menu** Column: Specifies whether the user may set the sound level for keypress confidence tones.	Select *yes* or *no*.

continued on next page

Options III Settings - continued

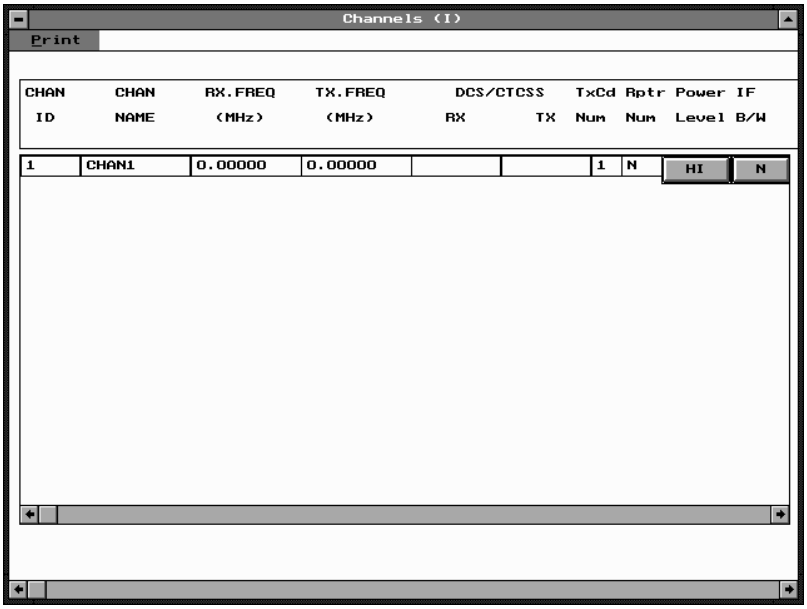
Field	Description	Settings
Short Status Display	• **Setting** Column: Determines whether the mobile displays the current status together with a shortened Channel /Group ID. **Note:** *A variable ('V') status digit must be defined on the Selcall Identity screen for this function to operate.*	Select *Enabled* to display the current status on the right of the LCD. The mobile will shorten the Channel or Group ID to 6 digits to fit the LCD. Select *Disabled* to display the full Channel or Group ID only.
	• **User Menu** Column: Specifies whether the user may switch the status display on and off.	Select *yes* or *no*.
Cancel Call Indicators on Reset	• **Setting** Column: When enabled, this will cancel the ringing tone and the call indicator light, if a remote reset is received. Only selectible when Selcall is fitted (see **Specifications** page).	Select *Enabled* or *Disabled*.
Open Monitor on PTT Press	• The audio monitor will be opened on PTT press.	Select *Enabled* or *Disabled*.

Channels (I and II)

Use the Channels screens to set a list of available channels and settings for the mobile. To open these screens, click on Channels I or Channels II in the Edit keyword menu.

Note: This screen uses Array Boxes for settings. Remember to press the F2 key to insert each line for data entry.

The Channels I and Channels II screens are identical, and appear as follows:



The Channels settings:

Field	Description	Settings
Chan ID	Sets the channel number. Channel numbers must be unique. Make sure that no channels or groups share the same identity number since they are both accessed the same way.	Enter a number from *1* to *255*.
Chan Name	Sets the channel name displayed on the radio front panel when the radio is in CHAN mode. A default name is generated from the Chan Id. For example, the first channel defaults to *Chan1*.	Enter a name of up to 8 characters. Useable characters are: A-Z 0-9 * / - + < > \ space
Rx. Freq (MHz) **Tx. Freq (MHz)**	These fields set the receive and transmit frequencies. For each channel, enter frequencies that are between the upper and lower frequency limits defined by the radio type field in the Specifications screen. **Note:** *There are physical constraints on the frequencies which the T2020 can use to receive and transmit. While the model selected may operate outside of its specified limits, operation is not guaranteed.*	Enter a frequency in each field. These frequencies must be multiples of either 5 kHz or 6.25 kHz.
DCS/CTCSS – RX	Sets the receive sub audible coding. This is the code which the mobile must receive on this channel before it will regard the activity as valid and open the mute.	Enter a valid CTCSS frequency or a valid DCS code. Leave blank to indicate no sub-audible code to be used on this channel. (See Appendix A, "Valid CTCSS/DCS Codes.")

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Channels (I and II) Settings - continued

Field	Description	Settings
DCS/CTCSS – TX	Sets the transmit sub audible coding. This is the code which will accompany each transmission on this channel.	Enter a valid CTCSS frequency or a valid DCS code. Leave blank to indicate no sub-audible code to be used on this channel. (See Appendix A, "Valid CTCSS/DCS Codes.")
TxCD Num	Selects a transmit Selcall sequence from those specified in the Selcall ID screen. The mobile will send this sequence to initiate a Selcall.	Set this to one of the TXCALL sequences defined on the Selcall Identity screen by entering a number from *1* to *5*. To disable Selcall on the channel, enter *0*.
Repeater Number	Sets the repeater Selcall code number. This is the required repeater sequence allocated to this channel.	Set this to one of five sequences defined in the Repeater Sequence field of the Selcall Identity screen by entering a number from 1 to 5. Enter *N* ("none") in this field to transmit no Repeater Sequence.
Power Level	Sets the transmit power level. This is the power level of the transmitter on this channel.	Select *L*, *H*, or *O*. The *LO* power setting is preset internally, normally to either 1W or 5W. The *HI* power setting is normally preset internally to 25 Watts. Select *OFF* to disable transmission on this channel.

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Channels (I and II) Settings - continued

Field	Description	Settings
I/F B/W	Sets the transmitter deviation and receiver audio sensitivity for systems using different channel spacings. • Program each channel with a channel spacing that is appropriate for your network. • Each radio may be programmed with a mixture of channel spacings. **Note:** *Appropriate hardware is required for this feature.*	Select *W* or *N*. Use the *W* ("wide") setting for systems with 25kHz channel spacing. Use the *N* ("narrow") setting for systems with 12.5kHz channel spacing.

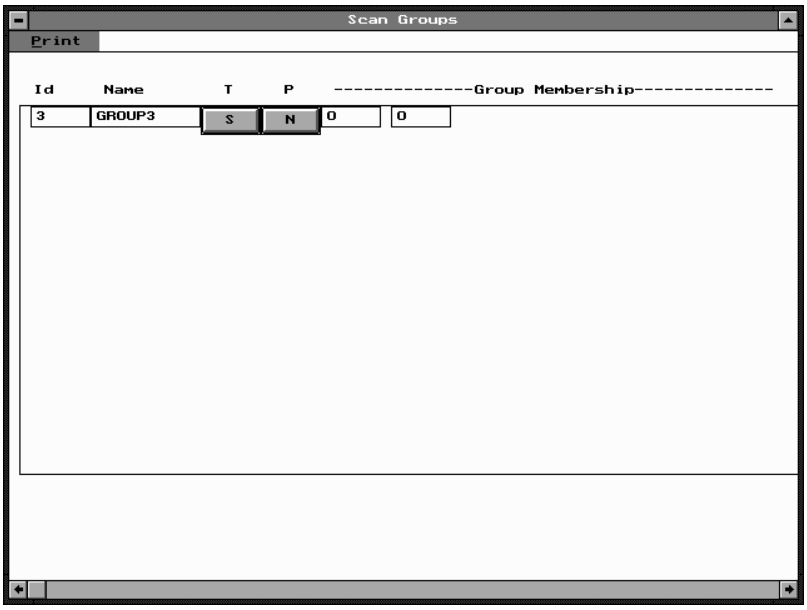
Scan Groups

Use the Scan Groups screen to set a list of groups of channels available for scanning. To open this screen, click on Scan Groups in the Edit keyword menu.

To access this page, the “Number of Channels” in the Specifications page must be set to greater than 1, and the “Number of Groups” must be set to greater than 0.

Note: This screen uses Array Boxes for settings. Remember to press the F2 key to insert a line for data entry and CTRL-F2 to add a group member.

The Scan Groups screen appears as follows:



The Scan Groups settings are as follows:

Field	Description	Settings
Group ID	Defines an ID number for a group of channels. • Group ID numbers must be unique. • Make sure that no channels or groups share the same identity number since they are both accessed in the same way.	Enter a unique number from *1* to *255*.
Group Name	Sets the name displayed on the radio front panel when the radio is in CHAN mode. A default name is generated from the Group Id. For example, the first group defaults to *GROUP1*.	Valid characters are: A-Z 0-9 * / - + < > \ space
Group Type (“T”)	Sets the group scan type.	Enter one of the following group types: • *S* for scan • *P* for priority scan • *V* for voting • *VS* for voting with sub-audible signalling • *D* for double vote • *DS* for double vote with sub-audible signalling. • *DP* for a dual priority scan group.

continued on next page

Scan Groups Settings - continued

Field	Description	Settings
User Programmable Group ("P")	Specifies whether the group will be user programmable. The user may change the membership of a User Programmable Group via the T2020's Function Menu.	Enter *Y* (Yes) or *N* (No).
Group Membership	Defines group members by their channel (Chan ID) number. It can include any current channel IDs. Any channel may only appear once in the group. **Note:** *Use CTRL-F2 to insert a new Group Member.*	Enter a list of valid channel numbers. There must be at least 2 and not more than 16 entries. • The first channel listed is taken to be the home channel. • For Priority Scanning, the first channel listed is used as the priority channel. • If Dual Priority Scanning is in effect for the group, the second channel is used as the second priority channel.

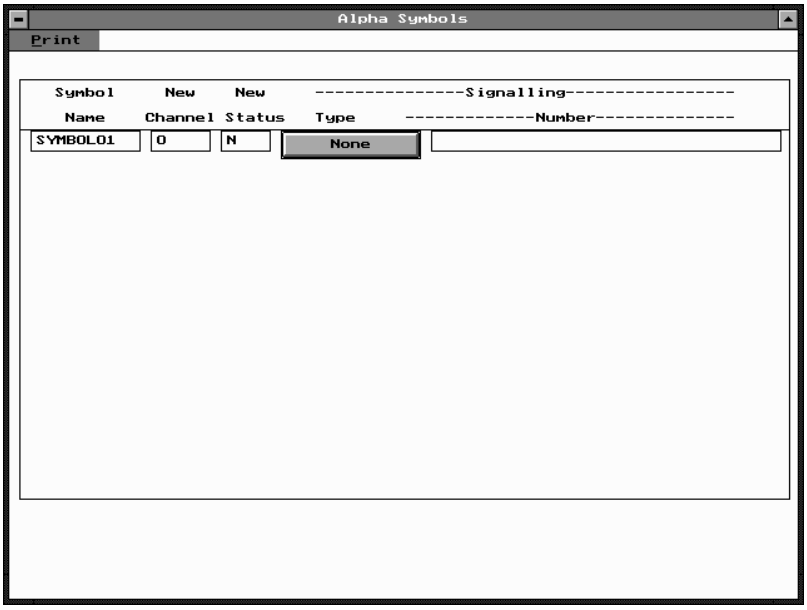
Alpha Symbols

Use the Alpha Symbols screen to set a list of symbols, labels and associated channels and dialling settings for the mobile. To open this screen, click on Alpha Symbols in the Edit keyword menu.

To access this screen, the “Number of Symbols” in the Specifications page must be set to greater than 0.

Note: This screen uses Array Boxes for settings. Remember to press the F2 key to insert each line for data entry.

The Alpha Symbols screen appears as follows:



The Alpha Symbols settings are as follows:

Field	Description	Settings
Symbol Name	Sets an alphanumeric name for the symbol.	Enter an eight character name. Names must be unique. Useable characters are in 10 groups. Characters in each group are regarded as identical, so that the Label 'AGE' is the same as the label 'BID'. The groups are as follows: 1 2,A,B,C 3,D,E,F 4,G,H,I 5,J,K,L 6,M,N,O 7,P,Q,R,S 8,T,U,V 9,W,X,Y,Z 0
New Channel	Sets the channel (Chan ID) or group (Group ID) number to be selected with this symbol.	Enter *0* if the channel is not to be changed, or enter a valid channel identity.
New Status	Sets a new status to be selected by this symbol. Note:If Selcall is not fitted, you must select N.	Enter a value between *0* and one less than the Maximum Number of Status Digits specified in the Selcall Setup screen. Enter *N* for no status change.
Signalling Type	Sets a call signalling type for this symbol. This type is then used by the Symbol Signalling Sequence when this symbol is selected.	Choose from *Selcall, DTMF,* or *None.*

continued on next page

Alpha Symbols Settings - continued

Field	Description	Settings
Signalling Number	Defines the signalling sequence to be transmitted. If no Symbol Signalling Type is entered, this field must be left blank.	Enter the signalling sequence as follows: • **Selcall:** The sequence must be of the same format as TX Format in the Selcall Identity screen. The sequence may contain the characters 0 to 9, B to D and F. The letters A and E cannot normally be used as they have special meanings. Group ('G') digits may also be used. No status message is permitted in the sequence. • **DTMF:** The sequence consists of 1 to 32 characters, each from 0 to 9, A to D, #, or *.

CCI (Computer Controlled Interface)

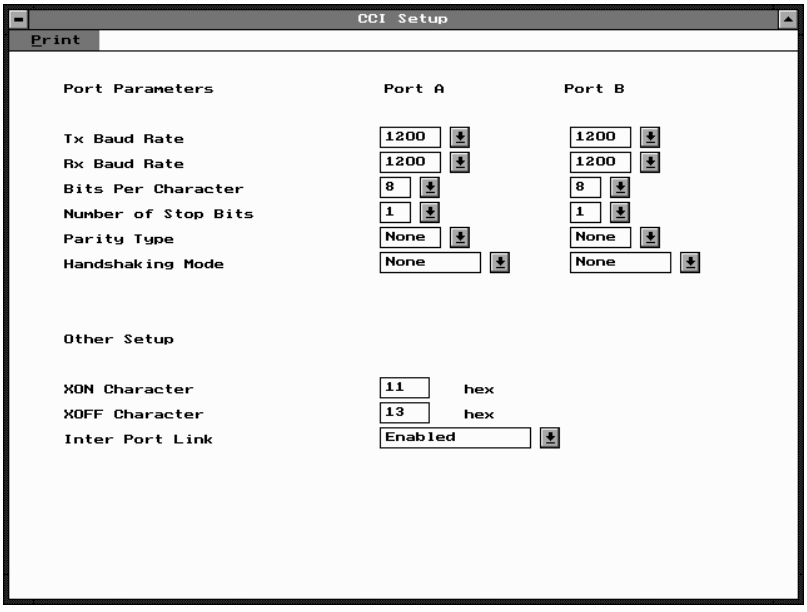
The CCI option allows the T2020 to communicate via two ports as follows:

- with a PC to allow remote control of the radio
- with a modem to allow data transmission.

Note: The CCI option incorporates a UART Interface Module (UIM). For this reason, this screen may be referred to as the UIM Setup screen by some application documentation.

Use the CCI Setup screen to enter settings for CCI mode functions. To open this screen, click on CCI Setup in the Edit keyword menu.

The CCI Setup screen, with default settings, appears as follows:



The requirements for many of the settings on this page are variable, depending on the type of device the CCI must communicate with. Information about configuring the CCI for specific applications is available from the following sources:

- the T2020 Series II Operator's Manual
- the on-line help facility in PGM2020
- the CCI Operator's Manual (IPN 408-20060-00, or later)
- the T2000 Series Service Manual (M2000-00-200, or later).

The table below lists the CCI settings.

Field	Description	Settings
Tx Baud Rate **Rx Baud Rate**	The Transmit (Tx) and Receive (Rx) CCI baud rates on each port may be set independently from each other. However, the baud rate on each port will usually be the same for both Rx and Tx.	Select one of the available settings.
Bits Per Character	The number of bits per character can be set for each port. The most common character set is seven bit ASCII (i.e. CCITT alphabet No. 5).	Select from *7* or *8* bit ASCII.
Number of Stop Bits	Sets the number of stop bits to append to each character, for each port.	Select from *1* or *2* stop bits.
Parity	Sets the parity for each port.	Select from *Even, Odd* or *None*.
Handshaking Mode	Sets the handshaking mode for each port.	Select from *Hardware, Software* or *None*.
XON Character	If the 'Handshaking' mode is 'Software', the XON character must be defined. When the T2020 detects this character, it will turn the flow of data on.	Enter a hex number between *0* and *FF*.

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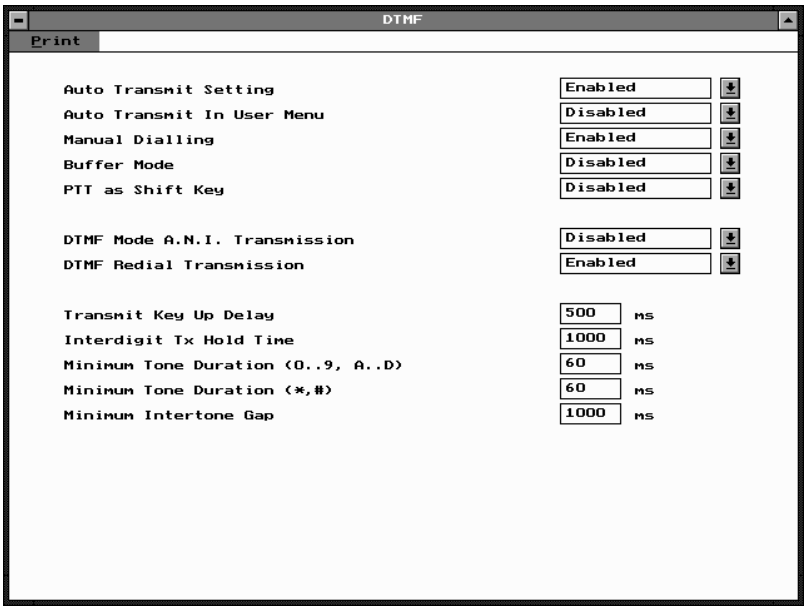
CCI (Computer Controlled Interface) Settings - continued

Field	Description	Settings
XOFF Character	If the 'Handshaking' mode is 'Software', the XOFF character must be defined. When the T2020 detects this character, it will turn the flow of data off.	Enter a hex number between *0* and *FF*.
Inter-Port Link	Use this setting to switch the CCI in to or out of *transparent* mode.	Select *Enabled* to use transparent mode.
	When the CCI is in transparent mode, data flows directly from port A to port B.	Select *Disabled* to operate as normal.

DTMF

Use the DTMF screen to enter settings for the optional DTMF unit. To open this screen, click on DTMF in the Edit keyword menu.

The DTMF screen, with default settings, appears as follows:



The DTMF settings are as follows:

Field	Description	Settings
Auto Transmit Setting	With 'Auto Transmit Setting' enabled, the T2020 will transmit the DTMF sequence as each digit is dialled from the key pad. This setting can be changed from the front panel of the T2020 in function mode if 'Auto Transmit In User Menu' is enabled.	Select *Enabled* for immediate tone transmission. Select *Disabled* to transmit tones only when the PTT key is pressed.
Auto Transmit in User Menu	Specifies whether the user can enable or disable the 'Auto Transmit Setting' from the key pad of the T2020 (when in function mode only).	Select *Enabled* to allow the user to change the Auto Transmit setting from the radio keypad. Select *Disabled* to prevent the user changing the Auto Transmit setting from the radio keypad.
Manual Dialling	Specifies whether the user may key DTMF sequences directly into the front panel, or whether DTMF sequences may only be accessed as part of a preset alpha label or one touch memory string.	Select *Enabled* for front panel dialling. Select *Disabled* for preset dialling.

continued on next page

DTMF Settings - continued

Field	Description	Settings
Buffer Mode	Manually dialled DTMF transmissions may be sent in one of two ways: • When the radio is in Buffer Mode, it will store the DTMF sequence as it is dialled and transmit it only when the [ENT] key is pressed. • When the radio is not in Buffer Mode, it will encode and transmit the DTMF tones as each digit is entered.	Select *Enabled* to use Buffer Mode. Select *Disabled* to switch buffer mode off.
PTT as Shift Key	Sets whether the [PTT] key works as a 'shift key' to access the DTMF tones A to D.	Select *Enabled* or *Disabled*.
DTMF Mode A.N.I. Transmission	Sets whether the T2020 will send a Selcall ANI when in DTMF mode. (See 'Selcall Identity' page for details on ANI.)	Select *Enabled* to send ANI when in DTMF mode. Select *Disabled* to prevent ANI transmission when in DTMF mode.
DTMF Redial Transmission	Enables and disables the DTMF Redial feature.	Select *Enabled* or *Disabled*.
Transmit Key Up Delay	• Allows time for the T2020 to key up on transmit before the DTMF sequence is sent. • Allows time for a repeater to decode CTCSS on the channel where the DTMF decoder and PSTN interconnect are accessed.	Enter a multiple of 10, between *10ms* and *2550ms*.

continued on next page

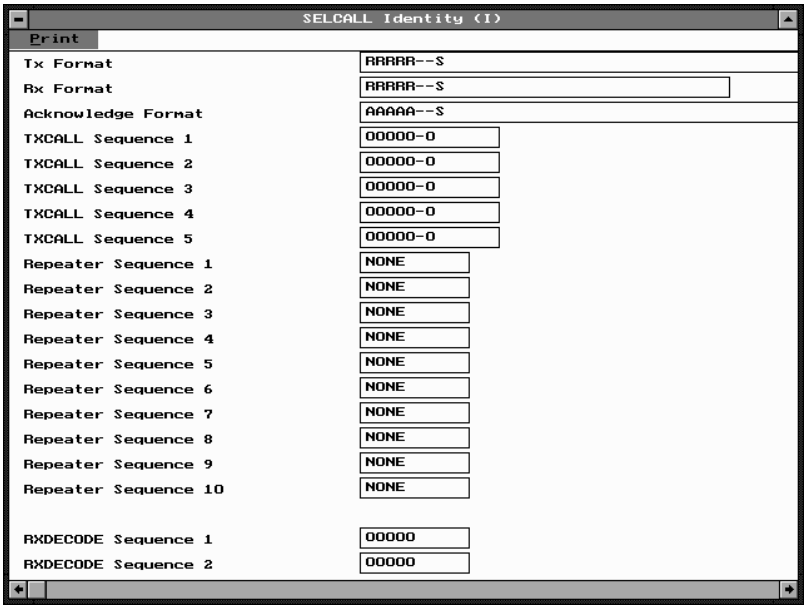
DTMF Settings - continued

Field	Description	Settings
Interdigit Hold Time	Sets how long the transmitter remains keyed after each DTMF digit is entered from the T2020 when 'Auto Transmit Setting' is enabled.	Enter a value between *10ms* and *2550ms* in steps of *10*.
Minimum Tone Durations • 0…9, A…D • *, #	Determines the minimum durations for each tone sent. The tone duration is important for successful DTMF decoding and will depend on the decoder used.	Enter a value between *8ms* and *1020ms* in steps of four (for each set of tones).
Minimum Intertone Gap	As the time taken to decode each tone can vary, the intertone gap between DTMF tones in a sequence may need changing. This will ultimately depend on the manufacturer of the DTMF decoder. The intertone gap is programmable from 10ms to 2550ms in 10ms steps.	Enter a multiple of 10, between *10ms* and *2550ms*.

Selcall Identity I

The Selcall Identity screens (I and II) set general Selcall formats and define preset identities. To open the Selcall Identity I screen, click on Selcall Identity I in the Edit keyword menu.

The Selcall Identity I screen, with default settings, appears as follows:



The Selcall Identity settings are as follows:

Field	Description	Settings
Tx Format	Defines the format of all transmitted Selcalls. (See also "Programming Predictive Selcall" on page 42.)	Use the following character codes: *B* Repeater ID *C* Caller ID *R* Receiver ID – Format gaps (no tone) *S* Status Set the format string according to the following rules: 1. Define up to 7 bursts, where a burst is a group of the same characters (such as *RRRRR*). Always include the *R* burst type in the sequence. 2. The *B*, *R*, *C*, and *S* burst types can occur only once in a sequence, but the gap (-) burst can occur more than once. 3. Place no more than 8 characters in a row without a gap burst (-). 4. The status (*S*) burst has a maximum length of 2 characters. 5. Place the repeater burst (*B*), if defined, at the beginning of the sequence and the status burst at the end of the sequence. 6. The number of characters in a single burst defines the number of digits of that burst for all calls (e.g. *RRR* defines a 3 digit receiver identity).

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Selcall Identity I Settings - continued

Field	Description	Settings
Rx Format	Defines the required receive format. (See also "Programming Predictive Selcall" on page 42.)	Use the following character codes: *C* Caller ID *R* Receiver ID – Format gaps *S* Status Set the format string as follows 1. Define up to 7 bursts, where a burst is a group of the same characters (such as *RRRRR*). Always include the *R* burst type in the sequence. 2. All burst types except the gap (-) can occur only once in the sequence. 3. The total number of Caller ID (*C*) characters must be less than or equal to the number of Receiver ID (*R*) characters in Tx Format. 4. Define no more than 8 characters in a row without a gap burst (-). There must be at least one gap between the *C* burst and the *R* burst. 5. If included, status must always be placed at the end of the sequence and must have the length defined in Tx Format. If there is no status in Tx Format, the length of the status burst can be up to two characters (*SS*). 6. The number of characters in a single burst defines the number of digits of that burst to which all incoming calls must conform.

continued on next page

Selcall Identity I Settings - continued

Field	Description	Settings
Acknowledge Format	Defines the required auto acknowledge format.	Use the following character codes: *B* Repeater ID *A* Auto Acknowledge – Format gaps *S* Status Set the format string according to the following rules: 1. Define up to 7 bursts, where a burst is a group of the same characters (such as *AAA*). Always include the *A* burst type in the sequence. 2. Define the *B*, *A*, and *S* burst types only once in a sequence. The gap (-) burst may occur more than once. 3. Define no more than 8 characters in a row without a gap burst (-). 4. The status (*S*) burst has a maximum length of 2 characters. 5. The number of characters in a single burst defines the number of digits of that burst (*AAA* defines a 3 digit receiver identity).

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Selcall Identity I Settings - continued

Field	Description	Settings
TXCALL Sequences	Determines the TXCALL sequence. The sequence length must be as defined in Tx Format by the number of Rs.	Enter the transmit Selcall address using *0* to *9*, *B*, *C*, *D*, *F* or *G* for group. If status is required, define it at the end of the sequence separating it from the Selcall address by a gap (-). Enter the status number after the gap. A valid number is limited by the maximum number of status digits defined. If there is one status digit in Tx Format then the values *0* to *15* can be entered. If two digits are used then the values *0* to *99* can be entered.
Repeater Sequences	Sets sequences for five repeaters. The repeater address length must be as defined in Tx Format (above) by the number of Bs.	Enter the repeater address using the characters *0* to *9*, *B*, C, *D, E* or *F*.
Rx Decode Sequences	Sets the RXDECODE sequence. The Selcall address length must be as defined in the Rx Format by the number of Rs. (See also "Programming Predictive Selcall" on page 42.)	Enter the receive Selcall address using the characters *0* to *9*, *B*, *C*, *D*, or *F*.

Programming Predictive Selcall

T2020 radios that have older radio software fitted (version 1.05 or earlier) are only capable of using predictive Selcall.

Because predictive Selcall is a five tone format, set the Selcall Option field on the Specifications screen to *Predictive*, and change the following fields on the Selcall Identity I screen:

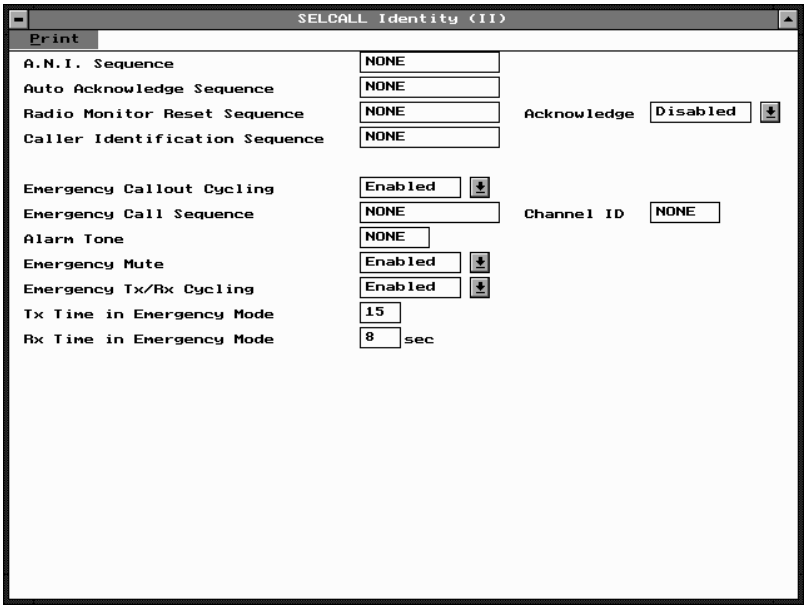
Field	Setting for Predictive Selcall
TX Format **RX Format**	Define only five 'R's as the sequence, with status that must follow the receive identity sequence after two gap periods.
RXDECODE Sequence	Must be a five tone sequence.
Alarm Tone	Transmitted after status digit in emergency callout cycling. May be any hex character *0...9*, *A...F*. Set to "*None*" if an alarm tone is not to be transmitted.
Emergency Call Sequence	Must be a five tone sequence.
ANI/Auto Acknowledge Sequence	Set either a five tone sequence or a beep.

TXCALL sequence 1 must be defined and the sequence number must be added to all the channels defined in the 'Channels' page(s).

Selcall Identity II

The Selcall Identity screens (I and II) set general Selcall formats and define preset identities. To open the Selcall Identity II screen, click on Selcall Identity II in the Edit keyword menu.

The Selcall Identity II screen, with default settings, appears as follows:



The Selcall Identity II settings are as follows:

Field	Description	Settings
ANI Sequence	Sets the mobile to send an ANI (Automatic Number Identification) Selcall sequence during transmissions. This may be decoded to identify the mobile. This sequence can be sent at various times during a transmission, depending on ANI Position. The ANI Position fields (in Selcall Setup) are made non-selectable if no ANI sequence is specified. (See also "Programming Predictive Selcall" on page 42.)	Enter the ANI Selcall address using *0* to *9*, *B*, *C*, *D*, *F* or *G* for group. The Selcall address length must be as defined in the TX format by the number of Rs. If status is required, define it at the end of the sequence and separate it from the Selcall address by a '–'. Enter the status number after the '–' where the valid number is limited by the maximum number of status digits defined. If the TX Format defines: • one status digit, then enter a value between *0* and *15*. • two status digits then enter a value between *0* and *99*. • variable status then enter *V* in place of the number. • no status then terminate your entry immediately after the Selcall address. If no ANI sequence is required, enter either *BEEP* for a beep ANI, or enter *NONE*.

continued on next page

Selcall Identity II Settings - continued

Field	Description	Settings
Auto Acknowledge Sequence	Defines the sequence to be sent when the mobile has decoded a valid Selcall. (See also "Programming Predictive Selcall" on page 42.)	Enter the auto acknowledge Selcall address using *0* to *9*, *B*, *C*, *D*, *F* or *G*. The address format must be as defined in Acknowledge Format by the number of *A*s. If status is required, define it at the end of the sequence and separate it from the Selcall address by a '–'. Enter the status number after the '–' where the valid number is limited by the maximum number of status digits defined. If the TX Format defines: • one status digit, then enter a value between *0* and *15*. • two status digits then enter a value between *0* and *99*. • variable status then enter *V* in place of the number. • no status then terminate your entry immediately after the Selcall address. If no ANI sequence is required, enter either *BEEP* for a beep ANI, or enter *NONE*.

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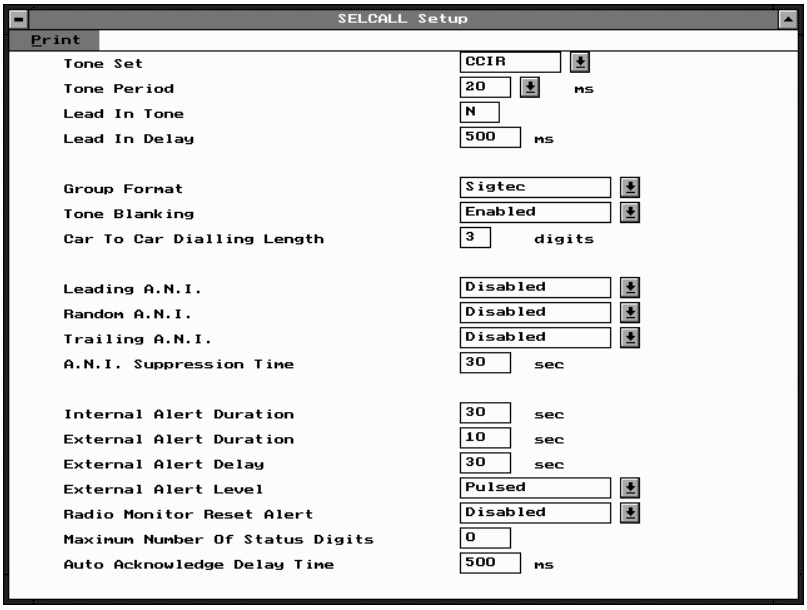
Selcall Identity II Settings - continued

Field	Description	Settings
Radio Monitor Reset Sequence	Defines the sequence that must be received to close the monitor.	The sequence must conform to the number of Rs in the Rx Format.
Caller Identification Sequence	Defines the caller identification sequence. The length of this address must be as defined in the Tx Format by the number of C's.	Enter the caller identification transmit Selcall address using the characters *0* to *9*, *B*, *C*, *D*, or *F*.
Acknowledge	Specifies whether the radio is to acknowledge the receipt of a valid monitor reset sequence.	Select *Enabled* or *Disable*d.
Emergency Callout Cycling	Callout cycling will be initiated once you enter emergency mode.	Select *Enabled* or *Disable*d.
Emergency Call Sequence	Sets the sequence to be sent when an emergency call is made. (See also "Programming Predictive Selcall" on page 42.)	• The number of Rs must equal the number of Rs in the Tx format. • You may add a status digit if the Tx format has status digits defined.
Channel ID	Emergency channel number.	Select *None* or the number of the emergency channel.
Alarm Tone	Sets the trailing alarm tone to be sent with the emergency sequence.	Select *None* or characters *0* to *9*, *A*, *B*, *C*, *D*, *E* or *F*.
Emergency Mute	If this option is enabled, the audio will be muted in emergency mode.	Select *Enabled* or *Disable*d.
Emergency Tx/Rx Cycling	If this option is enabled, emergency Tx/Rx cycling will be initiated once an acknowledgement is received for the emergency call-out sequence.	Select *Enabled* or *Disable*d.
Tx Time in Emergency Mode	Amount of time transmitting in emergency mode.	Enter a time between *1* and *60* seconds.
Rx Time in Emergency Mode	Amount of time receiving in emergency mode.	Enter a number between *1* and *60* seconds.

Selcall Setup

Use the Selcall Setup screen to set basic Selcall characteristics. To open this screen, click on Selcall Setup in the Edit keyword menu.

The Selcall Setup screen, with default settings, appears as follows:



Note: The requirements for the settings on this screen are the same for both predictive and non-predictive Selcall.

Selcall Setup is as follows:

Field	Description	Settings
Tone Set	Defines the standard set of Selcall tones to be used by the radio. The particular tone set chosen will depend on the setup of the system in use.	Select one of the following tone sets: *CCIR* *ZVEI-II* *EIA* *ZVEI-III* *EEA* *DZVEI* *ZVEI-I* *PZVEI* *NATEL*
Tone Period	Defines the duration of each tone in the Selcall sequence. This is usually the same value for all mobiles in the system.	Select one of the following time periods (milliseconds) *20**, *33*, *40*, *50*, *60*, *70*, *100*. * To ensure reliable operation with a 20ms tone period, any inter-burst gap in a multiple sequence transmission should be 3 or 4 tone periods. A 2 tone period gap may not be decoded at the receiver.
Lead In Tone	Defines a Selcall lead in tone which is used to halt scanning or initiate tone blanking on a called radio before critical tones are sent. If no tone is defined, the mobile transmits for the lead in delay time without sending any tone.	Enter a value from *0* to *9* or from *A* to *F*. Enter *N* for no Tone.
Lead In Delay	Defines a delay before any tones are sent, ensuring the called receiver is ready to decode tones. If no lead in tone is defined, the mobile transmits for this time period but does not send a tone.	Enter a value (milliseconds) between *0* and *5000* in steps of 20.
Group Format	Defines which of the two standard Selcall group formats is used.	Select *Sigtec* or *International.*

continued on next page

Selcall Setup - continued

Field	Description	Settings
Tone Blanking	Sets whether the T2020 mutes the radio to make received Selcall tones inaudible. **Note:** *As the T2020 needs some time to recognise that it is receiving a new Selcall sequence, the first tone and part of the second tone in a sequence will always be audible.*	Select *Enabled* or *Disabled*.
Car To Car Dialling Length	Defines the number of digits that can be dialled from the radio front panel. (Remaining digits are taken from the beginning of the TXCALL sequence set for the channel and inserted before the dialled digits.)	Enter a value from *0* up to the total number of Rs defined in the Tx Format field of the Selcall Identity screen.
Leading ANI	Specifies whether to send a leading ANI sequence. When the PTT is pressed, the mobile waits for the specified lead-in delay and then sends the ANI sequence. After this, the operator may talk as normal.	Select *Enabled* or *Disabled*. **Note:** *This field can only be set to Enabled if a valid sequence is defined in ANI Sequence.*
Random ANI	Specifies whether to send a random ANI sequence. When random is enabled the ANI is sent at random intervals during the transmission.	Select *Enabled* or *Disabled*. **Note:** *This field can only be set to Enabled if a valid sequence is defined in ANI Sequence.*
Trailing ANI	Specifies whether to send a trailing ANI sequence.	Select *Enabled* or *Disabled*. **Note:** *This field can only be set to Enabled if a valid sequence is defined in ANI Sequence.*

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Selcall Setup - continued

Field	Description	Settings
ANI Suppression Time	Sets the ANI suppression timer, which determines the minimum time allowed between transmissions of the ANI sequence. This does not affect the mobile in any other way and normal transmissions are not altered. This field is not selectable if the ANI sequence is not specified.	Enter a value from *0* to *155* in steps of 5.
Internal Alert Duration	Sets the maximum duration of the internal alert, which sounds the internal speaker when the mobile receives an individual Selcall. This alert sounds until either the timer expires or the call is answered. This duration has no effect on the internal alert that is sounded when a group call is received. When a group call is received, the mobile will ring only once.	Enter a time from *0* to *250* seconds. Set to *0* for a continuous timer. The alert will sound until the call is answered
External Alert Duration	Sets the maximum duration of the external alert, which sounds an external device if connected, when the mobile receives an individual Selcall. The external alert becomes active after the external alert delay has expired. This field is not selectable if the internal alert duration has been set to *0* (continuous).	Enter a time from *0* to *250* seconds. Set to *0* for a continuous timer. The alert will sound until the call is answered.

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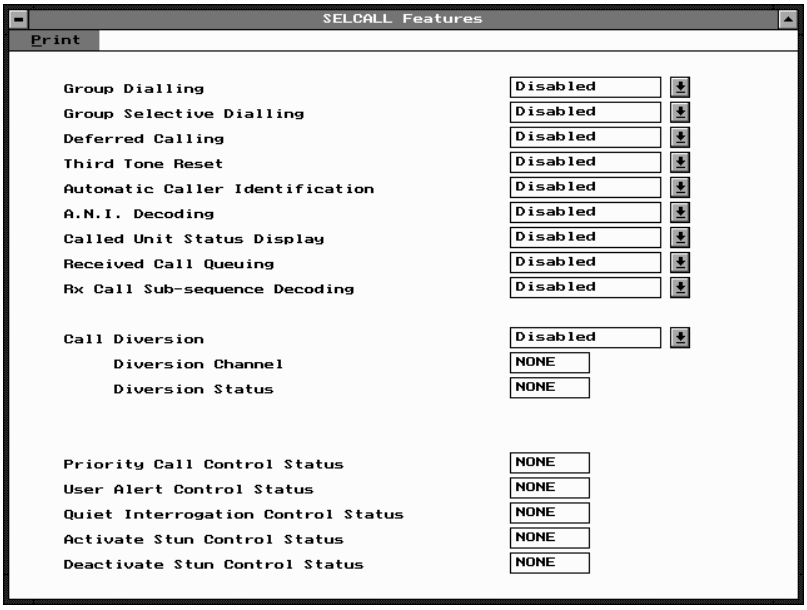
Selcall Setup - continued

Field	Description	Settings
External Alert Delay	Sets how long the T2020 waits before activating the external alert after it has decoded a valid receive identity sequence.	Enter a time from *1* to *250* seconds.
External Alert Level	Sets the cadence of the signal on the Horn line during the period the external alert is active.	Select *Pulsed* or *Steady.*
Radio Monitor Reset Alert	Specifies whether to sound an alert tone after decoding a monitor reset sequence.	Select *Enabled* or *Disabled*
Maximum Number Of Status Digits	Sets the maximum number of status digits for which labels can be defined in the 'Status Display' screen. The maximum number of status digits is restricted by the number of status digits ('*S*'s) defined in the TX Format field on the Selcall Identity screen. This field is unavailable if no '*V*'s are defined in any transmit Sequence.	Enter a number between *0* and *16* if one '*S*' is defined in the TX Format sequence. Enter a number between *0* and *100* if two '*S*'s are defined in the TX Format sequence.
Auto Acknowledge Delay Time	Specifies the time delay between receiving a call and transmitting the auto acknowledge.	Enter a multiple of 100 between *100*ms and *8000*ms.

Selcall Features

Use the Selcall Features screen to enter settings for Selcall features. To open this screen, click on Selcall Features in the Edit keyword menu.

The Selcall Features screen, with default settings, appears as follows:



The Selcall Features screen settings are as follows:

Field	Description	Settings
Group Dialling	If enabled, group calls are permitted. **Note:** *To be enabled, the Car to Car Dialling Length must have been set to 1 or greater.*	Select *Enabled* or *Disabled*.
Group Selective Dialling	If enabled, the group tone digit can be dialled individually when dialling a Selcall sequence.	Select *Enabled* or *Disabled*.
Deferred Calling	If enabled, a Selcall call attempted on a busy channel will be stored and redialled as soon as the channel becomes free. **Note:** *To be enabled the Tx Inhibit setting in the Options I screen must have also been enabled.*	Select *Enabled* or *Disabled*.
Third Tone Reset	If enabled, any call which carries tones matching just the first three tones of the RXDECODE Sequence of the mobile will deactivate the mobile's monitor function if it is active (e.g. after receiving a group call). **Note:** *This can only be enabled if the number of R's in Rx Format is more than 3.*	Select *Enabled* or *Disabled*.
Automatic Caller Identification	If enabled, the identity of the caller is displayed whenever an address which matches the RXDECODE Sequence is received. **Note:** *This can only be enabled if Rx Format contains a C burst.*	Select *Enabled* or *Disabled*.

continued on next page

Selcall Features - continued

Field	Description	Settings
ANI Decoding	If enabled, the identity of any caller which matches the Rx Format will be displayed. **Note:** *This cannot be enabled if Rx Format contains a C burst.*	Select *Enabled* or *Disabled*.
Called Unit Status Display	If enabled, the radio will display any status message returned with an auto-acknowledge sequence from a called radio. **Note:** *This cannot be enabled if Rx Format contains no status (S) burst.*	Select *Enabled* or *Disabled*.
Received Call Queuing	When enabled, the mobile will display CALL QUE as an option in its front panel menu. When selected by the user, CALL QUE displays up to 10 different incoming caller's identities so that the user can select whom to call back and in what order. **Note:** *At least one 'C' must be specified in the TX Format.*	Select *Enabled* or *Disabled*.
RX Call Sub-Sequence Decoding	If enabled, the mobile will decode and validate a call whenever possible, even when it has not received a caller identity in a multiple sequence decoding.	Select *Enabled* or *Disabled*.
Call Diversion	If enabled, the user may activate Call Diversion from the front panel menu, allowing the mobile to divert calls to a third party (DTMF or Selcall).	Select *Enabled* or *Disabled*.
Diversion Channel	Sets which channel the mobile will switch to when a called radio returns a Diversion Status message.	Enter the Channel Identity to be used as the diversion channel. If the diversion is to be carried out on the current channel, enter *None*.

continued on next page

Selcall Features - continued

Field	Description	Settings
Diversion Status	Used by the radio to identify diverted calls.	Enter a value from *0* to *15* if a single status digit, or *0* to *99* if a double digit is defined in Rx Format. This status value must be different from all other control status values entered. Enter *none* to disable.
Priority Call Control Status	Used by the radio to identify Priority Calls.	Enter a value from *0* to *15* if a single status digit, or *0* to *99* if a double digit is defined in Rx Format. This status value must be different from all other control status values entered. Enter *none* to disable.
User Alert Control Status	Used by the radio to identify User Alert Requests.	Enter a value from *0* to *15* if a single status digit, or *0* to *99* if a double digit is defined in Rx Format. This status value must be different from all other control status values entered. Enter *none* to disable.
Quiet Interrogation Call Status	Enables the radio to return a status message whenever it receives a Quiet Interrogation Call. The radio gives no audible or visible indication that it is returning the message, except for the LCD annunciators . **Note:** *This cannot be enabled if Rx Format contains no status (S) burst.*	Enter a value from *0* to *15* if a single status digit, or *0* to *99* if a double digit is defined in Rx Format. This status value must be different from all other control status values entered. Enter *none* to disable.

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Selcall Features - continued

Field	Description	Settings
Activate Stun Control Status	If enabled, when the radio receives an RXDECODE Sequence with a stun status appended, the radio will send the Auto Acknowledge Sequence defined in the Selcall Identity screen and then enter the stun activated state. **Note:** *This cannot be enabled if Rx Format contains no status (S) burst.*	Enter a value from *0* to *15* if a single status digit, or *0* to *99* if a double digit is defined in Rx Format. This status value must be different from all other control status values entered. Enter *none* to disable.
Deactivate Stun Control Status	This field must be enabled if Activate Stun Control Status is enabled, to allow the radio to recover from the stun activated state. **Note:** *This cannot be enabled if Rx Format contains no status (S) burst.*	Enter a value from *0* to *15* if a single status digit, or *0* to *99* if a double digit is defined in Rx Format. This status value must be different from all other control status values entered. Enter *none* to disable.

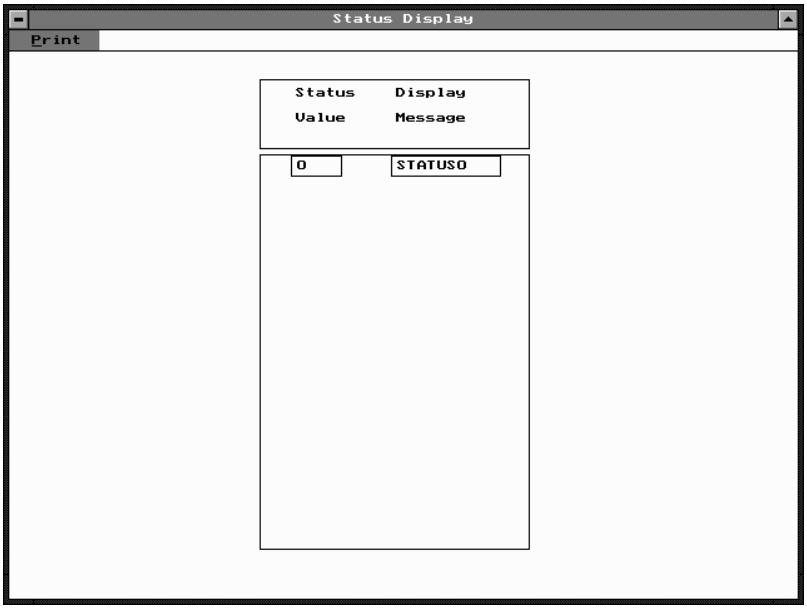
Status Display

Use the Status Display screen to enter settings for status display messages. To open this screen, click on Status Display in the Edit keyword menu.

To access this page, a variable tone must be defined in “Txcall Sequence” in the Selcall Setup page, and the “Max Number of Status Digits” must be set to greater than 1.

Note: This screen uses Array Boxes for settings. Remember to press the F2 key to insert each line for data entry.

The Status Display screen appears as follows:



The Status Display settings are as follows:

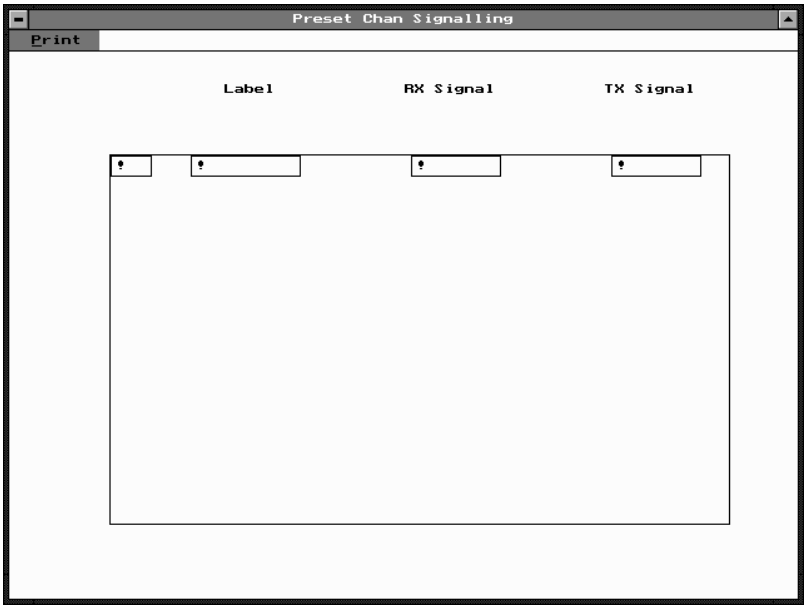
Field	Description	Settings
Status Value	Defines numbers between 0 and one less than the Maximum Number of Status Digits specified in the Selcall Setup screen.	A default number is generated in increasing order starting from *0*.
Display Message	Defines a simple 8-character message to correspond to each of the status message values.	Enter a name using any of these characters: *A-Z 0-9 * - + < >*

Preset Channel Signalling

Use the Preset Channel Signalling screen to define a front panel menu of user selectable channel signalling options. To open this screen, click on Preset Channel Signalling in the Edit keyword menu.

Note: This screen uses Array Boxes for settings. Remember to press the F2 key to insert each line for data entry.

The Preset Channel Signalling screen appears as follows:



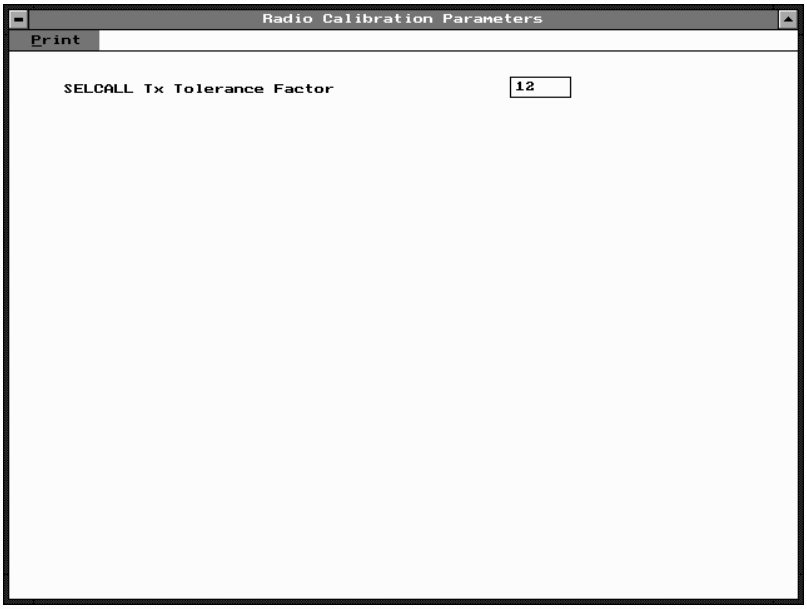
The Preset Channel Signalling screen settings are as follows:

Field	Description	Settings
Label	Defines an identification label for each preset. The mobile displays these labels on the front panel during the Channel Signalling programming session.	Enter a unique label for each signalling option using any of these characters: *A* to *Z*, *0* to *9*, *space* - + <> * / \
RX Signal	Defines a receive sub-audible tone for each preset channel signalling option.	Enter a valid CTCSS frequency or DCS code. Leave blank to indicate no sub-audible tone for the receive signal. A list of valid CTCSS frequencies and DCS codes is available in: • the online help for this field, and • Appendix A of this manual.
TX Signal	Defines a transmit sub-audible tone for each preset channel signalling option.	Enter a valid CTCSS frequency or DCS code. Leave blank to indicate no sub-audible tone for the transmit signal. A list of valid CTCSS frequencies and DCS codes is available in: • the online help for this field, and • Appendix A of this manual.

Radio Calibration Parameters

Use the Radio Calibration Parameters screen to define transmit tail time after a Selcall transmission. To open this screen, click on Radio Calibration Parameters in the Edit keyword menu.

The Radio Calibration Parameters screen, with default settings, appears as follows:



The Radio Calibration Parameters screen settings are as follows:

Field	Description	Settings
Selcall Tx Tolerance Factor	This adjusts the Tx tail time after Selcall	Default is *12* Enter a number between *0* (shortest) and *12* (longest).

5 T203X and T2040 Settings

About this Chapter

This chapter provides trunked program notes, and describes settings that may be selected for trunked T203X Series II and T2040 Series II mobile radios using PGM203X or PGM2040, respectively.

Trunked program notes are provided as follows:

- Using Passwords
- Programming Sequence

All screens displayed are for PGM2040. In cases where the PGM203X screens differ, the differences are noted in the screen descriptions. Settings are divided into the following groupings under the PGM2040 Edit keyword:

- Specifications
- Unit – Identity
- Unit – Acquisition Data
- Unit – Preset Calls
- Unit – Status Labels (PGM2040 only)
- Unit – Conventional Channels
- Unit – Economiser
- Unit – External Call Facility
- Unit – Alert Parameters
- Unit – Dialling Facilities (PGM2040 only)

- Unit – Miscellaneous Controls
- Unit – UIM Setup
- Unit – Data Parameters
- Unit – Lookup Table for 5 Digit Interfleet Calls (PGM2040 only)
- Unit – Diagnostics
- Own Fleet Identity
- Own Fleet Parameters
- Network – Identity
- Network – Parameters
- Network – Hunt Parameters
- Network – Trunked Channel Blocks
- Network – ANN Interfleet Party Definitions (PGM2040 only)

Using Passwords

When you start PGM203X or PGM2040 you are asked to enter a password. This password determines which screens and fields you will be able to select and change. It is suggested that you always use the lowest level of password which provides access to the fields you need to change. This helps ensure that you do not accidentally change other data.

General access passwords are as follows:

(None)	No password (just press Enter). Lowest level access. Allows you to change selected Unit data and Fleet fields, but denies access to Network data.
MORE	Allows access to a wider range of Unit data.

For assistance with higher level Unit, Fleet and Network settings, contact your nearest approved Tait dealer or service centre.

Programming Sequence

When programming a T2040 or T203X, you will find that possible entries and availability of certain features often depends upon settings in other screens. The order in which the screen data is entered is, therefore, important. Following is the recommended order for T2040/T203X settings.

1. Network

If you ever need to change Network Information settings, enter the settings first and save them independently to disk (with the filename extension .NET).

You will then be able to load the appropriate network file before adding any fleet or unit information. This will ensure that your network settings remain consistent.

2. Fleet

With the network (.NET) file loaded from disk, add values to the Own Fleet Identity screen.

3. Unit

After editing the Own Fleet Identity screen, proceed to add entries to the unit screens.

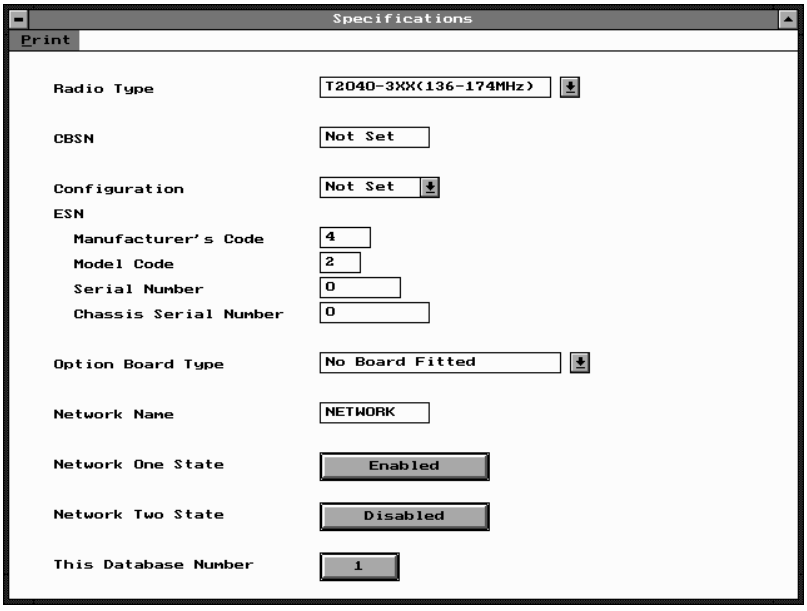
Programming Older T2030 Radios

When using PGM203X to program older T2030 mobiles (i.e. software V1.01), PGM203X will try to read an item not contained within the T2030. This will result in an error; 'C04 item not recognised'. Simply ignore this error.

Specifications

Use the Specifications screen to view the type of radio that this software was built to program, and to make any necessary changes in basic programming parameters. To open this screen, click on the Specifications option from the Edit keyword menu.

The Specifications screen, with default settings, appears as follows:



The Specifications settings are as follows:

Field	Description	Settings
Radio Type	Select the radio model and its frequency band. Make sure the selected type matches the radio chassis label.	Select from the available options.
CBSN	Control Board Serial Number (read only)	
Configuration	Configuration Setting (read only)	
Manufacturer's Code	(read only)	
Model Code	(read only)	
Serial Number	(read only)	
Chassis Serial Number	(read only)	
Option Board Type	The T203X and T2040 can be fitted with a number of different option boards. Because the functionality of the interface between the mobile and the option board depends on which option is fitted, the correct option must be entered in this field.	Select from the available options.
Network Name	Specifies the name of the selected network which is to be displayed during the radio's power up sequence. **T2040 Only**	Enter a name of up to 8 characters. Useable characters are: *A-Z 0-9 * / - + < > \ space*

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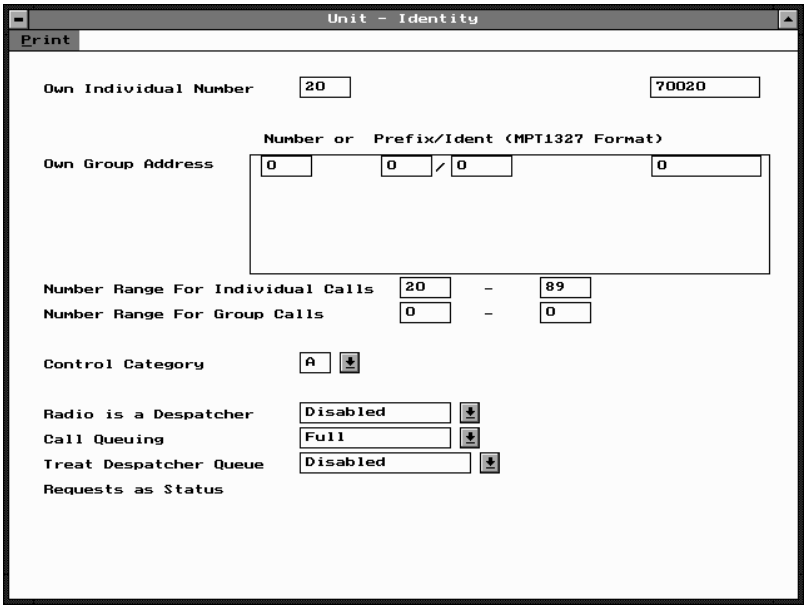
Specifications Settings - continued

Field	Description	Settings
Network One State / Network Two State	The T203X and T2040 may be programmed to operate on two different trunking networks. Each network must be programmed into the radio separately, as follows: • select the network to be programmed by entering the network number in 'This Database Number' (see below) • while programming for each network, set the state of that network to *Enabled*, to indicate to the radio which set of information in its database is valid.	Set each button to *Enabled* or *Disabled*
This Database Number	This field specifies the network to be programmed into the radio or read from the radio. To read a network from a radio, enter the network number into the radio, then read the radio. To program a network into a radio, enter the network number in this field and make sure that the appropriate network state is set to *Enabled*.	Enter *1* or *2*. **Note:** *If this is the first network to be programmed into the radio, set the state of the other network to 'Disabled'. If the radio already contains a network, set the state of the other network to 'Enabled'.*

Unit - Identity

Use the Unit - Identity screen to set the individual and group addresses for this mobile. To open this screen, click on the Unit - Identity option from the Edit keyword menu.

The Unit - Identity screen, with default settings, appears as follows:



The Unit - Identity settings are as follows:

Field	Description	Settings
Own Individual Number	Sets the MPT1343 number which uniquely identifies this radio within its fleet.	Check the Highest Individual Number in Fleet field (on the Own Fleet Identity screen). If it contains a ... • 2 digit number, then enter a value between *20* and the Highest Individual Number in Fleet. • 3 digit number, then enter a value between *200* and the Highest Individual Number in Fleet.
Own Group Address	Sets the group address number. Each group address is a number defining a group to which the radio unit belongs. Up to 32 group numbers may be assigned to each mobile. Group addresses may be entered in MPT1343 (number) or MPT1327 (Prefix/Ident) format. If you enter a value in one of these formats, the other must be left blank.	**NUMBER FORMAT** Enter *0* if you do not require a group number, or if you intend to specify a group address in MPT1327 format. If you do require group numbers, the available numbers are limited by the Highest Individual Number in Fleet field, in the same way as for the Own Individual Number field. **PREFIX/IDENT FORMAT** Enter a Prefix (from *0* to *127*) and an Ident (from *1* to *8100*). If you do not require a group address in this format, enter *0* in both fields.

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Unit - Identity Settings - continued

Field	Description	Settings
Number Range For Individual Calls	Defines a range of allowable individual numbers to restrict calls a radio unit can make to radios in its fleet.	Check the Highest Individual Number in Fleet field (on the Own Fleet Identity screen). If it contains a … • 2 digit number, then enter a value between *20* and the Highest Individual Number in Fleet. • 3 digit number, then enter a value between *200* and the Highest Individual Number in Fleet. Enter *0* in both fields to prevent the radio from making individual calls to other radios in its fleet.
Number Range For Group Calls	Defines a range of allowable group numbers to restrict calls a radio unit can make to radios in its fleet.	Check the Highest Individual Number in Fleet field (on the Own Fleet Identity screen). If it contains a … • 2 digit number, then enter a value between *90* and the Highest Individual Number in Fleet. • 3 digit number, then enter a value between *900* and the Highest Group Number in Fleet. Enter *0* in both fields to prevent the radio from making group calls to other radios in its fleet.

continued on next page

Unit - Identity Settings - continued

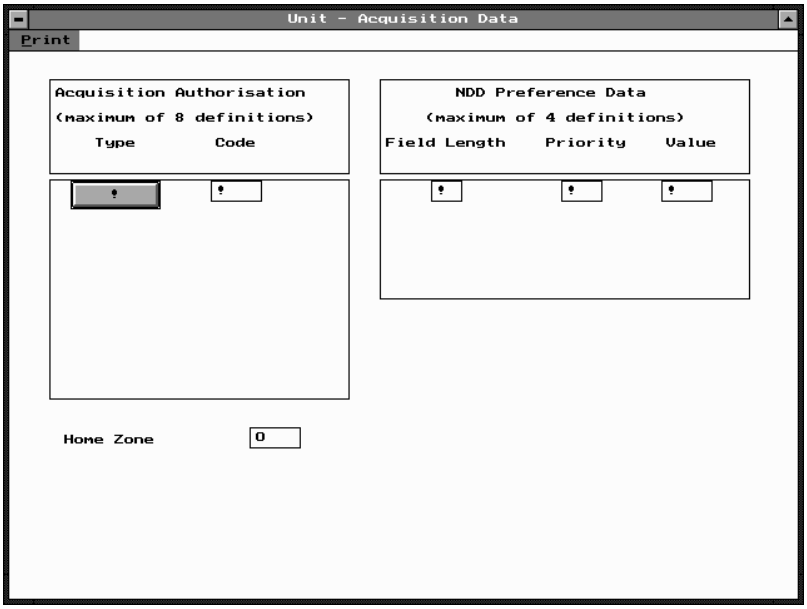
Field	Description	Settings
Radio is a Despatcher	Use this field to set the radio to operate as a Despatcher. Refer to the Operator's Manual for information about Despatcher mode.	Select *Enabled* or *Disabled*.
Control Category	Governs the radio's rights of access to a network's control channels. A radio can only access a control channel when it agrees with the value of the LAB field in the system identity code.	Select one of the categories *A*, *B*, *C*, or *D*
Call Queuing	Sets queue to hold unanswered calls, automatically queued calls and status calls. *Full* provides full queuing functions (see your Operator's Manual). If *Unanswered* is selected, only unanswered calls and status calls are queued.	Select *Full*, *None*, or *Unanswered*.
Treat Dispatcher Queue Requests as Status	This allows queue add/delete requests to be treated as status.	Select *Enabled*, and the full range of status labels (0 to 31) are available. Select *Disabled*, and 2 status labels are reserved for adding and deleting from the queue.

Unit - Acquisition Data

Use the Unit - Acquisition Data screen to set acquisition authorization and NDD preference data. To open this screen, click on the Unit - Acquisition Data option from the Edit keyword menu.

Note: This screen uses Array Boxes for settings. Remember to press the F2 key to insert each line for data entry.

The Unit - Acquisition Data screen, with default settings, appears as follows:



The Unit - Acquisition Data settings are as follows:

Field	Description	Settings
Acquisition Authorisation Type	Specifies the areas of the trunking network in which the radio may operate. These entries specify values for network control channel fields.	Select *Full*, *Area* or *Zone*. Consult the network operator for the correct entry.
Acquisition Authorisation Code	Sets the specific code for acquisition authorisation. On some networks, this field is left blank. Possible entries are constrained by Area Field Length and Zone Field Length (see the Network - Identity screen).	Enter a value from *0* to *511* if Network Type is National, or *0* to *15* if Network Type is set to Regional. See the Network - Identity screen for the Network Type setting.
NDD Preference Data	Used to encourage the radio to acquire certain control channels during a preferential hunt. Up to four entries can be made.	Preference is defined by three fields as follows: Preferred NDD Field Length: Specifies the number of relevant bits of the NDD field in a control channel. The maximum number is dependent on Network Type: if National, the field length is from *1-9*; if Regional the field length is from *1-4*. Priority: Specifies the priority of the entry, from *1* (high) to *10*. Value: The value must be storable in the number of bits specified by the field length.

continued on next page

Unit - Acquisition Data Settings - continued

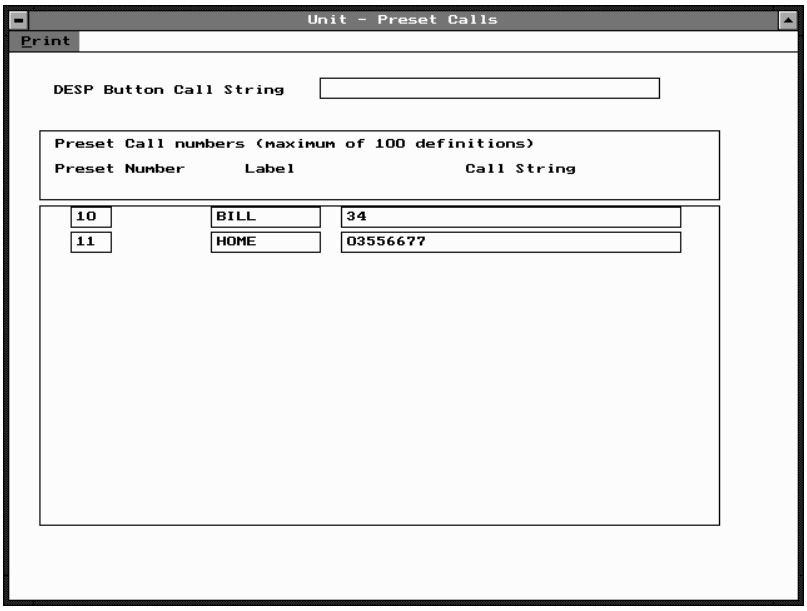
Field	Description	Settings
Home Zone	Specifies the network zone in which the radio normally works.	The maximum value depends on the value of Zone Field Length.
	Home Zone is used by the radio to determine whether re-registration is required on a Network when registration records for the Network have only been maintained on a temporary basis.	See the Network - Identity screen for the Zone Field Length setting.

Unit - Preset Calls

Use the Unit - Preset Calls screen to set a list of preset calls for the mobile. To open this screen, click on the Unit - Preset Calls option from the Edit keyword menu.

Note: This screen uses Array Boxes for settings. Remember to press the F2 key to insert each line for data entry.

The Unit - Preset Calls screen appears as follows:



Note: 1. This screen (from PGM2040) shows two example lines inserted, the first being a radio call and the second a PSTN call.

*2. The **Label** field is not present in PGM203X.*

The Unit - Preset Calls settings are as follows:

Field	Description	Settings
Desp Button Call String	Assigns a call string to the Despatcher button.	Enter any valid dialling sequence. Allowable characters are *0* to *9*, * and #.
Preset Call Number	Sets the number of the preset call. MPT1343 recommends that preset *0* be used for calls to a PABX operator and that presets *1* to *9* be used for despatchers.	Enter a value as follows: • PGM203X from *0* to *19* • PGM2040 from *0* to *99*
Preset Call Label	Sets an optional label for a preset call string. **Note:** *This field is not available in PGM203X.*	Enter a string of 1 to 8 characters in any combination of the characters *A* to *Z*, *0* to *9*, or - . Labels must be unique. Usable characters are in 10 groups. Characters in each group are regarded as identical, so that the Label *AGE* is the same as the label *BID*. The groups are as follows: *1* *2,A,B,C* *3,D,E,F* *4,G,H,I* *5,J,K,L* *6,M,N,O* *7,P,Q,R,S* *8,T,U,V* *9,W,X,Y,Z* *0* If no label is required, leave this field blank.
Preset Call String	Sets the string that the radio is to dial when the preset call is selected.	Enter any valid dialling sequence. Allowable characters are *0* to *9*, * and #.

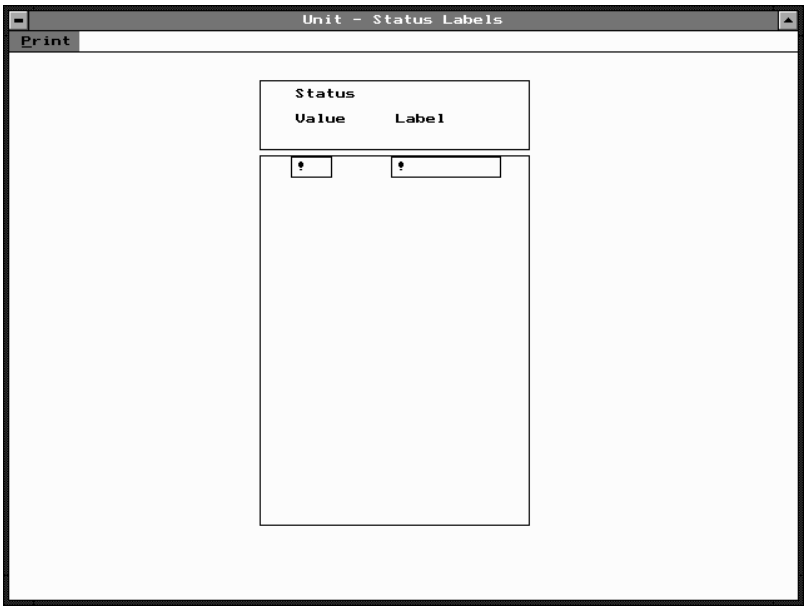
Unit - Status Labels

PGM2040 Only

Use the Unit - Status Labels screen to set a list of status labels for the mobile. To open this screen, click on the Unit - Status Labels option from the Edit keyword menu.

Note: This screen uses Array Boxes for settings. Remember to press the F2 key to insert each line for data entry.

The Unit - Status Labels screen appears as follows:



The Unit - Status Labels settings are as follows:

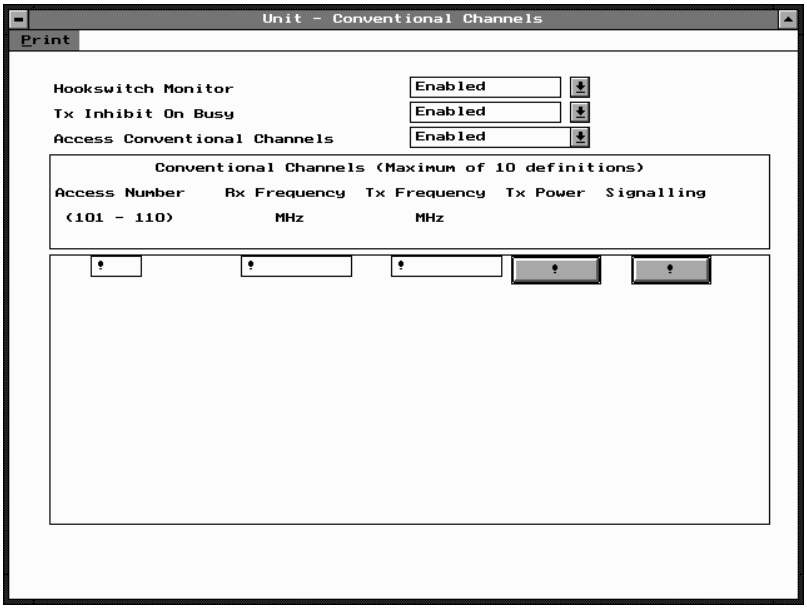
Field	Description	Settings
Status Value	Use this field to set the Status Value for the radio to transmit.	Enter a value from *1* to *30*.
Status Labels	Use this field to assign a meaningful label to the Status Value. The status calls facility must be enabled before Status messages may be sent.	Enter a string between 1 and 8 characters in length in any combination of the characters A to Z, 0 to 9 or -. Labels must be unique. Usable characters are in 10 groups. Characters in each group are regarded as identical, so that the label AGE is the same as the label BID. The groups are as follows: *1* *2,A,B,C* *3,D,E,F* *4,G,H,I* *5,J,K,L* *6,M,N,O* *7,P,Q,R,S* *8,T,U,V* *9,W,X,Y,Z* *0*

Unit - Conventional Channels

Use the Unit - Conventional Channels screen to set a list of conventional channels for the mobile. To open this screen, click on the Unit - Conventional Channels option from the Edit keyword menu.

Note: This screen uses Array Boxes for settings. Remember to press the F2 key to insert each line for data entry.

The Unit - Conventional Channels screen, with default settings, appears as follows:



The Unit - Conventional Channels settings are as follows:

Field	Description	Settings
Hookswitch Monitor	When enabled, the user may unmute the audio by taking the microphone offhook, regardless of any signalling options installed.	Select *Enabled* or *Disabled*.
Tx Inhibit On Busy	If enabled, prevents the unit from transmitting when there is activity on a channel.	Select *Enabled* or *Disabled*.
Access Conventional Channels	(read only)	
Conventional Channel Access Number	Defines the string that will change the unit to a predefined channel. In the T203X, define this Access Number also as a preset on the Unit - Preset Calls screen. The Access Number may be entered from the front panel of the T2040, so define it as a preset only if specifically required.	**PGM2040:** Enter a value from *101* to *110*. **PGM203X:** Enter a value from *101* to *104*.
Conventional Channel Rx Frequency	Defines the receive frequency for the conventional channel.	Enter a frequency between the upper and lower frequency limits defined in Radio Type. **100 to 700MHz radios:** Enter a multiple of either 5kHz or 6.25kHz. **800MHz radios:** Enter a multiple of 12.5kHz. See the Specifications page for the Radio Type setting.

continued on next page

Unit - Conventional Channels Settings - continued

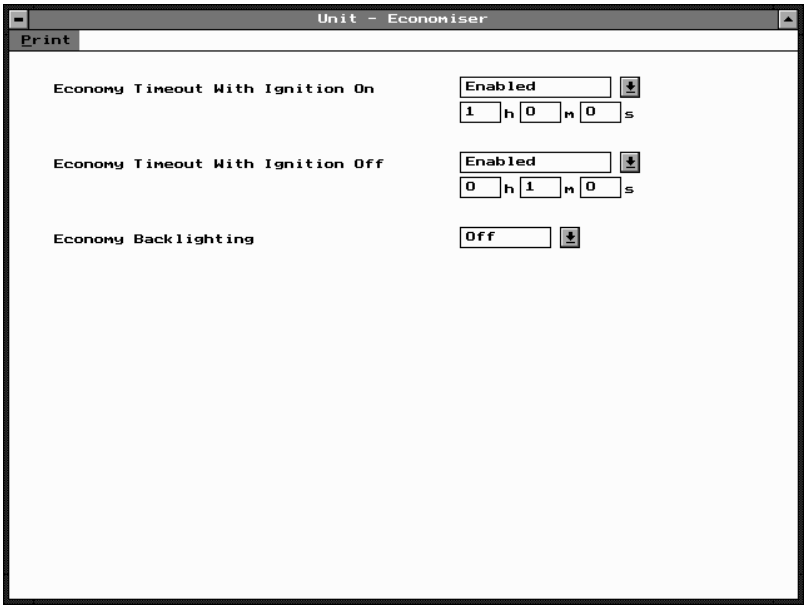
Field	Description	Settings
Conventional Channel Tx Frequency	Defines the transmit frequency for the conventional channel.	Enter a frequency between the upper and lower frequency limits defined in Radio Type. **100 to 700MHz radios:** Enter a multiple of either 5kHz or 6.25kHz. **800MHz radios:** Enter a multiple of 12.5kHz. See the Specifications page for the Radio Type setting.
Conventional Channel Tx Power	Defines the power level of the transmitter for each channel.	Set to *High* or *Low*. If *High* is selected, the user can still select low power using the radio controls. If *Low* is selected, the user cannot select high power for that channel.
Conventional Channel Signalling	Defines the Signalling Interface. This requires an option board to be fitted and is enabled when the channel is selected.	Set to *On* or *Off*.

Unit - Economiser

Use this screen to set the mobile to minimise power consumption by switching off unnecessary circuitry when there is no traffic on the selected channel.

If the appropriate vehicle connections are present, the mobile will detect whether the vehicle's ignition is on or off, and respond appropriately. Any activity on the selected channel, or input from the user, will return the mobile to a fully active state.

The Unit - Economiser screen, with default settings, appears as follows:



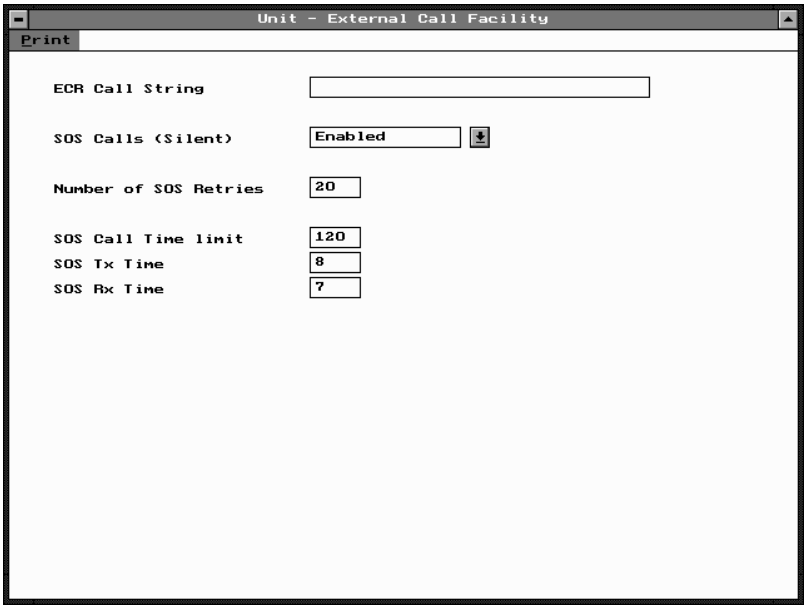
The Unit - Economiser settings are as follows:

Field	Description	Settings
Economy Timeout With Ignition On With Ignition Off	Sets how long the mobile will remain fully active when there is no activity on the selected channel, or input from the user.	To enable a Timeout, select *Enabled* and enter a time of up to 18 hours. To disable a Timeout, select *Disabled*.
Economy Backlighting	Sets the backlighting level for the radio to use when timed out.	Select *Dim* or *Off*.

Unit - External Call Facility

Use the Unit - External Call Facility screen to set the parameters for external calls initiated by internal logic input. To open this screen, click on the Unit - External Call Facility option from the Edit keyword menu.

The Unit - External Call Facility screen, with default settings, appears as follows:



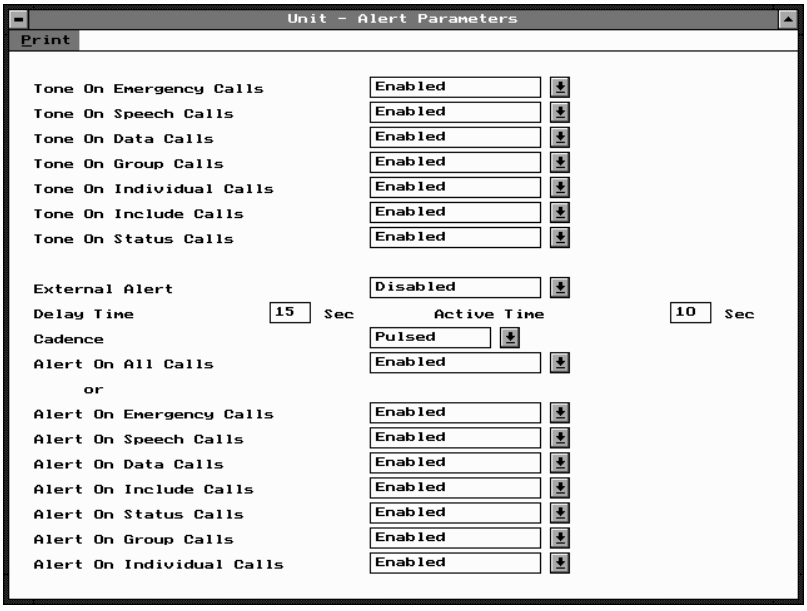
The Unit - External Calls screen settings are as follows:

Field	Description	Settings
ECR Call String	Sets the number the mobile will dial when the its internal ECR line is activated.	Enter any valid dialling sequence using the characters *0-9, *, #*
SOS Calls (Silent)	Sets whether the mobile should process the ECR Call String silently, i.e. with no audible or visual indicators. This may be useful if the External Call facility is to be used in emergency situations.	Select *Enabled* or *Disabled*.
Number of SOS Retries	Sets the number of attempts the mobile will make to set up a call to the ECR Call String after failing to gain a traffic channel.	Enter a number between *0* and *255*.
SOS Call Time Limit	Sets a total call time limit in seconds for SOS Calls. This time limit overrides any other time limits that might be in effect.	Enter a value between *10* and *120*.
SOS Tx Time **SOS Rx Time**	The mobile automatically cycles between Receiving and Transmitting when it makes an SOS Call. Use these fields to set how long the mobile should spend Transmitting and Receiving.	Enter values between *0* and *120* seconds. Ensure that the sum of SOS Tx Time and SOS Rx Time do not exceed the SOS Call Time Limit specified above.

Unit - Alert Parameters

Use the Unit - Alert Parameters screen to set the mobile to activate an internal audible ringing tone, or an external device, such as the car horn or lights, in response to an incoming call. To open this screen, click on the Unit - Alert Parameters option from the Edit keyword menu.

The Unit - Alert Parameters screen, with default settings, appears as follows:



The Unit - Alert Parameters screen settings are as follows:

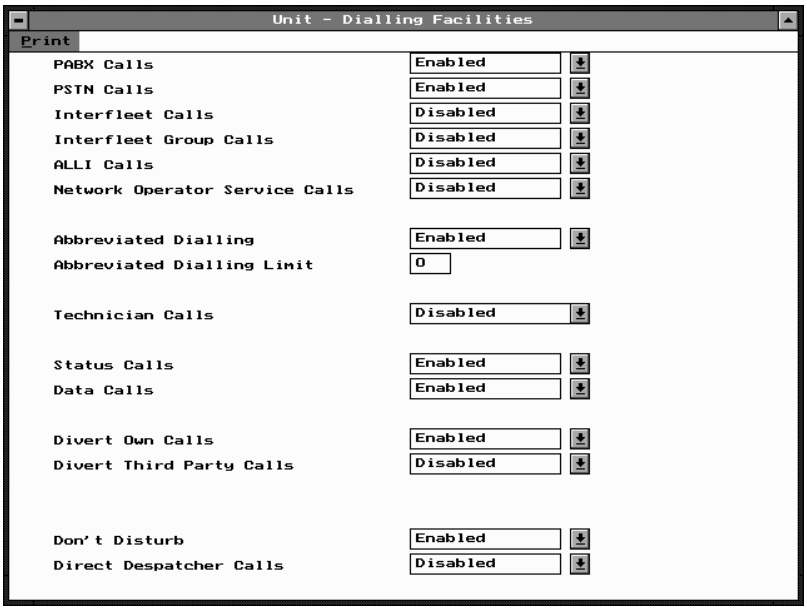
Field	Description	Settings
Tone on ... • Emergency • Speech • Data • Group • Individual • Include or • Status Calls	These fields set, on a call-type by call-type basis, which types of call will activate the radio's internal ringing feature.	Select *Enabled* or *Disabled* for each type of call.
External Alert	Enables and disables external alert.	Select *Enabled* to use external alert. Select *Disabled* to turn external alert off.
Delay Time	Sets how long the mobile pauses after receiving an incoming call, before activating the alert.	Enter a value between *0* and *60*.
Active Time	Sets how long the alert remains on, once started.	Enter a value between *1* and *60*.
Cadence	Sets the signal pattern for the alert.	Select from *Steady*, *Pulsed* or *Ringing*.
Alert on All Calls	Sets whether the external alert will operate for all types of call.	Select *Enabled* to use external alert for any type of call. Select *Disabled* if you wish to specify the call types which should initiate an external alert.
Alert on ... • Emergency • Speech • Data • Include • Status • Group or • Individual Calls	These fields set, on a call-type by call-type basis, which types of call will activate the external alert.	Select *Enabled* or *Disabled* for each type of call.

Unit - Dialling Facilities

PGM2040 Only

Use the Unit Dialling Facilities screen to set the types of calls that can be made. To open this screen, click on the Unit - Dialling Facilities option from the Edit keyword menu.

The Unit - Dialling Facilities screen, with default settings, appears as follows:



The Unit - Dialling Facilities settings are as follows:

Field	Description	Settings
PABX Calls	If enabled, permits the user to set up a PABX (Private Automatic Branch Exchange) call.	Select *Enabled* or *Disabled*.
PSTN Calls	If enabled, permits the user to set up a call to a PSTN (Public Switched Telephone Network) subscriber.	Select *Enabled* or *Disabled*.
Interfleet Calls	If enabled, permits the user to set up an Interfleet call. Mobiles on a network are grouped into 'fleets' of users. An 'Interfleet call' is a call between two users who are members of different fleets. This setting only makes ***individual*** Interfleet calls available. Group Interfleet calls can be made if Interfleet Group Calls is enabled. Unless there is a special reason to allow this type of call, disable this facility.	Select *Enabled* or *Disabled*.
Interfleet Group Calls	If enabled, permits the user to set up an interfleet group call. This setting only makes group Interfleet calls available. Individual Interfleet calls can be made if Interfleet Individual Calls is enabled. Unless there is a special reason to allow this type of call, disable this facility.	Select *Enabled* or *Disabled*.

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Unit - Dialling Facilities Settings - continued

Field	Description	Settings
ALLI Calls	If enabled, permits the user to set up an "all idents" call. This facility would normally only be used by network technicians. **CAUTION** Do not enable this facility unless you are authorised to do so for this mobile by the network operator.	Select *Enabled* or *Disabled*.
Network Operator Service Calls	If enabled, permits the user to set up a network operator service call. This service may be provided by the network operator to report faults, for example.	Select *Enabled* or *Disabled*.
Abbreviated Dialling	If enabled, permits the user to set up a network based abbreviated dialling call. If abbreviated dialling is disabled then these calls may not be made and the Abbreviated Dialling Limit becomes meaningless.	Select *Enabled* or *Disabled*.
Abbreviated Dialling Limit	Defines the number of different abbreviated dialled calls a unit can make. The radio permits entry of up to 49 abbreviated dialling calls but the network may not provide that many.	Enter a value between *0* and *49*. (Consult the network operator to determine how many abbreviated dialling calls are available.)

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Unit - Dialling Facilities Settings - continued

Field	Description	Settings
Technician Calls	If enabled, permits the user to set up a special call to directly access any unit on the network. This facility is normally only used by network technicians. **CAUTION** Do not enable this facility unless you are authorised to do so for this mobile by the network operator.	Select *Enabled* or *Disabled*.
Status Calls	If enabled, permits the user to send a status call. This is a coded message sent as a number from 1 to 30. It is used between two parties where the number has a prearranged meaning. If status calls are enabled, consider programming status labels with the prearranged messages used in this fleet. This will make interpreting and sending these messages much easier.	Select *Enabled* or *Disabled*.
Data Calls	Sets whether the user may set up Data Calls.	Select *Enabled* or *Disabled*.
Divert Own Calls	If enabled, permits the user to divert incoming calls to another unit.	Select *Enabled* or *Disabled*.
Divert Third Party Calls	If enabled, permits the user to divert another unit's incoming calls to a different destination.	Select *Enabled* or *Disabled*.

continued on next page

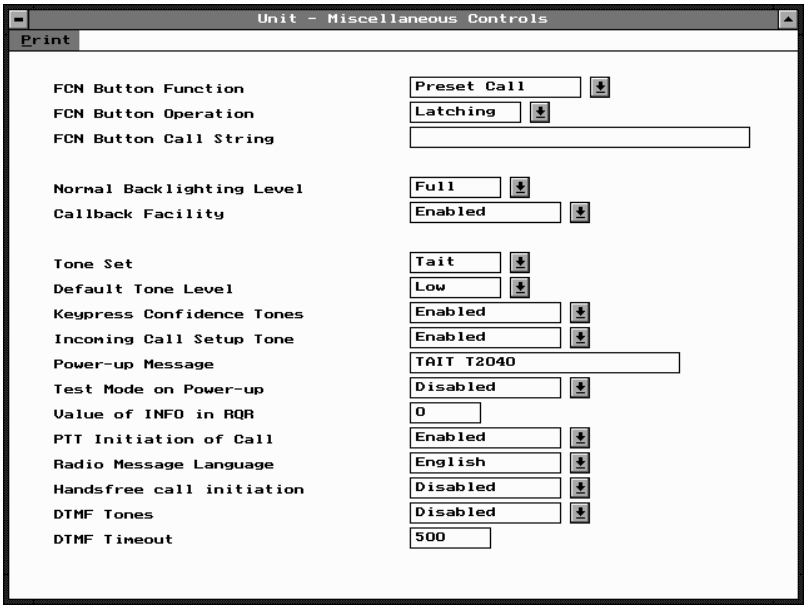
Unit - Dialling Facilities Settings - continued

Field	Description	Settings
Don't Disturb	If enabled, permits the user to set the radio to ignore incoming calls while still allowing outgoing calls to be made as usual. This may be done using the T2040's user menu. If disabled, the mobile always receives calls while it is switched on and in range of the network. These calls may be accepted or queued.	Select *Enabled* or *Disabled*.
Direct Despatcher Calls	If disabled, normal speech calls to the despatcher cannot be made. The despatcher's number is defined in the Prime Despatcher Number field of the Own Fleet Parameters screen. Users can still enter and leave the despatcher's queue (if available) using the dial strings *0# and #0#.	Select *Enabled* or *Disabled*.

Unit - Miscellaneous Controls

Use the Unit - Miscellaneous Controls screen to set function keys, tones, and other controls. To open this screen, click on the Unit - Miscellaneous Controls option from the Edit keyword menu.

The Unit - Miscellaneous Controls screen for PGM2040, with default settings, appears as follows:



Note: The PGM203X version of this screen lacks the Power-up Message and Radio Message Language fields.

The Unit - Miscellaneous Controls settings are as follows

Field	Description	Settings
FCN Button Function	Sets an operation for the Function Button to perform.	Select from: • Auxiliary Output • External Alert • Preset Call • Disabled
FCN Button Operation	Controls the operation of the auxiliary output line when FCN Button Function is set to *Auxiliary Output*.	Select *Momentary* to switch the Auxiliary Output line for only as long as the Function Button is pressed. Select *Latching* to toggle the Auxiliary Line permanently between settings each time the Function Button is pressed.
FCN Button Call String	Defines a Preset Call String for the Function Button. Only available if the FCN Button Function field is set to *Preset Call.*	Enter any valid dial string using the characters *0 - 9*, *** and *#*.
Normal Backlighting Level	Sets the backlighting level for the mobile when not in economy mode.	Select from *Full*, *Dim* and *Off.*
Callback facility	If enabled, when an answered incoming call 'clears down,' its number is displayed. This permits the user to call back the calling radio by pressing [PTT].	Select *Enabled* or *Disabled*.
Tone Set	Defines the style of audible indicators produced by the radio.	Select one of the following: *-Tait* *-MPT1343* The choice should be the same for all radios in the fleet.
Default Tone Level	Sets the sound level for audible indicators.	Select *Low* or *High.*

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Unit - Miscellaneous Controls Settings - continued

Field	Description	Settings
Keypress Confidence Tones	Enables and disables the audible confidence indicators that sound whenever a key is pressed. (This setting does not affect warning or other tones.)	Select *Enabled* or *Disabled*.
Incoming Call Setup Tones	Specifies whether the radio is to sound tones while incoming calls are being set up.	Select *Enabled* or *Disabled*.
Power Up Message (PGM2040 only)	Defines the message which appears on the T2040 LCD on power-up.	Enter a message. Usable characters are *A - Z, 0 - 9 * - + < >, forwards slash, backwards slash* and *space*.
Test Mode on Power Up	The radio will power-up in the mode it was in when it was turned off, except after programming when it may be preset to power-up in either Test Mode or Trunked Mode. Use this field to set the power-up mode for after programming.	Select *Enabled* to power-up the radio in Test Mode after programming. Select *Disabled* to power-up the radio in Trunked Mode after programming.
Value of INFO in RQR	Defines a 15 bit value which is added to the INFO field when a radio requests registration. This INFO value is available for customising by systems, to convey additional information to the Trunking System Controller (TSC).	Normally, set to *0*. If you require Nokia ANN numbering, set to *16*. Consult your network operator if in any doubt.
PTT Initiation of Call	If enabled, a call is made to the number in the display when the user presses [PTT] with the radio in an idle state and in trunked mode.	Select *Enabled* or *Disabled*.
Radio Message Language (PGM2040 only)	Sets a language for the T2040 to use to display messages on the LCD.	Select *English*, *French* or *German*.

continued on next page

Unit - Miscellaneous Controls Settings - continued

Field	Description	Settings
Handsfree Call Initiation	Allows call setup and answering using a footswitch (available with the T2000-50 handsfree kit). See the PGM2000 online help for information about VOX settings and hardware requirements for this option.	Select *Enabled* or *Disabled*.
DTMF Tones	Allows DTMF dialling on a traffic channel, if a DTMF module is fitted. **T2040 Only**	Select *Enabled* or *Disabled*.
DTMF Timeout	Time between the release of the last key in a DTMF sequence, and the end of transmission. **T2040 Only**	Enter a number between *100* and *2500* (ms).

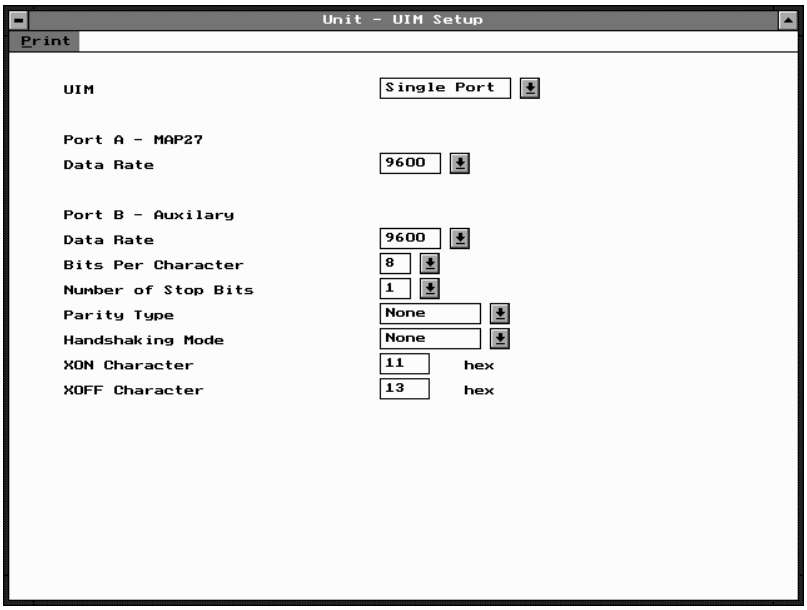
UIM Setup (UART Interface Module)

The UIM option allows the radio to communicate with a PC, to allow remote control of the radio and data transmission.

Note: The UIM Setup screen may be referred to as the CCI Setup screen by some application documentation.

Use the UIM Setup screen to enter settings for UIM mode functions. To open this screen, click on UIM Setup in the Edit keyword menu.

The UIM Setup screen appears as follows:



The requirements for many of the settings on this page are variable, depending on the type of device the UIM must communicate with. Information about configuring the UIM for specific applications is available from the following sources:

- the T2040 Series II Operator's Manual
- the on-line help facility in PGM2040
- the T2000 Series Service Manual (M2000-00-200, or later).

Note 1: The Port B option in the UIM Setup screen is Disabled (grey) and cannot be used if Single has been selected in the UIM field.

Note 2: Port B settings do not apply if the radio software is later than v2.xx.

The table below lists the UIM settings.

Field	Description	Settings
UIM	Select type of module fitted to the radio.	Select *Single Port* (T2000-66 fitted), or *Dual Port* (T2000-60 fitted).
Port A - MAP27 Data Rate	Sets the UIM baud rate on Port A.	Select one of the available settings.
Port B - Auxilary Data Rate	Sets the UIM baud rate on Port B.	Select one of the available settings.
Bits Per Character	The number of bits per character can be set for each port. The most common character set is seven bit ASCII (i.e. CCITT alphabet No. 5).	Select from *7* or *8* bit ASCII.
Number of Stop Bits	Sets the number of stop bits to append to each character, for each port.	Select from *1* or *2* stop bits.
Parity Type	Sets the parity for each port.	Select from *Even, Odd* or *None*.
Handshaking Mode	Sets the handshaking mode for each port.	Select from *Hardware, Software* or *None*.

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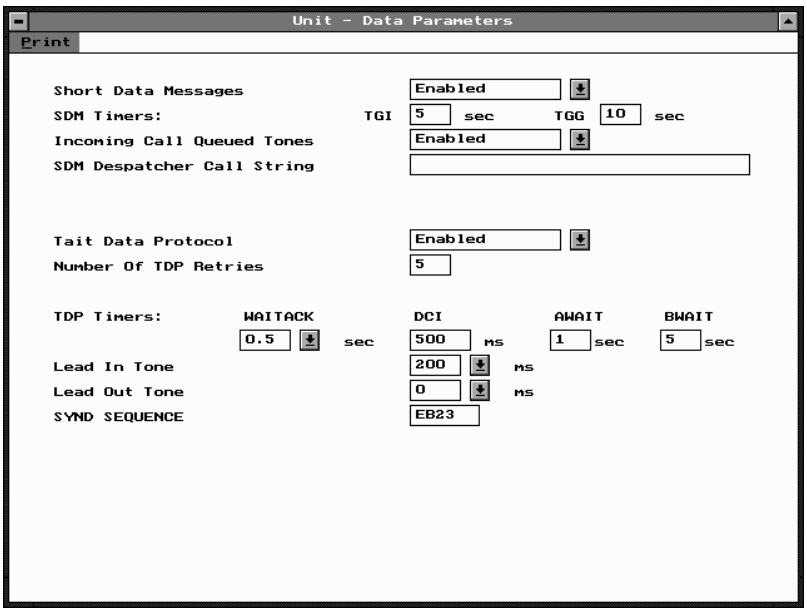
UIM Setup (UART Interface Module) Settings - continued

Field	Description	Settings
XON Character	If the 'Handshaking' mode is 'Software', the XON character must be defined. When the radio detects this character, it will turn the flow of data on.	Enter a hex number between *0* and *FF*.
XOFF Character	If the 'Handshaking' mode is 'Software', the XOFF character must be defined. When the radio detects this character, it will turn the flow of data off.	Enter a hex number between *0* and *FF*.

Unit - Data Parameters

Use this page to define the parameters that govern data exchange via the Short Data Message facility and the Tait Data Protocol. The Unit - Data Parameters page is only available if the UIM board is present and UIM has been entered under Option Board Type on the Specifications page.



The Unit - Data Parameters settings are as follows:

Field	Description	Settings
Short Data Messages (PGM2040 only)	When enabled, the radio may send and receive Short Data Messages.	Select *Enabled* or *Disabled*.
SDM Timers	These define the length of time the radio is to wait for further signalling during short data calls. TGI is the Short Data Timer for individual calls, and TGG is the Short Data Timer for group calls. If either timer lapses, any future short data signalling is assumed to be a new transaction.	TGI: enter a value from *0* to *16* TGG: enter a value from *1* to *30*
Incoming Call Queued Tones	When enabled, the radio beeps periodically to indicate that there are calls in the queue.	Select *Enabled* or *Disabled*.
SDM Despatcher Call String (PGM2040 only)	Defines the call string to use when sending status messages.	Enter any valid call string.
Tait Data Protocol	When enabled, the radio may send or receive data calls using an internal modem and the Tait Data Protocol.	Select *Enabled* or *Disabled*.
Number of TDP Retries	Sets the number of times the radio will attempt to re-send a failed Tait Data Protocol code-word before clearing down the call.	Enter a value from *1* to *16*.
TDP Timers: WAITACK	Sets how long the radio is to wait for acknowledgement after sending a packet. Once this time has elapsed, the radio will re-send the packet.	Select a time from the available options.

continued on next page

Unit - Data Parameters Settings - continued

Field	Description	Settings
TDP Timers: DCI	Sets how long the radio is to wait after each receive or transmit activity, before sending an empty packet to retain the link.	Enter a multiple of 100 between *100* and *2000*.
TDP Timers: AWAIT	Sets the length of time the radio is to wait before the first transmission after initiating a group call. This pause ensures that all parties have received the Go To Channel message.	Enter a value between *1* and *15*.
TDP Timers: BWAIT	Sets the length of time the radio is to wait for contact during call setup before assuming that the channel has failed and clearing down the call.	Enter a value between *5* and *15*.
Lead In Tone	Sets the duration of the leader tone that is placed before all Tait Data Protocol codewords. This tone ensures that all repeaters are on and ready to receive the codeword.	Select a time from the available options.
Lead Out Tone	Sets the duration of the tone that follows all Tait data protocol codewords. Used to ensure that squelch tail eliminators do not interfere with codewords.	Select a time from the available options.
SYND Sequence	Defines the SYND sequence to be used by Tait Data Protocol codewords. The definition must be different to both SYNC and SYNT to ensure that the TSC doesn't try to decode the Tait Data Protocol codewords.	Enter an appropriate hex number between *0* and *FFFF*.

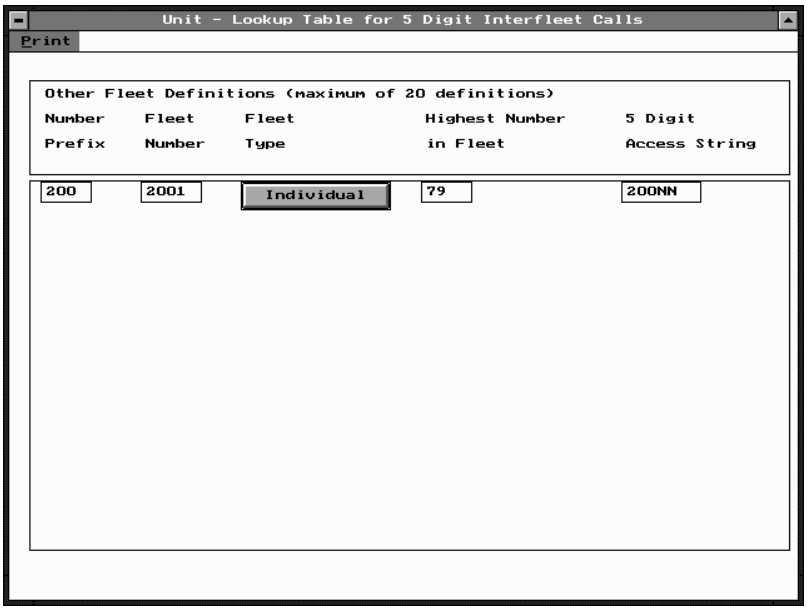
Unit - Lookup Table for 5 Digit Interfleet Calls

PGM2040 Only

Use this screen to set a list of preset Interfleet calls that can be selected by dialling five digits. To open this screen, click on the Unit - Lookup Table for 5 Digit Interfleet Calls option from the Edit keyword menu.

Note: This screen uses Array Boxes for settings. Remember to press the F2 key to insert each line for data entry.

The Unit - Lookup Table for 5 Digit Interfleet Calls screen appears as follows:



Note: The screen is shown with a data line inserted, with default settings.

The Unit - Lookup Table for 5 Digit Interfleet Calls settings are as follows:

Field	Description	Settings
Number Prefix	Sets the lookup table number prefix. The interfleet Lookup Table is used to define up to 20 radio fleets that may be accessed using 5 digit dialling (rather than by longer sequences discussed in Interfleet Calls and Interfleet Group Calls in the Unit - Dialling Facilities screen). Before programming a lookup table for 5 digit interfleet dialling, either Interfleet Calls or Interfleet Group Calls (Unit - Dialling Facilities screen) must be enabled.	In MPT1343, the number prefix must be from *200* to *327*. If you do not know the number prefix of the fleet to be called, or the network is not MPT1343 compliant, consult the network operator.
Lookup Table Fleet Number	Sets the lookup table fleet number.	In MPT1343, the fleet number must be from *2001* to *6050*. If you do not know the fleet number of the fleet to be called, or the network is not MPT1343 compliant, consult the network operator.
Lookup Table Fleet Type	Sets the Lookup table fleet type. This specifies whether the call is an *Individual* or a *Group* call. The types are the same for Interfleet calls as they are for normal in-fleet calls. Before individual Interfleet calls may be made Interfleet Calls (Unit-Dialling Facilities screen) must be set to Enabled; before group Interfleet calls may be made Interfleet Group Calls (Unit-Dialling Facilities screen) must be set to Enabled.	Select *Individual* or *Group*.

continued on next page

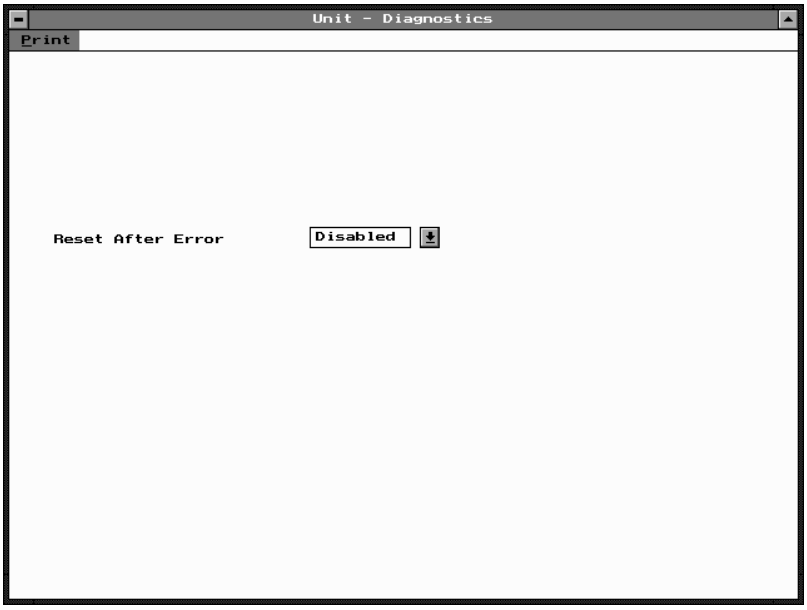
Unit - Lookup Table for 5 Digit Interfleet Calls Settings - continued

Field	Description	Settings
Lookup Table Highest No In Fleet	Defines the highest number in the fleet the user might wish to call.	In MPT1343, if this lookup entry is being defined for individual calls then the number range is *20* to *89* or *200* to *899*. If the lookup entry is being defined for group calls then the number range is *90* to *99*, or *900* to *998*. If you are unsure as to the correct highest number in the fleet for the fleet to be called, or your network is not MPT1343 compliant, consult the network operator.
Lookup Table 5 Digit Access String	Defines the five digit, short form number to be dialled by the user.	Accept the default number selected by PGM2040, or enter your own access string. The first two digits must be unique and start with either *2* or *9*. MPT1343 recommends you use 2 as the first character of the access string for individual calls and 9 as the first character for group calls (this is not mandatory).

Unit - Diagnostics

Use this screen to set whether or not a radio resets after a system error. To open this screen, click on the Unit - Diagnostics option from the Edit keyword menu.

The Unit - Diagnostics screen, with default setting, appears as follows:



The Unit - Diagnostics setting is as follows:

Field	Description	Setting
Reset After Error	If this is enabled, the radio will reset after a system error.	Select *Enabled* or *Disabled*.

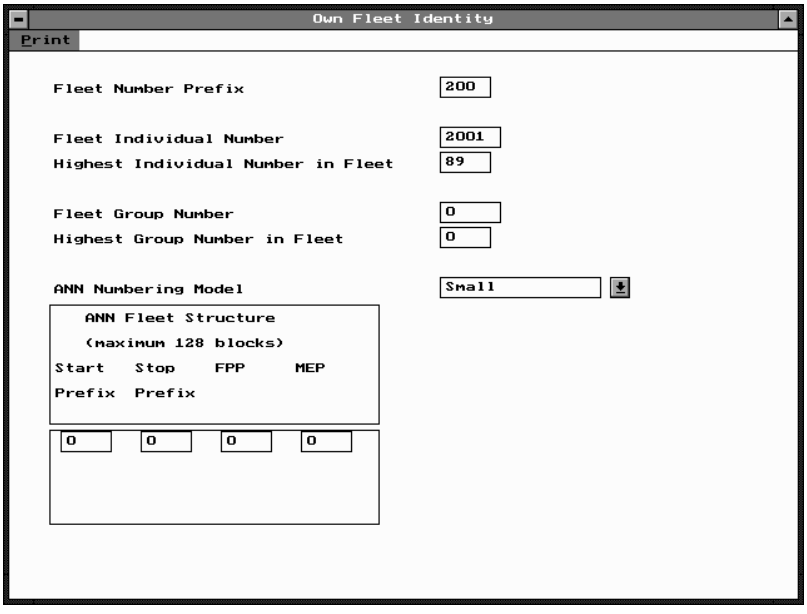
Own Fleet Identity

Use the Own Fleet Identity screen to define the parameters of the fleet within which the mobile will operate.

- The network operator or service provider should provide the information you need to complete this screen.
- Further information is also available in the PGM2000 on-line help.
- Own Fleet Identity information must be common to all radios in the fleet.

To open this screen, click on the Own Fleet Identity option from the Edit keyword menu.

The Own Fleet Identity screen, with default settings, appears as follows:



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The Own Fleet Identity settings are as follows:

Field	Description	Settings
Fleet Number Prefix	Determines an MPT1343 value that must be common to all units in a fleet. This prefix forms part of the address of individual units. It is assigned by the network operator.	Enter an assigned value from *200* to *327*.
Fleet Individual Number	Used with the Own Individual Number and Fleet Number Prefix to uniquely identify the unit within the network.	In MPT1343, the Fleet Individual Number must be from *1* to *6050*. It is assigned by the network operator.
Highest Individual Number in Fleet	Defines the highest individual number that may be called by any unit within a fleet. It is assigned by the network operator.	In MPT1343, this number is from *20* to *89*, or *200* to *899*. In Regionet 43, this number is from *20* to *79*, or *200* to *799*. This number is assigned by the network operator.
Fleet Group Number	Used with Own Group Addresses and Fleet Number Prefix to identify groups of units within the network.	In MPT1343, the Fleet Group Number must be from 2001 to 6050. It is assigned by the network operator. If the user is not allowed group calls, enter *0*.
Highest Group Number in Fleet	Defines the highest group number that may be called by any unit within a fleet.	If the value of Fleet Group Number is 0 then this field must also be 0. This number is assigned by the network operator.

continued on next page

Own Fleet Identity Settings - continued

Field	Description	Settings
ANN Numbering Model	Defines the length of string to be used for Interfleet numbers when the Nokia ANN Dialling Scheme is selected on the Own Fleet Parameters screen.	Select *Small* for 5 digit Interfleet numbers. Select *Medium* for 6 digit Interfleet numbers. Select *Large* for 7 digit Interfleet numbers. Select *Extended Large* for 7 or 8 digit Interfleet numbers.
Start Prefix	The first prefix of the range to which the values given for FPP and MEP apply.	The range of numbers available for this field depends on the ANN Numbering Model selected. This number is assigned by the network operator.
Stop Prefix	The last prefix of the range to which the values given for FPP and MEP apply.	The range of numbers available for this field depends on the ANN Numbering Model selected. This number is assigned by the network operator.
FPP	FPP (the Fleet Partitioning Parameter) is used with MEP to define the fleet structure of a Prefix range.	Enter a value between *0* and *10*. This number is assigned by the network operator.
MEP	MEP (the Miniaturisation Extent Parameter) is used with FPP to define the fleet structure of a Prefix range.	Enter a value between *0* and *10*. This number is assigned by the network operator.

Own Fleet Parameters

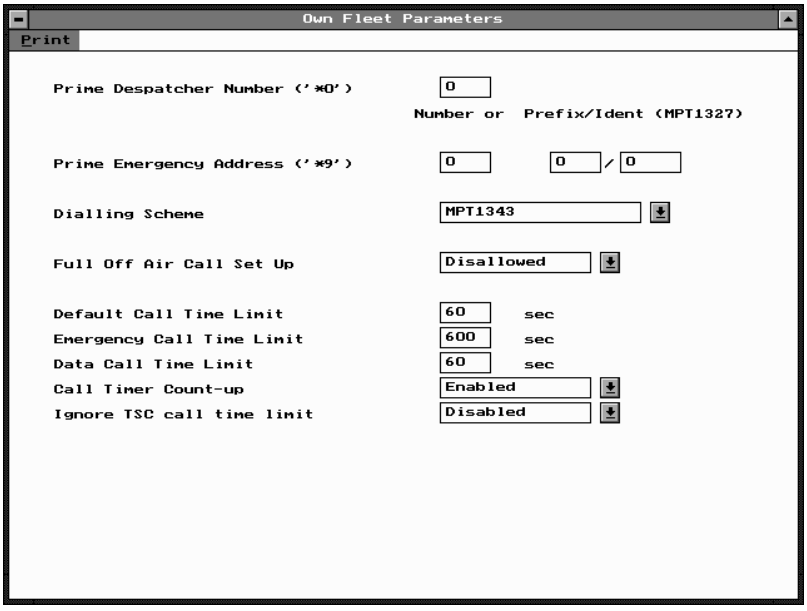
Use the Own Fleet Parameters screen to define additional parameters for the fleet within which the mobile will operate.

As for the Own Fleet Identity screen,

- The network operator or service provider should provide the information you need to complete this screen.
- Further information is also available in the PGM2000 online help.
- Own Fleet Parameters information must be common to all radios in the fleet.

To open this screen, click on the Own Fleet Parameters option from the Edit keyword menu.

The Own Fleet Parameters screen, with default settings, appears as follows:



The Own Fleet Parameters settings are as follows:

Field	Description	Settings
Prime Despatcher Number ('*0')	Defines the number which the mobile defaults to when a despatcher call (* 0) is dialled without specifying a unit number. **Note:** *The Prime Despatcher Number and Prime Emergency Address fields, while available on this page, can not be accessed from the T203X front panel.*	Enter a valid unit number within the radio's own fleet. For fleets without a despatcher, enter *0*.
Prime Emergency Address ('9')	Defines the number which the unit defaults to when a emergency call (* 9) is dialled without specifying a radio number.	Enter a valid unit number within the radio's own fleet. If the prime emergency address is not a valid unit number within the radio's own fleet, then the number may be entered in MPT1327 format using the Prefix and Ident fields. (In this case, enter *0* here). Disable the prime emergency address by setting this field to *0*.
Dialling Scheme	Defines the sequences that can be entered on the front panel.	Depending on the network, select from the following options: • MPT1343 • *ZVEI* • Number Presets • Nokia ANN (If selecting Nokia ANN, ensure that "Value of Info in RQR" is set to *16* on the Miscellaneous Controls screen).
Full Off Air Call Set Up	Some systems can seek acknowledgement from the called party before setting up a call. This field specifies whether such acknowledgement is required.	Set to *Allowed* or *Disallowed*. If this field is set to *Disallowed*, calls are set up without acknowledgement from the called party. If set to *Allowed*, an acknowledgement is sought from the called party.

continued on next page

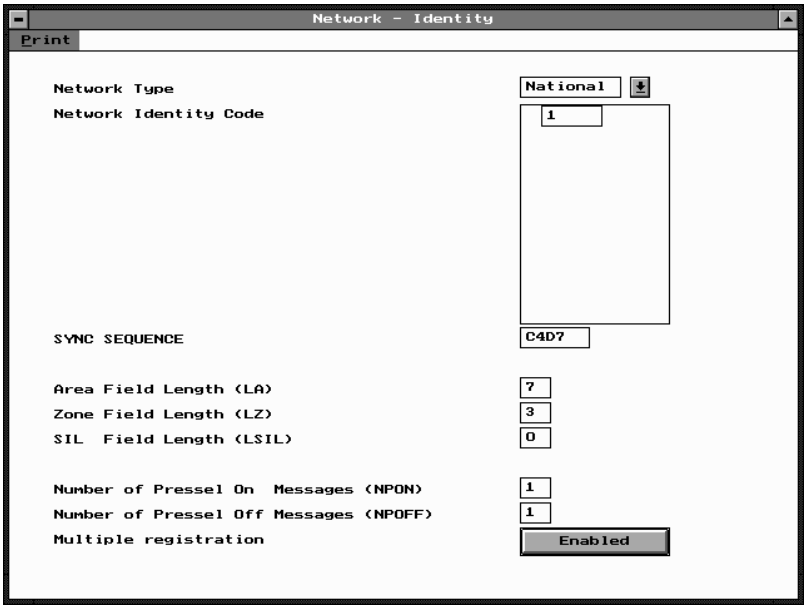
Own Fleet Parameters Settings - continued

Field	Description	Settings
Default Call Time Limit	Defines the maximum time that a call may be set up for. In MPT1327, this value can be overwritten by a BROADCAST message from the system.	Enter any of the following values: - *0* (no limit on call time) - *10* to *254* seconds in steps of 1 - *300* to *780* seconds in steps of 60.
Default Emergency Call Time Limit	Defines the maximum time that an emergency call may be set up for.	Enter any of the following values: - *0* (no limit on call time) - *10* to *254* seconds in steps of 1 - *300* to *780* seconds in steps of 60.
Data Call Time Limit	Defines the maximum time that a data call may be set up for.	Enter any value between *0* and *180* in steps of *30* seconds. Enter *0* for unlimited data call time.
Call Timer Count-up	If enabled, and if Default Call Time Limit is set to *0*, the radio displays the current call time length.	Select *Enabled* or *Disabled*.
Ignore TSC Call Time Limit	If Enabled, any TSCLIM value received in a BCAST SYSDEF message will be ignored and the radio will use the Default Call Time Limit as programmed.	Select *Enabled* or *Disabled*.

Network - Identity

Use the Network - Identity screen to set network identity information for the mobile. To open this screen, click on the Network Identity option from the Edit keyword menu.

The Network - Identity screen, with default settings, appears as follows:



The Network - Identity settings are as follows:

Field	Description	Settings
Network Type	Specifies the network type.	Select *National*, or *Regional*. The network operator will tell you the correct setting.
Network Identity Code	Sets the network's identity code.	In MPT1327, if the Network Type is National, enter a value from 0 to 3; if Network Type is Regional, enter a value from 0 to 127. **Note:** *National can have 1 code, and Regional can have 8.* Consult the network operator for the correct code value.
SYNC Sequence	Enter the bit sequence used to synchronise signalling on the channel.	Enter the SYNC sequence code in hexadecimal format. MPT1327 and MPT1343 define SYNC as C4D7. PAA2424 defines SYNC as *B433*. Consult your network operator for the correct SYNC sequence.
Area Field Length (LA)	Used in a test carried out by the radio to see if it can acquire a control channel.	The value depends on the value of Network Type. In MPT1327, if the Network Type is National enter a value from *0* to *9*; if the Network Type is Regional enter a value from *0* to *4*. Consult the network operator for the correct field length value.
Zone Field Length (LZ)	Used in a test carried out by the radio to see if it can acquire a control channel.	Consult the network operator for the correct zone field length value.
SIL Field Length (LSIL)	Used in a test by the radio to check whether the clear down message received is from the correct TSC (Trunking System Controller).	Consult the network operator for the correct zone field length value.

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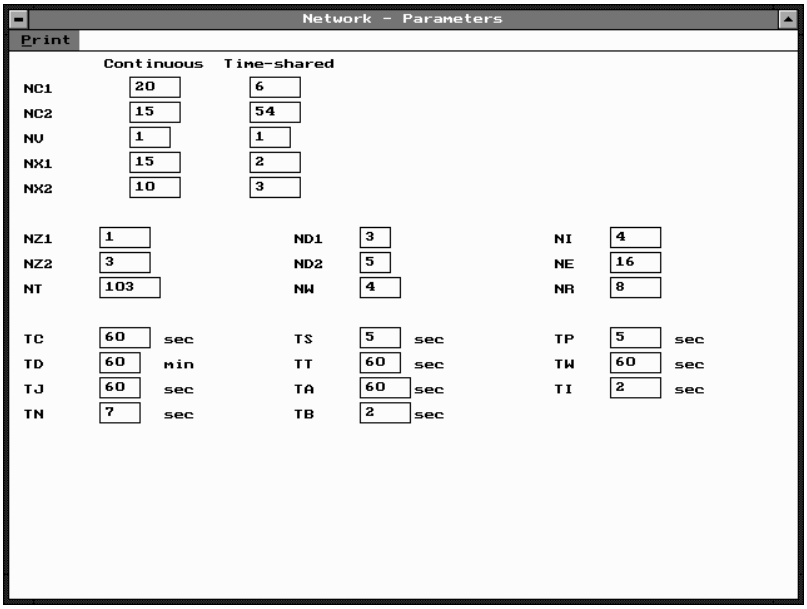
Network - Identity Settings - continued

Field	Description	Settings
Number Of Pressel On Messages (NPON)	Determines how many Pressel On Messages are sent to the system when the [PTT] is pressed during a speech call.	Enter a value from *1* to *5*. Obtain the correct value from the network operator.
Number Of Pressel Off Messages (NPOFF)	Determines how many Pressel Off Messages are sent to the system when the [PTT] is released during a speech call.	Enter a value from *1* to *5*. Obtain the correct value from the network operator.
Multiple Registration	Determines whether or not a radio stores multiple registration records.	Select *Enabled* or *Disabled*.

Network - Parameters

Use the Network - Parameters screen to set specific network address and control data for the mobile. To open this screen, click on the Network - Parameters option from the Edit keyword menu.

The Network - Parameters screen, with default settings, appears as follows:



The Network - Parameters settings are as follows:

Field	Description	Settings
NC1 Continuous	Sets the size of the error check sample (number of codewords) prior to confirmation for a continuous control channel.	Enter a value from *0* to *255*. Obtain the correct value from the network operator.
NC1 Timeshared	Sets the size of the error check sample (number of codewords) prior to confirmation for a timeshared control channel.	Enter a value from *0* to *255*. Obtain the correct value from the network operator.
NC2 Continuous	Sets the size of the error check sample (number of codewords) after confirmation for a continuous control channel.	Enter a value from *0* to *255*. Obtain the correct value from the network operator.
NC2 Timeshared	Sets the size of the error check sample (number of codewords) after confirmation for a timeshared control channel.	Enter a value from *0* to *255*. Obtain the correct value from the network operator.
NV Continuous	Sets the number of consecutive CCSCs (codewords) required to select a value of SYS for verification for a continuous control channel.	Enter a value from *1* to *16*. Obtain the correct value from the network operator.
NV Timeshared	Sets the number of consecutive CCSCs (codewords) required to select a value of SYS for verification for a timeshared control channel.	Enter a value from *1* to *16*. Obtain the correct value from the network operator.
NX1 Continuous	Determines the error codewords limit prior to confirmation for a continuous control channel.	Enter a value from *0* to the values used for NC1 Continuous. Obtain the correct value from the network operator.

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Network - Parameters Settings - continued

Field	Description	Settings
NX1 Timeshared	Determines the error codewords limit prior to confirmation for a timeshared control channel.	Enter a value from *0* to the value used for NC1 Timeshared. Obtain the correct value from the network operator.
NX2 Continuous	Determines the error codewords limit after confirmation for a continuous control channel.	Enter a value from *0* to the value used for NC2 Continuous. Obtain the correct value from the network operator.
NX2 Timeshared	Determines the error codewords limit after confirmation for a timeshared control channel.	Enter a value from *0* to the value used for NC2 Timeshared. Obtain the correct value from the network operator.
NZ1	Sets the number of contiguous error check samples containing no error events.	Enter a value from *1* to *255*. Obtain the correct value from the network operator.
NZ2	Sets the number of contiguous error check samples each generating a codeword error event following an initial error event.	Enter a value from *1* to *255*. Obtain the correct value from the network operator.
NT	Sets the maximum TSC response delay to unsolicited traffic channel messages.	Enter a value from *103* to *1236* in steps of 103. Obtain the correct value from the network operator.
ND1	Sets the number of disconnect messages sent by an individually called radio unit.	Enter a value from *1* to *5*. Obtain the correct value from the network operator.
ND2	Sets the number of disconnect messages sent by a calling radio.	Enter a value from *1* to *5*. Obtain the correct value from the network operator.

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Network - Parameters Settings - continued

Field	Description	Settings
NW	Sets the response delay (in slots).	Enter a value from *1* to *15*. Obtain the correct value from the network operator.
NI	Sets the maximum number of include request access attempts.	Enter a value from *1* to *255*. Obtain the correct value from the network operator.
NE	Determines the maximum number of random access transmissions of RQE (emergency call request).	Enter a value from *1* to *255*. Obtain the correct value from the network operator.
NR	Determines the maximum number of random access transmission of RQS, RQD, RQX, RQT, RQR or RQQ (non-emergency call requests).	Enter a value from *1* to *255*. Obtain the correct value from the network operator.
TC	Sets the random access timeout.	Enter a value from *10* to *120* seconds. in steps of 10. Obtain the correct value from the network operator.
TD	Sets the registration record timeout.	Enter a value from *5* to *70* minutes. in steps of 5. Obtain the correct value from the network operator.
TJ	Sets the further signalling timeout.	Enter a value from *10* to *60* seconds, in steps of 10. Obtain the correct value from the network operator.
TN	Sets the timeout for a radio waiting for call.	Enter a value from *1* to *7* seconds. Obtain the correct value from the network operator.

continued on next page

Network - Parameters Settings - continued

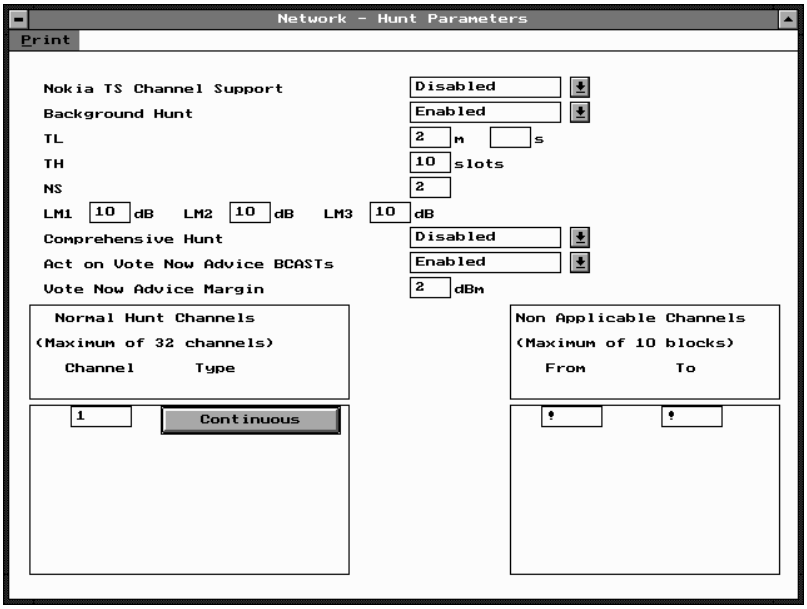
Field	Description	Settings
TS	Sets the delay before leaving a control channel.	Enter a value from *1* to *10* seconds. Obtain the correct value from the network operator.
TT	Sets the maximum transmit duration.	Enter a value from *10* to *60* seconds, in steps of 10. Obtain the correct value from the network operator.
TA	Sets the timeout for the radio unit after receiving an AHY.	Enter a value from *1* to *255* seconds. Obtain the correct value from the network operator.
TB	Determines the time barred from calling the same ident after ACK/ ACKX/ACKV or any ident after a ACKT/ACKB.	Enter a value from *1* to *255* seconds. Obtain the correct value from the network operator.
TP	Determines the maximum interval between periodic messages (within speech items) to be assumed at switch-on.	Enter a value from *1* to *255* seconds. Obtain the correct value from the network operator.
TW	Sets the timeout for the radio unit waiting for a call.	Enter a value from *1* to *255* seconds. Obtain the correct value from the network operator.
TI	Include timer. This sets the maximum time to wait for a response to an include request.	Enter a value from *1* to *255* seconds. Obtain the correct value from the network operator.

Network - Hunt Parameters

Use the Network - Hunt Parameters screen to set the hunt operation of radios on the network, and to specify control channel information. To open this screen, click on the Network - Hunt Parameters option from the Edit keyword menu.

Note: This screen uses Array Boxes for settings. Remember to press the F2 key to insert each line for data entry.

The Network - Hunt Parameters screen, with default settings, appears as follows:



The Network - Hunt Parameters settings are as follows:

Field	Description	Settings
Nokia TS Channel Support	Enables the radio to recognise Nokia timeshared control channels. This significantly improves background hunting performance on timeshared channels. **Note:** *If enabled, the radio will no longer be compliant with MPT1343.*	Select *Enabled* or *Disabled*.
Background Hunt	Specifies whether the radio is to continue hunting for the best control channel when confirmed but idle on a control channel.	Select *Enabled* or *Disabled*.
TL	Specifies how long the radio is to wait after acquiring a control channel before starting a background hunt.	Enter a time between *10 seconds (s)* and *30 minutes (m).* This value is network dependent.
TH	Specifies how long the radio is to spend on each 'timed sampling activity' in the background hunt, before returning to the confirmed channel.	Enter a number of slots between *1* and *99*. This value is network dependent.
NS	Specifies how many 'timed sampling activities' must return qualifying signal strength readings for a channel before the radio will identify that channel as a prospective new control channel.	Enter a number between *1* and *10.*

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Network - Hunt Parameters Settings - continued

Field	Description	Settings
LM1, LM2 and LM3 (limit margins)	A sampled channel must exceed the confirmed channel's signal strength by one of these margins in order to become a prospective control channel. **LM1**: margin effective when neither the confirmed channel or the sampled channel have preferential status. **LM2**: margin effective when both the confirmed and sampled channels have preferential status. **LM3**: margin effective when the confirmed channel does not have preferential status, but the sampled channel does.	Enter values between *0* and *40dB*. These values are network dependent.
Comprehensive Hunt	Determines whether the mobile searches all legitimate, defined channels after a normal hunt has failed to locate a satisfactory control channel.	Select *Enabled* or *Disabled*.
Act on Vote Now Advice BCASTs	Some trunking systems use the Vote Now Advice BCAST codeword to help radios find the best control channel. Set this field to 'Enabled' to take advantage of this feature.	Select *Enabled* or *Disabled*.
Vote Now Advice Margin	A channel sending a Vote Now Advice BCAST must exceed the current control channel's signal strength by this margin at the radio before being acquired as the new control channel.	Enter a value between *1* and *15dB*.

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Network - Hunt Parameters Settings - continued

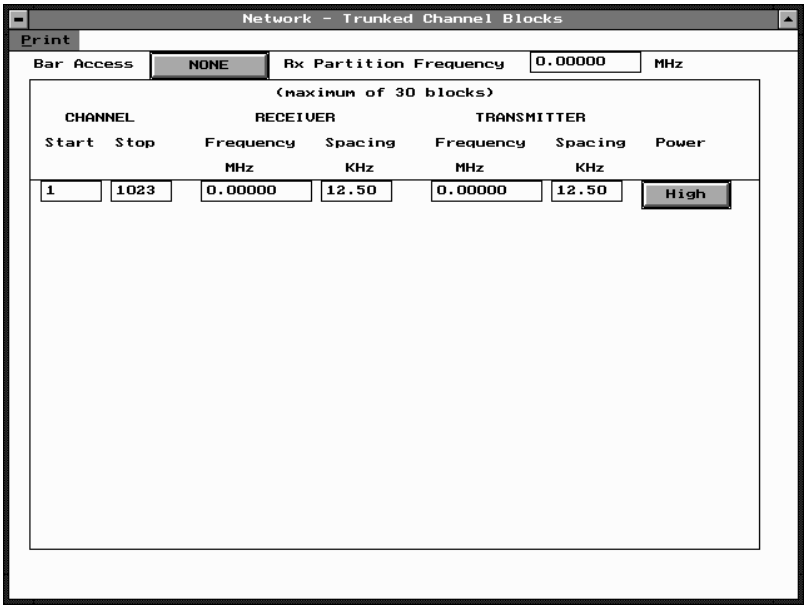
Field	Description	Settings
Normal Hunt Channel Number	Defines a list of channels which are examined during a normal hunt sequence to see if they can be acquired as a control channel. This list may contain up to 32 channels, which are commonly used by the network as control channels. There must be at least one channel defined in the hunt list and Comprehensive Hunt must be either enabled or disabled.	Enter any channel number between the lowest and highest channel defined for the network. Obtain the correct values from the network operator.
Normal Hunt Channel Type	Identifies each channel in the Normal Hunt Channel list as either a prospective *Continuous* or *Timeshared* control channel.	Select *Continuous* or *Timeshared*. Obtain the correct values from the network operator.
Non Applicable Channel From	Defines the start of channel range not included in comprehensive hunt sequences.	Enter up to ten channel ranges. If Comprehensive Hunt is disabled, this list may be left blank. Obtain the correct values from the network operator.
Non Applicable Channel To	Defines the end of channel range not included in comprehensive hunt sequences.	Enter up to ten channel ranges.

Network - Trunked Channel Blocks

Use the Network - Trunked Channel Blocks screen to define operating frequencies for all channels in a network. To open this screen, click on the Network - Trunked Channel Blocks option from the Edit keyword menu.

Note: This screen uses Array Boxes for settings. Remember to press the F2 key to insert each line for data entry.

The Network - Trunked Channel Blocks screen appears as follows:



The Network - Trunked Channel Blocks settings are as follows:

Field	Description	Settings
Bar Access	(read only)	
Rx Partition Frequency	(read only)	
Channel Start	Defines the first number of each trunked channel block. Trunked Channel Blocks specify the operating frequencies of all channels in a network. Up to 30 blocks can be defined. Each channel block must define a number of evenly spaced channels. For any blocks after the first one, the Channel Start value must be one greater than the Channel Stop value for the previously defined block.	Enter a value from *1* to *1023*. Obtain the correct values from the network operator.
Channel Stop	Indicates the stop channel number for that block. All Channel Stop entries must be greater than or equal to the Channel Start entry for that block.	Enter a value from *1* to *1023*. Obtain the correct values from the network operator.
Trunk Channel Block Spacing	Defines the channel spacing (in kHz) for all channels in the block.	This frequency must be a multiple of either 5 kHz or 6.25 kHz, using the same number as was used for the Receiver Frequency. Different blocks may have different channel spacing values. Obtain the correct values from the network operator.

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Network - Trunked Channel Blocks Settings - continued

Field	Description	Settings
Trunk Channel Block Receiver Frequency	Defines the receive frequency for the first channel in the block. All other channels in the block have their receive frequency calculated using Channel Spacing. Up to 30 blocks can be defined.	This frequency must be a multiple of either 5 kHz or 6.25 kHz. The first channel in a block always has the lowest frequency. The frequency range for a block must not overlap with any other block's receive frequencies. The receive frequencies defined for the block must be within the range defined for the radio. Obtain the correct values from the network operator.
Trunk Channel Block Transmitter Frequency	Defines the transmit frequency for the first channel in the block. All other channels in the block have their transmit frequency calculated using Channel Spacing. Up to 30 blocks may be defined.	This frequency must be a multiple of either 5 kHz or 6.2 kHz, using the same number as Receiver Frequency. The first channel in a block always has the lowest frequency. The frequency range for a block must not overlap with any other block's transmit frequencies. The transmit frequencies defined for the block must be within the range defined for the radio. Obtain the correct values from the network operator.

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Network - Trunked Channel Blocks Settings - continued

Field	Description	Settings
Trunk Channel Block Transmitter Power	Defines the maximum transmit power level which may be used for all channels in the block. If the power level is set to *High*, the user can still set transmit power to low using radio controls. If the power level for a block is set to *Low*, then all transmissions in the block are made at low power regardless of any settings made by the user.	Set to *High* or *Low*.

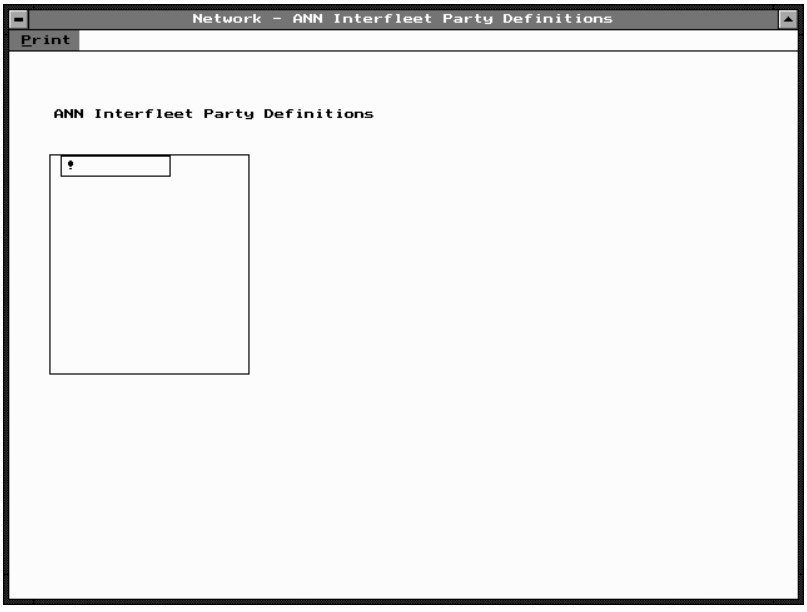
ANN Interfleet Party Definitions

PGM2040 Only

Use the ANN Interfleet Party Definitions screen to define fleets that can be called when either Interfleet individual calls or Interfleet group calls are disabled. To open this screen, click on the ANN Interfleet Party Definitions option from the Edit keyword menu.

Note: This screen uses Array Boxes for settings. Remember to press the F2 key to insert each line for data entry.

The ANN Interfleet Party Definitions screen appears as follows:



The ANN Interfleet Party Definitions settings are as follows:

Field	Description	Settings
ANN Interfleet Party	Use this field to define up to thirty Interfleet parties that may be called when Interfleet individual or group calls are disabled. Complete the ANN Numbering Model and ANN Fleet Structure fields before entering data in this field.	Enter a valid Nokia ANN Interfleet number with the correct number of digits for the selected ANN Numbering Model.

6 T2060 Settings

About this Chapter

This chapter describes the settings that may be used to configure the T2060 LTR™ trunked mobile radio.

The T2060 fields are grouped under the following screens:

- Specifications
- Radio Dependent Data
- System Definitions
- System Data
- Group Data
- Timer Information I
- Timer Information II

PGM2060 also provides a utility for calculating channel numbers:

- Channel Calculator

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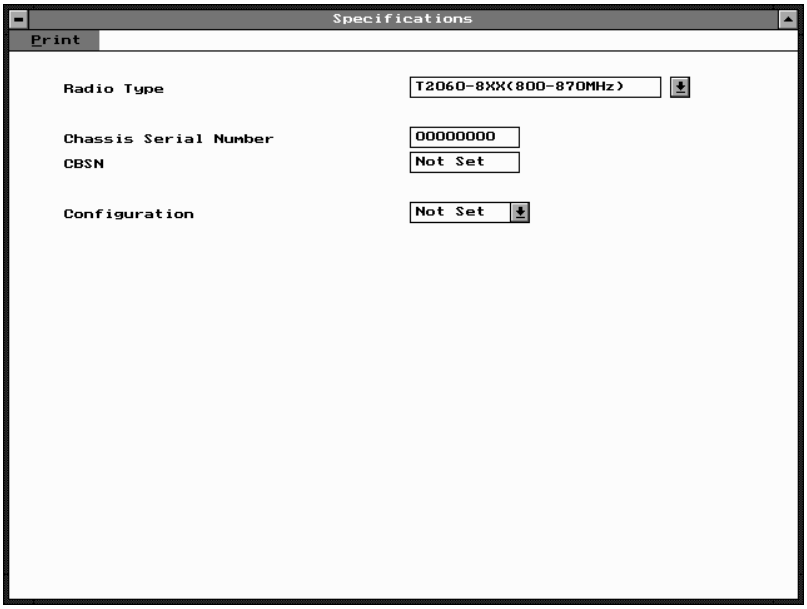
Specifications

Use the Specification screen to view identification details for the radio you are programming, and to set the radio type.

The Specification screen, with default settings, appears as follows:



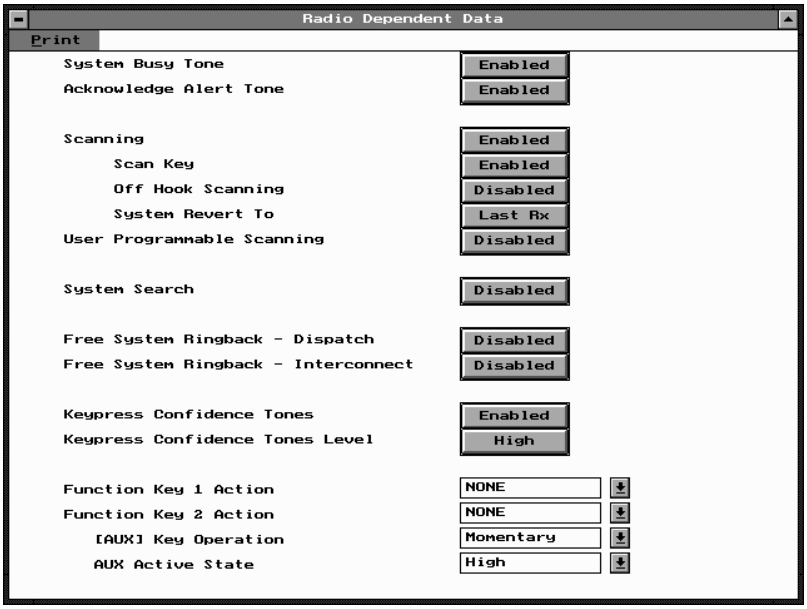
The Specification settings are as follows:

Field	Description	Settings
Radio Type	Select the radio model and its frequency band.	Select from the available options. Make sure the selected type matches the radio chassis label.
Chassis Serial Number	Details the radio serial number. You may need to quote this number when requesting service assistance.	This field is read only.
CBSN	Details the control board serial number. You may need to quote this number when requesting service assistance.	This field is read only.
Configuration	Provides information about the radio's factory configuration. You may need to quote this number when requesting service assistance.	This field is read only.

Radio Dependent Data

Use the Radio Dependent Data screen to customise tones and features to suit different applications.

The Radio Dependent Data screen, with default settings, appears as follows:



The Radio Dependent Data settings are as follows:

Field	Description	Settings
System Busy Tone	Specifies whether the radio will sound a tone if a transmission is attempted when there are no channels free.	Select *Enabled* or *Disabled*.
Acknowledge Alert Tone	Specifies whether the radio sounds a confirmation tone whenever a transmit call is successfully set up.	Select *Enabled* or *Disabled*.
Scanning	Specifies whether the scan key may be used to start and stop scanning during normal radio operation.	Select *Enabled* or *Disabled*.
Off Hook Scanning	If scanning is enabled, the radio will normally stop scanning while the microphone is off hook. Use this field to allow scanning to continue while the microphone is off hook.	Select *Enabled* to allow scanning to continue when the microphone is taken off hook. (The radio will pause briefly, then resume scanning.) Select *Disabled* to prevent scanning with the microphone off hook.
System Revert To	This field defines which system/group the radio will revert to when scanning is turned off. The system/group defined in this field is also used for any transmissions attempted during scanning.	Select *Fixed* to use the system/group which was selected before scanning was activated. Select *Last Rx* to use the last system/group captured during scanning.
User Programmable Scanning	User programmable scanning permits the list of systems/groups monitored during scanning to be modified from the front panel of the radio.	Select *Enabled* or *Disabled*.
System Search	Specifies whether the radio automatically searches for a usable system if it loses contact with the selected system.	Select *Enabled* or *Disabled*.

continued on next page

Radio Dependent Data settings - continued

Field	Description	Settings
Free System Ringback–Dispatch	Specifies whether free system ringback is available for normal (non telephone interconnect) calls. When a call fails due to a busy system, free system ringback causes the radio to monitor the system until a channel comes available, then automatically re-send the call. If enabled in this field, the user must initiate free system ringback by holding the PTT down for two seconds after the system busy tone has sounded.	Select *Enabled* or *Disabled*. ***Note:*** The time limit for dispatch ringback mode is defined as Dispatch–Maximum Free System Ringback Time on the Timer Information I screen.
Free System Ringback–Interconnect	Specifies whether free system ringback is available for telephone interconnect calls. See explanation of free system ringback above for more information.	Select *Enabled* or *Disabled*. The time limit for interconnect ringback mode is defined as Interconnect–Maximum Free System Ringback Time on the Timer Information I screen.
Keypress Confidence Tones	Enables and disables the audible confidence indicators that sound whenever a key is pressed. (This setting does not effect warning or other tones.)	Select *Enabled* or *Disabled*.
Keypress Confidence Tones–Level	Sets the volume level for keypress confidence tones.	Select *High* or *Low*.

continued on next page

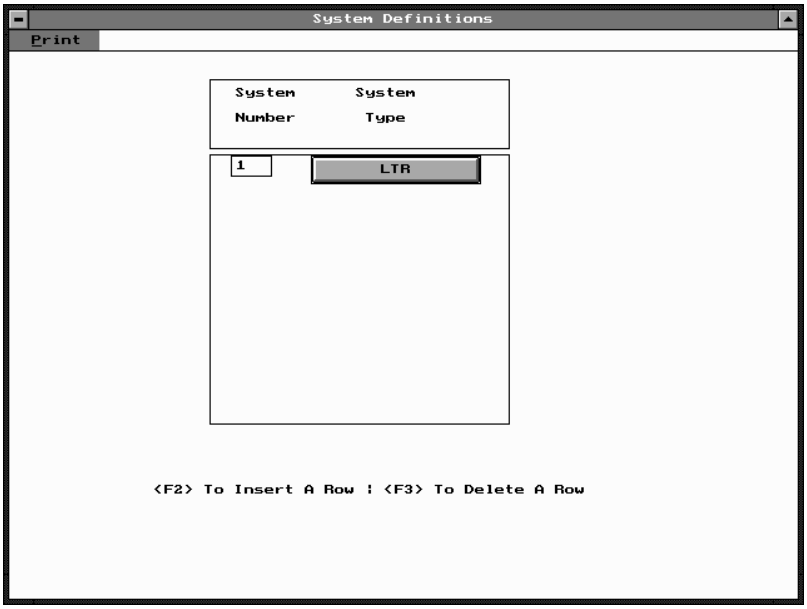
Radio Dependent Data settings - continued

Function Key Action	Specifies the operation performed by each function key.	Select from the following: *None:* the key has no effect. *Talk Around:* the key initiates repeater talk-around (unless the selected system/group is interconnect, in which case the key is has no effect). *Auxiliary:* the key controls the auxiliary signal as determined by the [AUX] Key Operation and Aux Active State fields below. *Group Scanning:* the key turns group scanning on and off for the selected system. ***Note:*** If Group Scanning was enabled in a System Definition, then scanning will not be able to be turned off for that system. *Tones Level:* The key toggles the radio's confidence tone level between high and low.
AUX Key Operation	If one of the function keys (above) is set as *Auxiliary,* this field defines how the function key will operate.	Select *Momentary* to perform the auxiliary task for only as long as the function key is pressed. Select *Latching* to toggle the auxiliary signal permanently between settings each time the key is pressed.
AUX Active State	If one of the function keys (above) is set as *Auxiliary,* this field defines the active state for the key.	Select *High* or *Low*.

System Definitions

Use the System Definitions screen to define identification numbers for each system available to the radio, and to specify whether each system is LTR™ or conventional.

The System Definitions screen appears as follows:



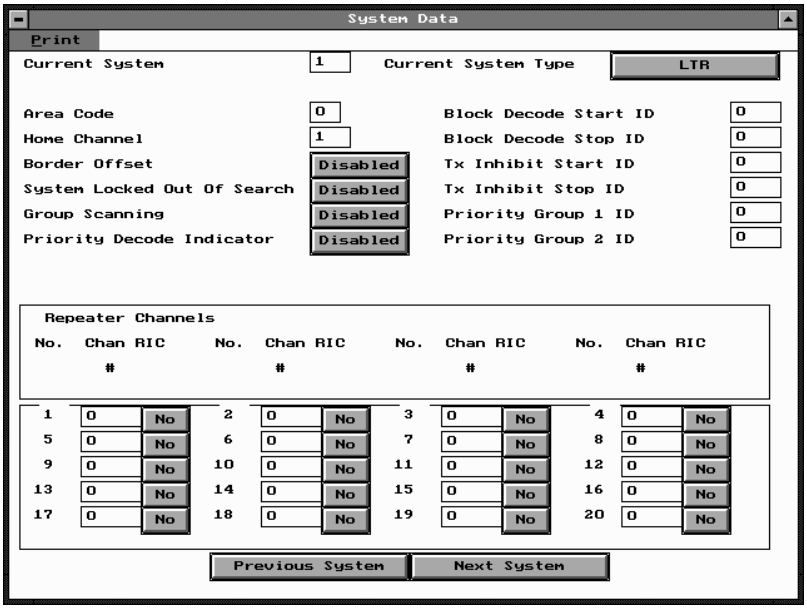
System Definitions settings are as follows:

Field	Description	Settings
System Number	Defines the digit used on the left side of the radio's display to identify each system.	Enter a number between *1* and *9* for a maximum of 9 systems. Use each number for only one system.
System Type	Defines the type of system that each system number refers to.	Select either *LTR* or *Conventional*.

System Data

Use the System Data screen to define groups and operational parameters for each of the systems defined on the System Definitions screen.

The System Data screen, with default settings, appears as follows:



System Data settings are as follows:

Field	Description	Settings
Current System	Shows which system you are setting up.	Use *Previous System* /*Next System* at the bottom of the screen to page through the available systems.
Current System Type	Shows whether the system is defined as *LTR*™ or *Conventional* on the System Definitions screen.	Read only field.
Area Code	Used to differentiate systems with overlapping coverage that have the same channel numbers allocated.	Enter either *0* or *1*. Obtain the correct value from the system operator.
Home Channel	Defines the channel the radio listens to whenever it is not doing anything else. All radios within a system must share the same home channel.	Enter a value between *1* and *20*. Obtain the correct value from the system operator. ***Note:*** You must complete the details for this channel number in the Repeater Channels list in the lower half of the screen.
Border Offset	If enabled, all transmissions on the system will be made 12.5kHz below the allocated channel transmit frequency.	Select *Enabled* or *Disabled.* ***Note:*** This field is repeated on the Group Data screen.
System Locked Out of Search	Allows you to exclude the current system from the system search list so that it will not be scanned when System Search is enabled (on the Radio Dependent Data screen).	Select *Enabled* or *Disabled.*
Group Scanning	Specifies whether the radio will automatically scan the system for an active group while the microphone is on hook.	Select *Enabled* or *Disabled.* ***Note:*** If a Function Key is programmed to switch Group Scan, then selecting *Enabled* removes that capability for this system.
Priority Decode Indicator	Specifies whether the radio will sound an alert tone after decoding a priority identity.	Select *Enabled* or *Disabled.*

continued on next page

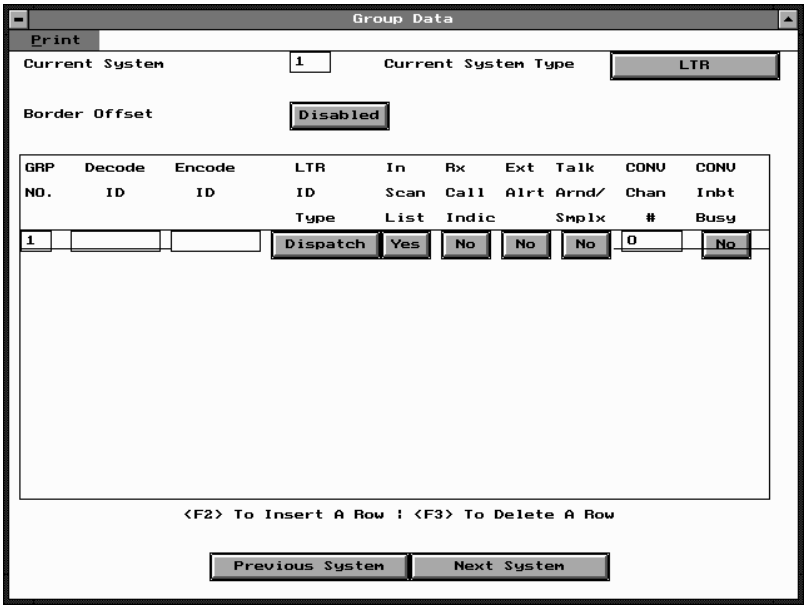
System Data settings - continued

Field	Description	Settings
Block Decode IDs	Use the Block Decode ID fields to define a range of IDs that, when received, will cause the speaker to unmute.	Enter valid codes into the start ID and stop ID fields that encompass the range of IDs you wish to accept for the current system. To allow the user time to respond to a Block Decode call, program a non-zero Block Decode Response Time on the Timer Information II screen.
TX Inhibit IDs	Use the TX Inhibit ID fields to define a range of IDs that, when received, will prevent the radio from transmitting for the length of the TX Inhibit Time defined in the Timer Information II screen.	Enter valid codes into the start ID and stop ID fields that encompass the range of IDs you wish to use to inhibit transmission on the current system.
Priority Group IDs	Use these fields to define two IDs which will cause the speaker to unmute if decoded.	Enter a valid ID code in each field. To allow the user time to respond to a priority call, program a non-zero Priority Decode Response Time on the Timer Information II screen.
Repeater Channel: **FCC Number**	Use these fields to allocate a channel number for each of the repeater channels accessed by the system. Channel numbers define the receive and transmit frequencies for each channel.	Enter channel numbers within the limits defined in the help screen. *0* values prevent the repeater channel number being used. If you know only the TX or RX frequency, you may use the Channel Calculator screen to find the channel number. Otherwise, obtain the correct value from the system operator.
Repeater Channel: **RIC**	Use this field to indicate whether the repeater is RIC capable.	Obtain information about the repeater's RIC capability from the system operator.
Previous/Next System	Use these buttons to page through the available systems, as defined on the System Definitions screen.	Click the *Previous* button to go back one system, click the *Next* button to go forward one system.

Group Data

Use the Group Data screen to define up to ten groups for each system.

The Group Data screen, with default settings, appears as follows:



The Group Data settings are as follow:

Field	Description	Settings
Current System	Shows which system you are setting up.	Read only field. Use the *Previous System* and *Next System* buttons at the bottom of the screen to page through the available systems.
Current System Type	Shows whether the system is defined as *LTR*™ or *Conventional* on the System Definitions screen.	Read only field.
Border Offset	If enabled, all transmissions on the system will be made 12.5kHz below the allocated channel transmit frequency.	Select *Enabled* or *Disabled.* ***Note:*** This field is repeated on the System Data screen.
Group Number	Defines the digit used on the right side of the radio's display to indicate each group.	Enter a number between *0* and *9* for a maximum of 10 groups. Use each number for only one group. ***Note:*** Although individual systems may have as many as 10 groups, the total number of groups defined across all the radio's systems must be no more than 24.
Group Decode ID	For LTR™ systems, this field sets the ID that the radio must receive to unmute when it is set to the current group. For conventional systems, this field defines the sub-audible code that the radio must receive to unmute when it is set to the current group.	To define an LTR™ ID, enter a number between *1* and *250*. To define a CTCSS code, enter the code number preceded by *a C* e.g.: *C67.0* To define a DCS code, enter the code number preceded by a *D* e.g.: *D027* To define a DCS Inverse code, enter the code number preceded by *DI* e.g.: *DI027* Press *F1* for a list of valid codes.

continued on next page

Group Data settings - continued

Field	Description	Settings
Group Encode ID	For LTR™ systems, this field sets the ID that the radio sends with each transmission to the current group. For conventional systems, this field defines the sub-audible code that the radio sends with each transmission to the current group.	To define an LTR™ ID, enter a number between *1* and *250*. To define a CTCSS code, enter the code number preceded by a *C* e.g.: *C67.0* To define a DCS code, enter the code number preceded by a *D* e.g.: *D027* To define a DCS Inverse code, enter the code number preceded by *DI* e.g.: *DI027* Press *F1* for a list of valid codes.
LTR ID Type	Specifies which type of call to associate with the current group.	Select *Dispatch* for normal calls between radios. Select *RIC* for telephone interconnect calls. Select *Transpond* to have the radio automatically send a brief transmission when it decodes the current group's ID. (e.g. to allow a dispatcher to test whether a fleet radio is within range.)
In Scan List	This field specifies whether the current group is to be scanned when scanning is enabled on the Radio Dependent Data screen.	Select *Yes* or *No*. ***Note:*** If User Programmable Scan is enabled on the Radio Dependent Data screen, the user will be able to add or delete groups from the scan list using the front panel keys.
RX Call Indicator	Specifies whether the radio sounds an alert tone when it receives a valid decode ID for the current group.	Select *Yes* or *No*.

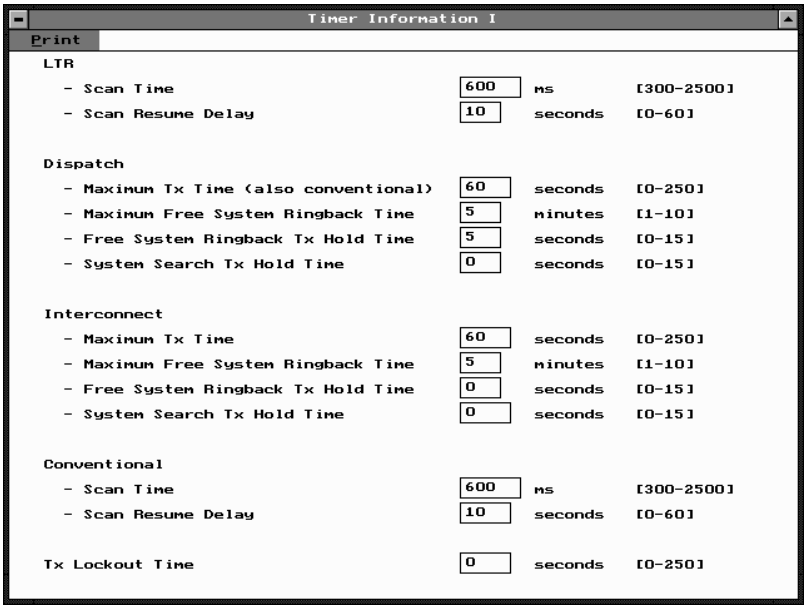
Group Data settings - continued

Field	Description	Settings
External Alert	This field activates the radio's external alert feature. Once activated, the radio will sound an external alert when it receives a valid decode ID for the current group if: • any function key assigned to external alert is active and • the vehicle ignition sense reports that the engine is off.	Select *Yes* or *No*.
Talkaround/ Simplex	Sets the radio to make all transmissions for the current group on the channel repeater's transmit frequency.	Select *Yes* or *No*. ***Note:*** Talkaround/Simplex will not operate if the LTR™ Group ID is marked as *RIC*.
CONV Chan	(Conventional Group Channel Number) Specifies the channel number for groups in conventional systems.	Enter a channel number between *0* and *911*. *0* values prevent the group being used. If you know only TX or RX frequencies, you may use the Channel Calculator screen to find the channel number. Otherwise, obtain the correct value from the system operator.
CONV Inbt Busy	(Conventional Group Inhibit on Busy) Sets whether the radio will prevent transmission on the current group if the channel is busy (provided the current system is conventional).	Select *Yes* or *No*.
Previous/Next System	Use these buttons to page through the available systems, as defined on the System Definitions screen.	Click the *Previous* button to go back one system, click the *Next* button to go forward one system.

Timer Information I

Use the Timer Information I screen to define time limits for various options.

The Timer Information I screen, with default settings, appears as follows:



The Timer Information I settings are as follows:

Field	Description	Settings
LTR– Scan Time	Specifies how long the radio waits for call setup on a busy LTR™ system/group before continuing scanning.	Enter a time within the limits specified on the screen.
LTR– Scan Resume Delay	Specifies how long the radio remains on a captured LTR™ system/group after a call ends, before resuming scanning.	Enter a time within the limits specified on the screen.
Dispatch– Maximum Tx Time	Specifies a time limit for both LTR™ and conventional transmissions.	Enter a time within the limits specified on the screen. Enter *0* to disable the Maximum Tx Timer.
Dispatch– Maximum Free System Ringback Time	Specifies the maximum time the radio will continue attempting to set up a dispatch call in ringback mode.	Enter a time within the limits specified on the screen. This feature is enabled and disabled on the Radio Dependent Data screen.
Dispatch– Free System Ringback Tx Hold Time	Specifies how long the transmitter will remain keyed once a dispatch busy system ringback call is successfully set up. This allows the user time to press the PTT once the call is set up.	Enter a time within the limits specified on the screen. This feature is enabled and disabled on the Radio Dependent Data screen.
Dispatch– System Search TX Hold Time	Specifies how long the transmitter will remain keyed when a dispatch call has been set up by system search. This allows the user time to press the PTT once the call is set up.	Enter a time within the limits specified on the screen. This feature is enabled and disabled on the Radio Dependent Data screen.
Interconnect– Maximum Tx Time	Specifies a time limit for Telephone Interconnect transmissions.	Enter a time within the limits specified on the screen. Enter *0* to disable the Maximum Tx Timer.

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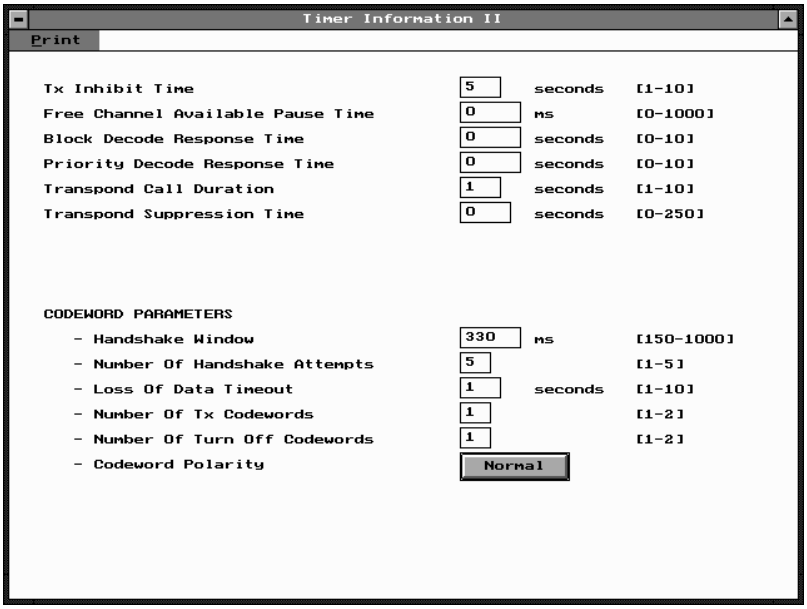
Timer Information I settings - continued

Field	Description	Settings
Interconnect– Maximum Free System Ringback Time	Specifies the maximum time the radio will continue attempting to set up an interconnect call in ringback mode.	Enter a time within the limits specified on the screen. This feature is enabled and disabled on the Radio Dependent Data screen.
Interconnect– Free System Ringback Tx Hold Time	Specifies how long the transmitter will remain keyed once an interconnect busy system ringback call is successfully set up. This feature is enabled and disabled on the Radio Dependent Data screen.	Enter a time within the limits specified on the screen. Enter 0 to have the radio switch to receive immediately, so that the dial tone may be heard.
Interconnect– System Search Tx Hold Time	Specifies how long the transmitter will remain keyed when an interconnect call has been set up by system search. This allows the user time to press the PTT once the call is set up.	Enter a time within the limits specified on the screen. Enter *0* to have the radio switch to receive immediately, so that the dial tone may be heard. This feature is enabled and disabled on the Radio Dependent Data screen.
Conventional– Scan Time	Specifies how long the radio waits for call setup on a busy conventional system before continuing scanning.	Enter a time within the limits specified on the screen.
Conventional– Scan Resume Delay	Specifies how long the radio remains on a captured conventional system after a call ends, before resuming scanning.	Enter a time within the limits specified on the screen.
Tx Lockout Time	Once a transmission has been stopped for exceeding the Maximum Tx Time, the radio will be “locked-out” or prevented from making any more transmissions. Use this field to specify the duration of the lockout.	Enter a time within the limits specified on the screen.

Timer Information II

Use the Timer Information II screen to define additional time limits and trunking codeword parameters.

The Timer Information II screen, with default settings, appears as follows:



The Timer Information II screen appears as follows:

Field	Description	Settings
Tx Inhibit Time	Specifies how long the radio will be prevented from transmitting for after receiving a Tx Inhibit ID.	Enter a time within the limits specified on the screen.
Free Channel Available Pause Time	Clashes often arise when many radios attempt to handshake at the same time after a system has been busy. To avoid clashes, use this field to set the radio to pause briefly before attempting to handshake when a busy system becomes free.	Enter a time within the limits specified on the screen.
Block Decode Response Time	For a short time after receiving a block decode call, the radio will direct transmissions to the Block Decode ID, rather than to the System/Group showing on the display.	Enter a time within the limits specified on the screen. Enter *0* to prevent the radio calling the Block Decode ID.
Priority Decode Response Time	For a short time after receiving a priority decode call, the radio will direct transmissions to the Priority Decode ID, rather than to the System/Group showing on the display.	Enter a time within the limits specified on the screen. Enter *0* to prevent the radio calling the Priority Decode ID.
Transpond Call Duration	Specifies how long the transmitter is held during transpond calls.	Enter a time within the limits specified on the screen.
Transpond Suppression Time	Specifies the minimum time that must elapse between outgoing transpond calls.	Enter a time within the limits specified on the screen.
Codeword–Handshake Window	Specifies how long the radio will wait for confirmation after transmitting the handshake codeword.	Enter a time within the limits specified on the screen.

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Timer Information II settings - continued

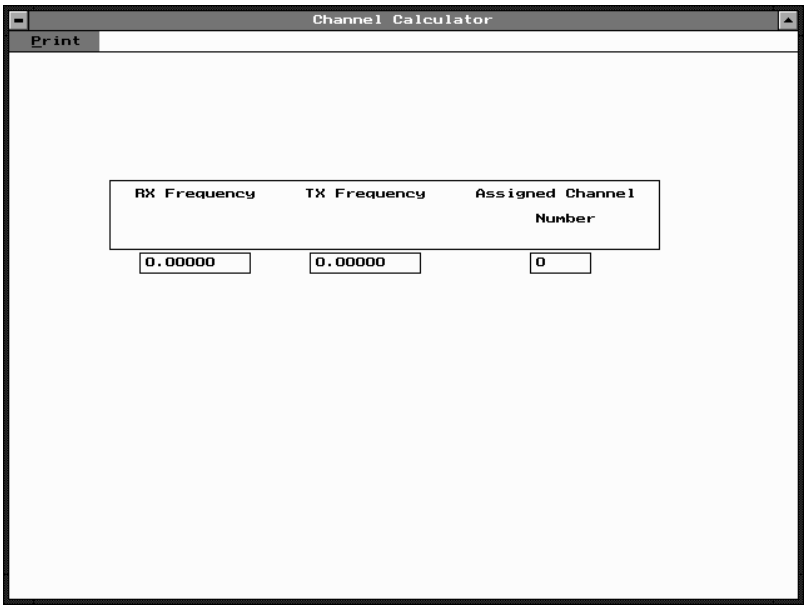
Field	Description	Settings
Codeword– Loss of Data Timeout	Specifies how long the radio is to wait between receiving incoming codewords	Enter a time within the limits specified on the screen.
Codeword– Number of Tx Codewords	Specifies how many codewords the radio is to send in each handshake attempt.	Enter either *1* or *2* This field is normally set to *1* for quicker handshaking, but in some systems it may be necessary to specify *2* Tx codewords for more reliable performance.
Codeword– Number of Turn Off Codewords	Specifies how many Turn-off codewords the radio is to send at the end of each call.	Enter either *1* or *2* This field is normally set to *1*, but in some systems fewer repeater tails will be heard if *2* Turn-off codewords are sent.
Codeword Polarity	Specifies the polarity of the transmitted codeword.	Select either *Normal* or *Inverted*. ***Note:*** The standard setting required for the T2060-4XX and T2060-8XX is *Normal*. The T2060-6XX ahould be *Inverted*.

Channel Calculator

If you know the receive or transmit frequencies for a channel then you can use the Channel Calculator to work out the applicable Channel Number.

Note: The T2060-800 (800 to 870MHz) conforms to the FCC channel numbering scheme

The Channel Calculator screen appears as follows:



To calculate a channel number when you know a Transmit or Receive frequency, type the frequency into the appropriate field and press enter. The Assigned Channel Number field will return the correct channel number for the frequencies showing.

- If you enter an invalid Transmit or Receive frequency (i.e. one that is not a multiple of your radio's channel spacing), the software will round your entry to the nearest valid frequency.
- If you want to find out the Transmit and Receive frequencies for a given channel number, then enter the channel number in the Assigned Channel Number field and press enter. The software will then update the frequency fields.

Appendices

Appendix A

Valid DCS and CTCSS Frequencies

This appendix lists the settings used for DCS/CTCSS receive and transmit tones. You can enter a valid CTCSS frequency or a valid DCS code in an appropriate field, or leave the field blank to indicate that no sub-audible coding is to be used on the channel.

CTCSS

This is the tone which the mobile must receive on the channel before the activity will be regarded as valid. Any of the following three formats can be used to enter a CTCSS frequency (example shows a 67Hz selection):

```
C67.0 c67.0 67.0
```

The following CTCSS frequencies (listed in Hz) are supported:

67.0	91.5	118.8	156.7	210.7
71.9	94.8	123.0	162.2	218.1
74.4	97.4	127.3	167.9	225.7
77.0	100.0	131.8	173.8	233.6
79.7	103.5	136.5	179.9	241.8
82.5	107.2	141.3	186.2	250.3
85.4	110.9	146.2	192.8	
88.5	114.8	151.4	203.5	

DCS

Any of the following three formats can be used to enter a DCS codeword (example shows a code of 32):

```
D032 d032 032
```

T2000 conventional radios support a variety of Standard and Non-Standard DCS codes and their inverses, as listed on the following page.

Standard DCS Codes

Normal	Invert	Normal	Invert	Normal	Invert
023	047	174	074	445	043
025	244	205	263	464	026
026	464	223	134	465	331
031	627	226	411	466	662
032	051	243	351	503	162
043	445	244	025	506	073
047	023	245	072	516	432
051	032	251	165	532	343
054	413	261	732	546	132
065	271	263	205	565	703
071	306	265	156	606	631
072	245	271	065	612	346
073	506	306	071	624	632
074	174	311	664	627	031
114	712	315	423	631	606
115	152	331	654	632	624
116	754	343	532	654	743
125	365	346	612	662	466
131	364	351	243	664	311
132	546	364	131	703	565
134	223	365	125	712	114
143	412	371	734	723	431
152	115	411	226	731	155
155	731	412	143	732	261
156	265	413	054	734	371
162	503	423	315	743	654
165	251	431	723	754	116
172	036	432	516		

Non-Standard DCS Codes

Normal	Invert	Normal	Invert	Normal	Invert
017	050	246	523	462	252
036	172	252	462	523	246
050	017	255	446	526	325
053	452	266	454	274	145
122	225	446	255	325	526
145	274	452	053	332	455
212	356	454	266	356	212
225	122	455	332		

Appendix B

Selcall Tone Sets & Frequencies

This appendix lists the valid tone sets and frequencies for Selcall receive and transmit tones.

Tone Number	EEA	ZVEI-I	ZVEI-II	ZVEI-III	PZVEI	CCIR	NATEL	EIA	DZVEI
0	1981	2400	2400	2400	2400	1981	1633	600	2200
1	1124	1060	1060	1060	1060	1124	631	741	970
2	1197	1160	1160	1160	1160	1197	697	882	1060
3	1275	1270	1270	1270	1270	1275	770	1023	1160
4	1358	1400	1400	1400	1400	1358	852	1164	1270
5	1446	1530	1530	1530	1530	1446	941	1305	1400
6	1540	1670	1670	1670	1670	1540	1040	1446	1530
7	1640	1830	1830	1830	1830	1640	1209	1587	1670
8	1747	2000	2000	2000	2000	1747	1336	1728	1830
9	1860	2200	2200	2200	2200	1860	1477	1869	2000
A Group	1055	2800	885	885	970	2400	1995	2151	825
B	930	810	825	810	810	930	571	2433	740
C Reset	2400	970	740	2800	2800	2247	2205	2010	2600
D	991	885	680	680	885	991	2437	2292	885
E Repeat	2110	2600	970	970	2600	2110	1805	459	2400
F	2247	680	2600	2600	680	1055	2694	1091	680
No Tone									

Valid Selcall Tone Periods

The list below gives valid periods for Selcall tones.

20ms*

33ms

40ms

50ms*

60ms*

70ms

100ms.

The periods marked with an asterisk (*) are not defined by International Standards.

Appendix C

Fault Finding

If you are unable to program the radio, the following suggestions should solve most problems (follow this list step by step until you locate the problem).

1. Check the Power Supply and Basic Operation

Switch the radio off at the front panel and make sure the power supply to the radio is switched on.

Switch the radio on at the front panel. LEDs will illuminate on the front panel to indicate that the power supply is correct. Otherwise check fuses, power supply and connections. If the LED indicators are working, push some of the buttons on the front panel. Each time a button is pressed, an audible “beep” should be heard from the speaker.

If the radio fails these tests, select another radio.

2. Check The Interface Cable

Make sure the power supply to the radio is switched off.

Connect the interface cable to the radio and disconnect it from the PC.

Connect an oscilloscope between pin 3 (signal) and pin 7 (ground) on the D25 PC connector (use a D25 male to access the pins). Set the oscilloscope to 5V/div and approximately 10ms/div timebase.

Switch on the power supply to the radio.

If you can observe rapid shifts in DC level, the interface cable is sending data to the PC.

As an alternative to an oscilloscope, use an RS-232 line monitor between the PC and the D25 PC connector of the interface cable.

3. Connect Another Radio

Try a different radio and/or interface cable and/or PC.

Then repeat the steps described in the Section 1.6, “Connecting the Radio” and go through the fault finding procedures to identify the problem.

If you are still unable to establish communication, contact your nearest Tait Service Centre.

Appendix D

MPT1327 and MPT1343

The first table sets out the relationship between MPT1327 Idents and MPT1343 Unit Numbers:

	Idents	Fleet Individual Number	Unit Number	Fleet Size (number of units in fleet)
Base ID	1982	2991	20	22
	.		.	
	.		.	
	2003		41	
Base ID	2004	3002	200	196
	2005		201	
	2006		202	
	2007		203	
	.		.	
	.		.	
	2199		395	
Base ID	2200	3100	20	60
	2201		21	
	.		.	
	.		.	
	2259		79	

The second table sets out the relationship between MPT1327 Idents and MPT1343 Group Numbers:

	Idents	Fleet Group Number	Group Number	Fleet Size (number of units in fleet)
Base ID	6996	5498	90	8
	.		.	
	.		.	
	7003		97	
Base ID	7004	5502	900	96
	7005		901	
	7006		902	
	.		.	
	.		.	
	7099		995	

Formulae

Number Prefix = PFIX (MPT1327) + 200
Range: 200-327

Fleet Number = BI/2 + 2000
Range: 2001-6050

where BI (Base Ident) is the lowest identity in a block of identities assigned to the fleet. The BI corresponds to the start of a block of individual identities or a block of group identities and must be an even number in the range: 2-8100

	Individual Calls		Group Calls	
	Range	Unit Number equals:	Range	Unit Number equals:
2 Digit Numbers	20-89	Unit ID - Individual BI + 20	90-99	Group ID - Group BI + 90
3 Digit Numbers	200-899	Unit ID - Individual BI + 200	900-998	Group ID - Group BI + 900

Appendix E

Dialling Strings

Preset call strings can be any valid dialling strings as detailed in MPT1343. In addition, strings '101' to '104' may be used to select conventional (non-trunked) channels.

Listed below are some examples of call strings that may be programmed into the radio. Refer to MPT1343 for a full description of dialling strings available.

Example String	Description
20	speech call to radio unit 20
***31*20**	non-prescribed data call to radio unit 20
900	speech call to group number 900
***9*250**	emergency speech call to radio unit 250
***9*31*302**	emergency non-prescribed data call to radio unit 302
***0202**	call-me-back request to despatcher number 202
***025*200**	states value 25 to radio unit 200
01234567	speech call to PSTN number 1234567
***9*0123456**	emergency speech call to PSTN number 123456
***41*203**	divert incoming calls to radio unit 203
#41	cancel call diversions
102	select conventional channel 2

Appendix F

Cloning Another Radio's Settings

Depending on how the radio is programmed, it may be possible to *clone* the personality of your radio (the "donor") into another radio (the "recipient").

Cloning copies all of the programmable parameters such as channel frequencies and Selcall information from your radio to another identical radio.

This requires an appropriate interconnecting cable and a power supply for both radios.

Note that it is not possible to clone MPT1327 trunked radios (T203X, T2040).

Warning: The recipient radio will permanently lose any programming information which was in it. Its original personality may be restored only by the use of Tait programming software or by cloning from another donor radio with the same personality as it originally had.

The radio which you choose as a recipient radio must have the same electronic characteristics as your own donor. It must operate in the same RF band and be of the same channel spacing as yours. If it is not, the cloning process will proceed, but afterwards the recipient radio will no longer operate.

If the radio which you choose as a recipient radio has a different software version number from your donor radio, cloning may not be possible. If it is not possible, cloning will be aborted before any information is sent to the recipient radio.

T2010/2015

1. Remove the microphones from both radios as follows:

- Pull aside the small rubber grommet where the microphone cable enters the radio front panel
- Push the small release lever at the left edge of the microphone socket.
- Withdraw the microphone from the socket.

2. Connect power to both radios (preferably from the same power source) and switch them on.
3. Connect an end of the cloning cable to the microphone socket of the recipient radio.
4. Enter the cloning mode on the donor radio by turning the radio off and on whilst holding the AUX key down. The donor radio will now have its AUX indicator flashing.
5. Connect the free end of the cloning cable to the donor radio.
6. Check that the four indicators on the recipient radio come on to indicate that the radio has entered programming mode (there may be a delay of several seconds before the indicators turn on).

When cloning is complete, the recipient radio will beep twice, the channel indicators will go out and all the front panel indicators will flash once. The radios may now be turned off and disconnected from each other and the power supply.

If cloning fails, the donor radio's SCAN indicator will flash.

- Turn both radios off promptly.
- Check the electrical continuity of the cloning cable.
- Start again, ensuring that the AUX indicator is flashing before you plug the cable in.

T2020

1. Remove the microphones from both radios as follows:

- Pull aside the small rubber grommet where the microphone cable enters the radio front panel.
- Push the small release lever at the left edge of the microphone socket.
- Withdraw the microphone from the socket.

2. Connect power to both radios (preferably from the same power source) and switch them on.
3. Connect an end of the cloning cable to the microphone socket of the recipient radio.
4. Press the [FCN] key to enter OPTIONS MODE on the donor radio. Use the [▲] and [▼] keys to display CLONE GO on the LCD.
5. Complete the next two steps within ten seconds of selecting CLONE GO:

- Connect the free end of the cloning cable to the donor radio.
- Start the cloning process by pressing [ENT].

The donor radio message should now change to CLONING and the recipient radio message to --PROG--.

When cloning is complete, the donor radio (if it is connected to a speaker) will 'beep' three times and its display will revert to CLONE GO. The radios may now be turned off and disconnected from each other and the power supply.

If cloning fails, the donor radio will display an error message.

- Turn both radios off promptly.
- Check the electrical continuity of the cloning cable.
- Start again, ensuring that you plug the cable in quickly after selecting CLONE GO.

A-14 Valid Selcall Tone Periods

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