FM1200 E.S.I.
Mobile Transceiver

User's Guide

PHILIPS

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Appendix G - Audible Tones

Please note that the tones listed here are described as they will sound if your radio has a standard customisation. Some variation may occur.

Key Click	Single click
Operator Alert	Buzz
No Service	Rapid high then low tone, repeated twice
Alert (incoming call)	Similar to a telephone ring tone
Emergency Alert	Rapidly repeating high then low (siren)
Incoming Call Set Up In Progress	Repeated low tone (every 2 seconds)
Outgoing Call Set Up In Progress	Repeated low tone (every 2 seconds)
Called Party Ringing	Similar to a telephone ring tone
Call Queued	Repeated low tone
Go To Channel	Double beep
Imminent Call Termination	Single beep repeated each second for last 10 seconds of call
Call Clear	High then low tone
Transaction Confirmed	Low then high tone
Abort Call Set Up	Two beeps followed by low tone, repeated (every 3 seconds)
Number Unobtainable	Long low tone (5 seconds)
Unavailable	Low tone (1.5 seconds)
Called Party Busy	Six low beeps (evenly separated)
System Busy	Eight low beeps
Hard Error	Series of short beeps (5 seconds)

Appendix F - Advice To Users

General

(i)   Hold the microphone 2-3 cm from your mouth and speak across it.

(ii)   Do not occupy the channel any longer than is necessary.

(iii)   In general the caller should speak first.

(iv)   Identify yourself using your allocated radio identity.

(v)   Replace the microphone after use.

(vi)   Restrict the use of calls to short or urgent messages during peak periods (usually around 0900 hours and 1600 hours).

(vii)   Keep a safe distance from the antenna. (Approx 20 cm during the operation of the equipment).

For Drivers

(i)   Do not use a hand-held microphone or telephone handset whilst your vehicle is moving.

(ii)   Avoid making calls in known poor signal areas such as the fringe areas or very screened areas, eg. in underground car park or underpass.

INTRODUCTION

The ESI type FM1200 mobile is for use in the Electricity Supply Industry Trunked Mobile Radio System, compliant with the Air Interface Specification for the Electricity Supply Industries within the United Kingdom. The unit is suitable for local or remote operation using an operator's console (Figure 1).

The transceiver is software programmable with various customisation parameters to produce specific options to suit varying requirements. Many options are available, but each unit is normally programmed with a specific application package which leaves only a few parameters variable in the field (eg. short form call numbers).

This User's Guide describes all facilities currently available, not all of which may be appropriate to all equipment. Common functions/facilities are described in Section 1; others are dependent on specific application packages. Some specially adapted application packages may include facilities described separately in supplementary information. The facilities programmed are most easily identified by examining the display legend.
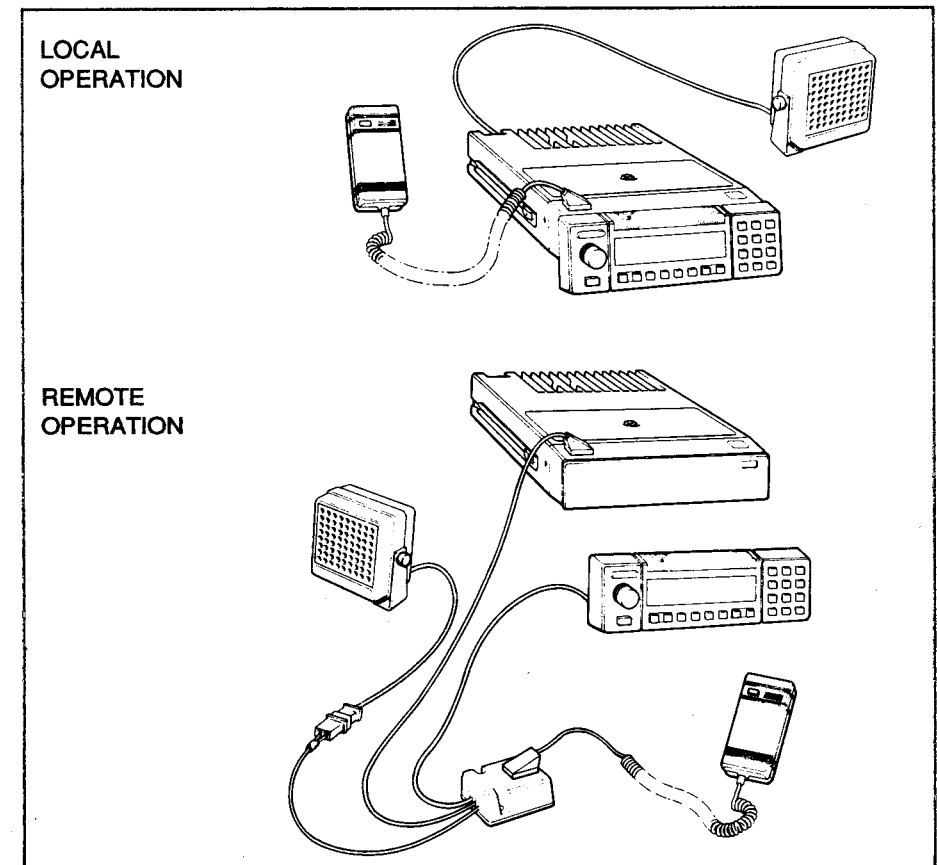

LOCAL
OPERATION

REMOTE
OPERATION

Figure 1 - FM1200 Local / Remote Configuration

The Control Console

The Control Console (Figure 2) has an On/Off button, a rotary volume control, 3 LED indicators, 12-button keypad, 8 function buttons, and an LCD display. The LCD has two 24-character alpha-numeric display fields and 8 programmable indicators.
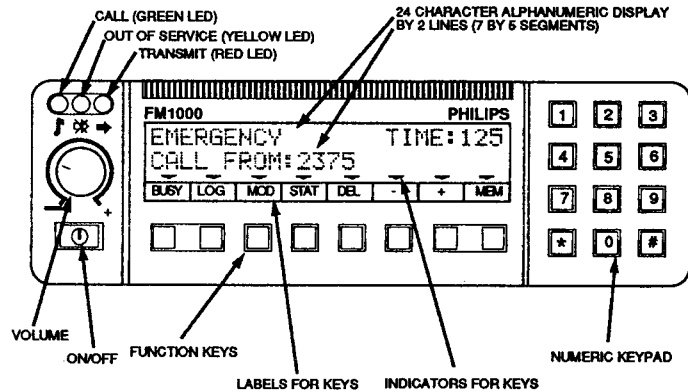
Figure 2 - The Control Console

Microphone / Hands Free Unit

The equipment can be used with a handheld microphone which has a hook switch, a single function button and a Press-To-Talk (PTT) button. Alternatively a Hands-Free Unit may be fitted. For further details see the appropriate user guide.

Customisation Plug

A customisation plug is a small plug-in unit containing configuration information for a FM1200 to operate on the system. It is possible to customise the FM1200 so that it will not operate when no customisation plug is present (see section 2.15).

Appendix E - Out-Of-Fleet Calls

These have a 2 digit 'Fleet Prefix' followed by the 4 digit unit or group to be called.

For example, to call unit 2765 in fleet number 25 dial: '252765'.

The fleet prefix identifies the Electricity region (fleet) as follows:

Prefix	Region	Abbreviation
10 - 13	East Midlands Electricity	EME
14 - 17	National Grid Companies	NGC
18 - 21	South Western Electricity	SWE
22 - 25	South Wales Electricity	SWaE
26 - 29	Northern Electric	NE
30 - 33	North West Electricity	NORWEB
34 - 37	Eastern Electricity	EE
38 - 41	Yorkshire Electricity Group	YEB
42 - 45	South Eastern Electricity	SEEBOARD
46 - 49		
50 - 53	Merseyside and North Wales Electricity	MANWEB
54 - 57		
58 - 61	Midlands Electricity	ME
62 - 65	Southern Electric	SE

Appendix D - Console Programming Options

(a)

Function/Facility	Indication on overlay	Page
Busy (Do Not Disturb)	BUSY	17
Call	CALL	5
Call With Last Number Re-Dial	CALLR	23
Call 1	C1	5
Call 2	C2	5
Call 3	C3	5
Call 4	C4	5
Call 5	C5	5
Call 6	C6	5
Call 7	C7	5
Call 8	C8	5
Call 9	C9	5
Call Logging	LOG	17
Clear	CLEAR	-
Decrement	-	-
Delete	DEL	6
External Alert	ALERT	19
Increment	+	-
Memory	MEM	19
Modifier	MOD	12
Paging	PAGE	22
Roaming	ROAM	22
Scroll	SCRL	24
Simplex Channel	CHAN	23
Status	STAT	11
Text	TEXT	24

(b)

Modifiers (Text Messages only)	Indication on LCD	Page
Broadcast call	BROADCAST	15
Call-back request	CALL BACK REQUEST	13
Cancel call-back request	CANCEL CALL BACK REQUEST	13
Cancel incoming diversions	CANCEL INCOMING DIVERSIONS	13
Cancel own diversions	CANCEL OWN DIVERSIONS	13
Divert own calls	DIVERT OWN CALLS	13
Emergency call	EMERGENCY	16
Non-prescribed data call	NON-PRESR DATA	16
Priority call	PRIORITY CALL	16

1. BASIC OPERATION

1.1 Switch On/Off [⏻]

To switch on, press the On/Off button [⏻]. The radio will perform a self-test routine during which all characters on the display are visible. If the equipment detects an error, then a series of short beeps will sound.

The radio will then display its own unit number for two seconds before entering its idle state (Figure 3). If the radio fails to operate as described and an error message is displayed, refer to section 2.15 - "Customisation Plug".
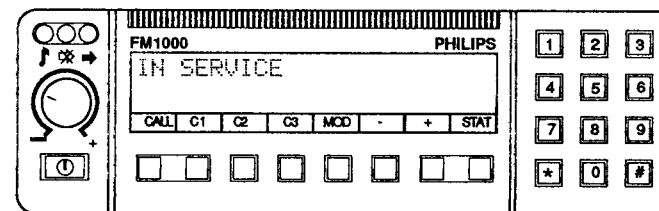

Figure 3 - Idle Display

Normally the radio will quickly acquire service from the network. If the radio has not registered, or is out of range of the network, then it will be out of service. This is indicated by the yellow Out of Service LED being on and the text 'NO SERVICE' showing on the display.

To switch off, press the On/Off button [⏻] again. The equipment may be wired for on/off switching via the vehicle ignition. In this case the radio will be automatically switched off when the ignition key has been turned to the 'Off' position or removed from the ignition switch.

1.2 The Idle Display

On completion of a call the radio will normally return to the idle state with the display updated as necessary.

In the idle state the display indicates the current mode of operation: Call-Logging (see section 2.5), Busy (see section 2.4), Roaming (see section 2.11), or Paging (see section 2.10), and any call Diversions (see section 2.3.1 ii) which are in operation (Figure 4).

Figure 4 - Call Logging Mode

1.3 Making Calls

1.3.1 Who Can Be Called?

(i) In-Fleet Calls
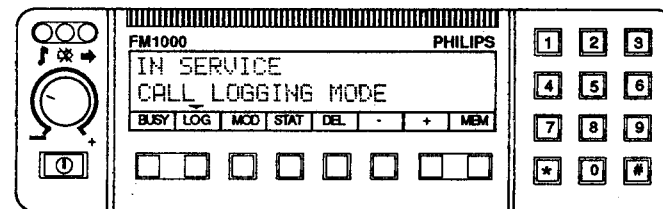These are calls within the same fleet (electricity company). The number may be:

- Any programmed short-form memory (0 - 19)
- Any mobile unit in the fleet (0001 - 6999)
- Any standard group in the fleet (7000 - 7799)
- Any user-definable group in the fleet (7800 - 7899)
- Any college of despatchers in the fleet (7900 - 7999)
- Any despatcher in the fleet (8000 - 8100)

(ii) Out-Of-Fleet Calls
These are calls made to destinations outside the fleet (other electricity companies). To make an Out-Of-Fleet call a 6 digit number is entered including a 2 digit fleet prefix depending on the destination of the call (Appendix E).

(iii) PABX Calls
Calls to PABX numbers are up to 31 digit numbers beginning with '6', followed by an extension number up to 30 digits.

(iv) Selective PABX Calls
Calls to Selective PABX numbers are 8 digit numbers beginning with '7', followed by a 3 digit routing code and 4 digit extension number.

(v) PAX Calls
Calls to PAX numbers are 32 digit numbers beginning with '9', followed by an extension number up to 31 digits.

(vi) ESINET Calls
Calls to ESINET numbers are up to 31 digit numbers beginning with '8', followed by a 3 (or 4) digit routing code and an extension number up to 28 (or 27) digits.

(vii) PSTN Calls
These are dialled as standard PSTN numbers with a full STD area code and can be between 8 and 32 digits.

Type of Call	First Digit(s) of Number	Length of Number
Short Form Memory	-	1 - 2
In-Fleet Mobile	-	4
Out Of Fleet	-	6
PABX	6	5 - 31
Selective PABX	7	8
ESINET	8	8 - 31
PAX	9	2 - 32
PSTN	0	8 - 32

Appendix C - Summary of Keypad-selected Functions

Call Type		Dialled Code/Prefix to dialled call destination	Page
Clear Call or Abort Call Set Up		∗ #	7/9
Call-back Request		∗ 0 ∗ n #	13
Cancel Call-back Request		# 0 ∗ n #	13
Sending Status Values		∗ 0nn ∗ n #	14
Conference Call		∗ 1 ∗ n #	15
Priority Call		∗ 8 ∗ n #	16
Emergency Call		∗ 9 ∗ n #	16
Broadcast Call		∗ 11 ∗ n #	15
Non-Prescribed Data Call		∗ 31 ∗ n #	16
Divert own Calls	Speech and Data	∗ 41 ∗ n #	13
	Speech	∗ 411 ∗ n #	13
	Data	∗ 412 ∗ n #	13
Cancel Diversion	Speech and Data	# 41 #	14
	Speech	# 411 #	14
	Data	# 412 #	14
Cancel Incoming Diversions	Speech and Data	# 45 #	14
	Speech	# 451 #	14
	Data	# 452 #	14
Enable Paging		∗ 47 #	22
Cancel Paging		# 47 #	22
Enable Call-Logging	Speech and Data	∗ 48 #	17
	Speech	∗ 481 #	17
	Data	∗ 482 #	17
Cancel Call-Logging	Speech and Data	# 48 #	17
	Speech	# 481 #	17
	Data	# 482 #	17
Enable Busy	Speech and Data	∗ 49 #	17
	Speech	∗ 491 #	17
	Data	∗ 492 #	17
Cancel Busy	Speech and Data	# 49 #	17
	Speech	# 491 #	17
	Data	# 492 #	17
Numeric SDM		∗ 50 ∗ n ∗ n #	24
Display Fixed Group Idents		∗ 51 #	26
Display User Defined Idents		# 52 #	26
Setting User Defined Idents		∗ 52n ∗ abcdef #	26
Enable Backlight		∗ 55 #	25
Cancel Backlight		# 55 #	25
Enable Roaming		∗ 6 #	22
Cancel Roaming		# 6 #	22
Enable Simplex		∗ 7n #	23
Cancel Simplex		# 7 #	23

Appendix B - Status Values

Status Number	Meaning	Status Number	Meaning
0	CALL ME BACK	16	
THE		17	
2		18	
3		19	
4		20	
5		21	
6		22	
7		23	
8		24	
9		25	
10		26	
11		27	
12		28	
13		29	
14		30	
15		31	CANCEL CALL BACK

1.3.2 Single Button Calls [C1] , [C2] , etc.

Whenever the radio is idle, any Call n button [C1] , [C2] , etc., may be used to make a call to a predefined destination by pressing the relevant button once. The display will indicate who is being called. The ringing tone will sound until call set-up is complete and the green Call LED indicator will be on.

If the call is successful the ringing tone will cease and a brief tone will sound. The top right of the display becomes a call countdown timer, indicating the remaining call duration in seconds (Figure 5). Press the PTT button and speak.

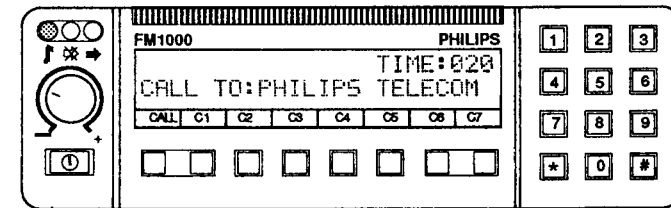If the call fails for a known reason, then a text message indicating the reason for failure will be displayed.

Figure 5 - Single Button Call

Note: Single Button Calls can only be made if the relevant short-form memory has been pre-programmed with valid data.

1.3.3 Multiple Button Calls

The numeric keypad can be used to select a destination to be called.

When the first button is pressed, the number is displayed in the bottom right hand corner of the display. Further keypad buttons are pressed to complete the dialled number (Figure 6).
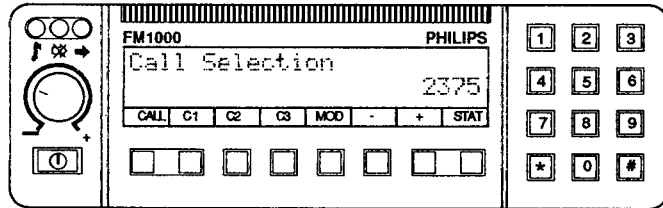
Figure 6 - Multiple Button Call

To call the number on the display, press [#], [CALL] or [CALLR].
The call set-up and connection will then proceed as for a single button call (see section 1.3.2).

To delete the last character entered whilst dialling a number, press [DEL]. To abandon dialling and clear the display press [CLEAR] or [*] [#].

During selection of a call number the Modifier button [MOD] may be used to select a special call type (see section 2.2) or use the Status button [STAT] to select a status value to send (see section 2.1). When the number is ready for transmission press [#], [CALL] or [CALLR].

Note: For all keypad dialling, the number shown on the display can be changed or cleared until either [#], [CALL] or [CALLR] is pressed. Use of any of these buttons when dialling a number indicates to the radio that the displayed number is complete and ready for transmission. See appendix C for keypad functions.

Appendix A - Short Form Memories

There are 20 Memories in total, of which 0-9 are pre-programmed and 10-19 are user-programmable using the [MEM] button.

To make a call:
- press [C1] or [C2] etc;

- dial a memory number at the keypad then press [CALL], [CALLR] or [#];

- select the call destination using [MEM] and [+] or [-] then press [CALL], [CALLR] or [#].

Dialling Directory

Memory Location	Name	Number
0 (C0)		
1 (C1)		
2 (C2)		
3 (C3)		
4 (C4)		
5 (C5)		
6 (C6)		
7 (C7)		
8 (C8)		
9 (C9)		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		

2.17 Group Identities

The FM1200 radio will respond to incoming group calls addressed to any of up to eight group identities. Four of these group identities are fixed when the radio is customised.

Radios are normally configured to show the group numbers to which the radio belongs and to allow programming of up to four additional group identities. Once programmed, these identities are retained until the radio unit is switched off.

(i) Display of Group Identities

To display the fixed group identities dial [*][5][1][#] . The display will show the four fixed groups.

The user defined group identities can be displayed by dialling [*][5][2][#] . The display will show the programmable groups.

In either case, the display is restored by pressing another key.

(ii) Changing the Programmable Group Identities

To modify one of the programmable group identities, dial

[*][5][2][n][*][A][B][C][D]
[E][F][#] , where n is between 1 and 4, and corresponds to the programmable identity intended to be changed and ABCDEF corresponds to the group number intended to be programed (AB is the fleet prefix).

The group identity (CDEF) must be in the range 7000 to 7999.

If a group identity is entered with no fleet prefix (4 digits only) then the fleet prefix is assumed to be the same as the radio's own individual fleet prefix.

For example, to write group identity 7619 (in the same fleet) to programmable identity 3, dial

[*][5][2][3][*][7][6][1][9]
[#] .

1.3.4 Options While A Call Is In Progress

- Press the PTT button to transmit; the red Transmit LED indicator will come on;

- Use the keypad to select a number followed by [#] , [CALL] or [CALLR] , or use 'Call n' to select an Include Call (see section 1.3.5);

- Clear the call by pressing [CLEAR] or [*][#] or by replacing the microphone on-hook;

- Press [CALL] or [CALLR] again to repeat the call set-up. This is useful during a Group Call as it enables members of the group who did not respond to the first request to join the call. It may also be used if the called party's call set-up failed to complete.

1.3.5 Include Calls

The include facility allows call transfer or conference calls and is available, if programmed, whenever a call (incoming or outgoing) is in progress. To make an Include Call:

- press Call n button (e.g. [C1]) of the party to be included;

- use the [MEM] button (see section 2.8) and the [+] or [-] buttons to select the party to be included, then press [CALL] , [CALLR] or [#] ;

- use the keypad to select the number of the party to be included and then press [CALL] , [CALLR] or [#] .

To cancel the Include call set-up, press the [CLEAR] button.

1.3.6 Call Cancel/Cleardown

Calls may be cancelled or cleared manually at any time during Call set-up and Call connection by pressing [CLEAR] , by pressing [*][#] or by placing the microphone on-hook. Calls may also be cleared remotely by the called unit or by the network.

If the called party does not answer within a certain time, automatic clear down will occur.

1.3.7 Diverted Calls

Calls may be diverted to another party if call diversion is in force on the called radio. If the outgoing call is diverted then the 'CALL TO:' prompt is changed to 'DVRT TO:' .

1.4 Receiving Calls

Incoming calls may be received whenever the radio is idle or whilst attempting to set up an outgoing call.

The called party is required to positively accept (or reject) the incoming call before the call can commence.

When a call is received, the caller's identity is displayed. A ringing tone sounds and the display will be as in Figure 7.
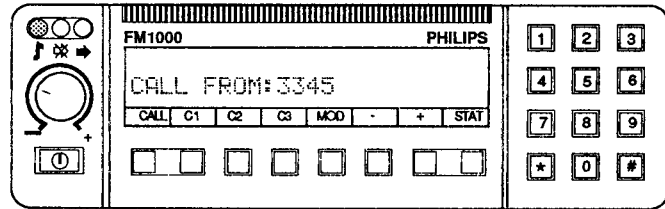

Figure 7 - Display When A Call Is Received

Options now available:

- Accept the call by taking the microphone off-hook, by pressing the PTT button, or by pressing [CALL] , [CALLR] or [#] ;

- Reject the call by pressing [CLEAR] or [★] [#] ;

- Ignore the call and it will time out automatically.

If the call is accepted, an audible tone may sound while the call is put through. When this ceases the call may be commenced.

An incoming emergency call will be distinguished by a different alert tone and the word 'EMERGENCY' displayed on the top line of the display.

1.4.1 Call In Absence

The 'Call in Absence' function enables the identification of the last incoming call if the user has not responded to it. A call in absence is indicated by the flashing green Call LED indicator.

2.15 Customisation Plug

A customisation plug is a small plug-in unit containing configuration information for a FM1200 to operate on the system (Figure 27). It is possible to customise the FM1200 so that it will not operate when no customisation plug is present. A radio which is customised to operate with a customisation plug will be inhibited from normal operation if the plug is not present, or if an incompatible plug is used.

In this case the display will show an error message following the self-test procedure. If this error is encountered, then it will be necessary to switch the radio off and insert a correctly programmed customisation plug before switching on again.
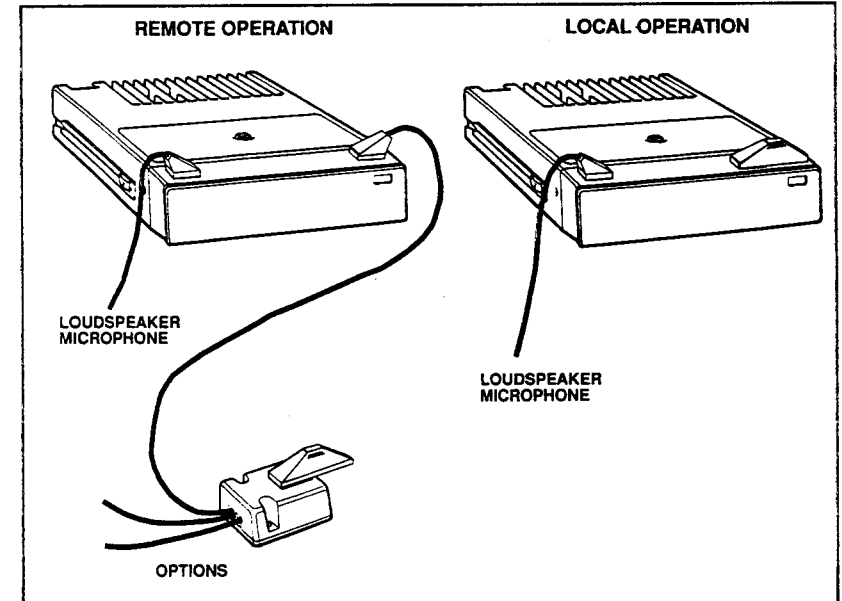

Figure 27 - Customisation Plug

2.16 Backlight Control

This facility can be used when a vehicle is unoccupied and the radio is left switched ON. The display's backlight can be turned OFF or ON without affecting the operation of the radio.

The backlight may be turned OFF by using the keypad to dial the following code: [#] [5] [5] and then press [CALL] , [CALLR] or [#] .

The backlight may be turned ON by using the keypad to dial the following code: [★] [5] [5] and then press [CALL] , [CALLR] or [#] .

2.14 Short Data Messages

Short numeric messages can be sent by using the keypad:

Enter the modifier code ⋆50⋆ followed by the destination number and the message to be sent, consisting of up to 13 digits, eg to send message 123456 to mobile 2043 press:

⋆	5	0	⋆	2	0	4	3	⋆
1	2	3	4	5	6
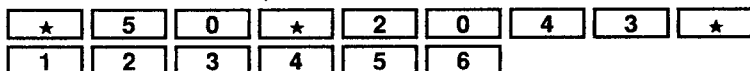
and then press the | CALL | , | CALLR | or | # | button.

Short text messages can be transmitted if a suitable external device is connected. Please refer to the user guide for this device if it is in use.

Text messages can be received without the need of an external device. When a text message is being received, the radio will display "INCOMING MESSAGE" and the alert tone sounded. When the message is complete, the radio will display "MESSAGE AVAILABLE STORE n" where n is the buffer number. The text messages can be read using the | TEXT | key which enters text mode and is also used to scroll between messages. The | SCRL | key can be used to scroll within the message. When the end of the text message is reached the radio will display "END OF MESSAGE".

The message can be deleted using the key sequence | # | | # | .

To exit text mode and return to normal operation press the | CLEAR | key. If no messages are in the buffer when the | TEXT | key is pressed then the radio will display "NO MESSAGES PRESENT".

n <Text>	Display message number 'n' (n>0)
<Text>	i) If not in text mode, enter text mode and display latest received message or ii) While in text mode, scroll to the next message in the buffer.
Clear or ⋆#	Clear the currently displayed message and revert to the default screen.
##	Delete the message currently on display.
<Scroll>	Scroll down within the displayed message.

Options:

- Press | CALL | or | CALLR | to return a call to the original caller;

- Use | STAT | to select a status value which can then be sent to the caller by pressing | CALL | or | CALLR | (see section 2.1);

- Use | MOD | and then | CALL | or | CALLR | to make another type of call to the caller (see section 2.2);

- Press | CLEAR | , | ⋆ | | # | or replace microphone on-hook to cancel the call. This will delete the 'Call in Absence' number;

- Call a different destination. Dialling another number automatically deletes the 'Call in Absence' number.

1.4.2 Out-Of-Fleet Calls

Calls may be received by the radio from sources outside the immediate fleet, e.g. from other fleets (other ESI companies), ESINET, PABX, PAX, or PSTN users, but it may not be possible to display their exact source.

The source of incoming 'Include' calls is also unknown to the radio, even if the call is from within the fleet.

In these cases the 'CALL FROM:' field indicates OUT OF FLEET, PSTN, PABX, PAX or INCLUDE CALL to identify the type of call.

1.4.3 Group Calls

The radio will respond to group calls addressed to any of its current group identities (see section 2.17).

A received group call may be one of two types; CONFERENCE or BROADCAST. The display will show which type of call has been received.

Receipt of a BROADCAST call means that transmission will be disabled for the duration of the call.

If the radio is configured for hands-free/VOX operation then it will be necessary to press the | CALL | or | CALLR | key before transmission will be enabled in a CONFERENCE call.

1.4.4 Call Cancel/Cleardown

All received calls may be cancelled or cleared manually at any time by pressing the | CLEAR | , | ⋆ | | # | or by placing the microphone on-hook. Calls may also be cleared remotely by the calling unit or by the Network.

2. OTHER FUNCTIONS

2.1 Status Messages STAT

2.1.1 Selecting And Sending Status Messages

A Status call allows a simple status message to be sent in the form of a number between 0 and 31. Status 0 and status 31 have fixed meanings; "Call Me Back" and "Cancel Call Back" respectively. The meaning of status values 1 to 30 is dependent upon the customisation of the radio (Appendix B).

A text label of up to 16 characters indicates the meaning of the status value (Figure 8). The use of a status call allows commonly used information, such as the status of the driver or the location of a vehicle on a known itinerary to be transmitted quickly without the need to speak.
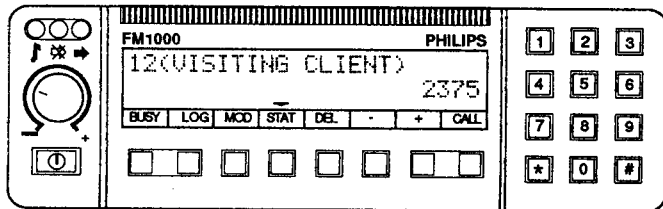
Figure 8 - Making A Status Call

To make a status call, press the Status button to display the last-selected status value.

Options now available:

- Use the Increment [+] or Decrement [-] buttons to select a new status value;

- Press CALL , CALLR or [#] to send the displayed value to the displayed destination;

- Press CLEAR or [★] [#] or replace the microphone on-hook to return to the idle state;

- Press STAT again to clear the status selection;

- Use a Call n button e.g. [C1] or the memory button MEM to send the selected status to an alternative destination;

- Use the keypad to select an alternative destination.

2.12 Simplex Channel Operation CHAN

In simplex mode the radio will transmit and receive on one of 5 customised channels outside the trunked network and will operate as a conventional radio transceiver instead of as a trunked radio. Simplex channel operation imposes no maximum time limit on calls and acts as a conventional PMR communication channel.

To select a simplex channel:

- Press the CHAN button followed by the simplex channel number required (in the range 1 to 5).

To change simplex channel:

- Press the CHAN button again followed by a new simplex channel number.

To exit simplex mode:

- Press the CHAN button again followed by the [0] button.

Alternatively, use the keypad to select the channel:

- To select/change a simplex channel press the [★] [7] followed by the channel number and then the CALL , CALLR or [#] button.

- To exit simplex mode press [#] [7] and then the CALL , CALLR or [#] button, or select channel 0.

Note: **Whilst in simplex mode, it is not possible to make/receive calls on the trunking networks.**

2.13 Last Number Redial CALLR

The last call request entered (whether successful or not) may be repeated by pressing CALLR button, provided that no other keys are pressed.

When the key is programmed, the display indicates the number which will be called when CALLR is pressed.

2.10 Revertive Paging |PAGE|

Operation of the |PAGE| button sets the equipment to Paging mode (Figure 26). When paging mode is enabled a test message is sent to the pager.

When an individual call is received at the radio, a message is sent to the pager to notify the user. This facility can be used when the user leaves the vehicle and wants to be notified when a call has been received on the radio.

Radios are normally configured such that an incoming call will cause the caller's number and the type of call to be sent to the pager. If a status message is received, the status value and its meaning will be sent to the pager with the caller's number.
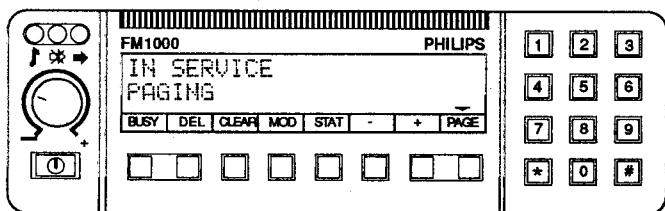
Figure 26 - Paging Mode Active

To cancel Paging mode, press the |PAGE| button again.
Alternatively the Paging facility is controlled using dialled codes:

	Enable	Disable
Paging Mode	★ 47 #	# 47 #

2.11 Roaming Mode

This facility can be used when a vehicle is operating away from its normal area and is unavailable to receive signalling from its normal network.

To select Roaming mode use the keypad to dial the following code
| ★ | | 6 | and then press |CALL| , |CALLR| or | # | .

When roaming mode is enabled, the console will display 'ROAMING' on the second line of the display when the radio is in idle mode.

To cancel Roaming mode, press | # | | 6 | and then the |CALL| , |CALLR| or | # | . Roaming mode will be automatically cancelled when the radio is switched off.

A status value may also be selected when a Call in Absence or a Queued Call is on display. The status may then be sent to the displayed destination by pressing |CALL| or |CALLR| . Pressing |STAT| again will allow an alternative destination to be selected.

Note: Alternatively, status values 1 to 30 may be selected using the keypad to dial ★0nn★, where nn is the status value, before the required destination (see section 2.3.1 iv).
Status value 0 ("Call Me Back) may be selected by dialling ★0★ before the required destination (see section 2.3.1 i).
Status value 31 ("Cancel Call Back") may be selected by dialling #0★ before the required destination (see section 2.3.1 i).

2.1.2 Receiving Status Values

Normally, if a call queue is customised, a brief beep will be heard and the status value together with the callers identity will be added to the call queue. If no call queue is available, the received status value will be displayed immediately (Figure 9).
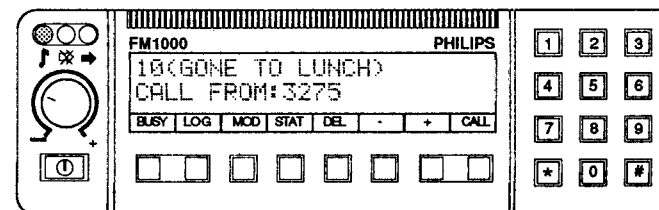

Figure 9 - Received Status Call

On radios which are appropriately customised, a received status 0 ("Call Me Back") will be added to the queue of logged calls (see section 2.5). Receipt of status 31 ("Cancel Call Back") will cause a logged call from the sender to be removed from the queue (if present).

2.2 Selecting Special Call Types Using The Modifier Button [MOD]

A wide range of outgoing call types are selected using the [MOD] button. The selected call-type is shown by text in the top line of the display (Figure 10). The [+] button is used to step up through the available call types and the [-] button is used to step down through the call types. To return to normal operation press the [MOD] button again.
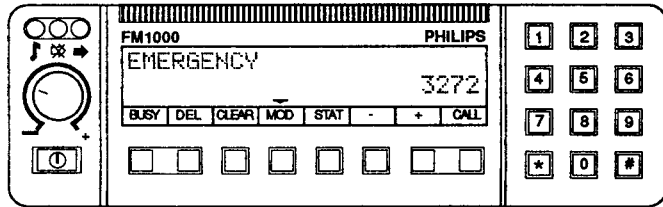

Figure 10 - Making A Modified Call

To select the destination of the call:

- Use the keypad to enter the required number;

- Use a Call n button e.g. [C1] ;

- Use [CALL] , [CALLR] or [#] to call the destination from the call queue if the queue is on display;

- Use [CALL] , [CALLR] or [#] to call the destination displayed if a Call in Absence is on the display.

The [MOD] button will be disabled if an Include Call is selected (see section 1.3.5), or if a modifier value or a status value has already been entered using the keypad (see section 2.3).

Call-types available:

(i)	Call-back Request;
(ii)	Cancel Call-back Request;
(iii)	Divert Own Diversions;
(iv)	Cancel Own Diversions;
(v)	Cancel Incoming Diversions;
(vi)	Emergency Call;
(vii)	Broadcast Call;
(viii)	Priority Call;
(ix)	Data Call.

Repeat the editing sequence for all 16 characters of the label. When the last character is saved the radio will return to the idle display state.

2.8 Recall Facility [MEM]

If [MEM] is pressed with no preceding dialled number, the indicator appears above the button and the last selected memory label is displayed (Figure 25). See appendix A for short form memory contents.
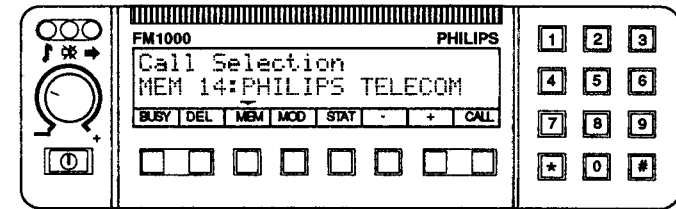

Figure 25 - Making A Memory Call

Options now available:

- Use [+] or [-] to select another memory;

- Press [CALL] , [CALLR] or [#] to call the displayed short-form memory;

- Press [CLEAR] , [*] [#] or replace the microphone on-hook to cancel the call;

- Press the Memory button, [MEM] , again to clear the recall selection and indicator;

- Use a Call n button, e.g. [C1] to make an alternative call;

- Use the [MOD] button to select another type of call (see section 2.2);

- Use the [STAT] button to make a status call to the displayed destination (see section 2.1).

2.9 Remote Alarm

Approprately configured radios will be customised with an external alarm switch to make a call to one of the short-form memories.

Operation of the remote alarm when the radio is switched off, causes the radio to switch on automatically before attempting the call.
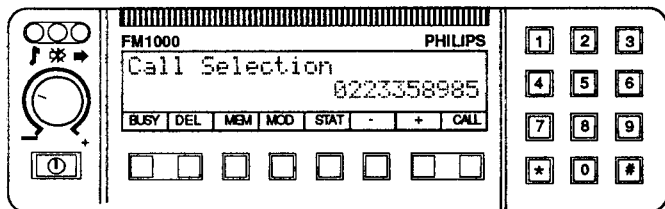
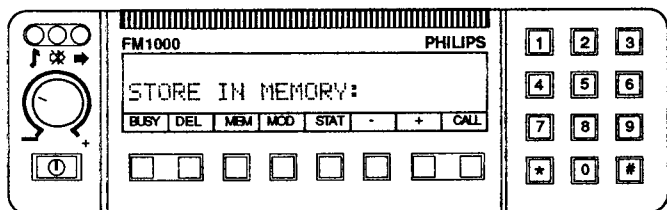**Figure 22 - Dialling A Number To Store**

Figure 23 - Awaiting Memory Number

After a memory number, in the range 10 - 19, is entered, the label for the chosen memory is displayed (Figure 24).
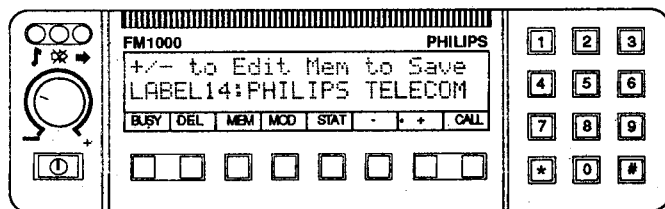

Figure 24 - Editing Memory Label

Options now available:

- Accept the label by pressing MEM .

- Edit the label using Increment and Decrement. The first character will flash (Figure 24) and one of the following actions can be taken:

- Change the flashing character by using + or - to scroll through A-Z, a-z, 0-9 and space;

- Enter numbers using the keypad;

- Press MEM to save the selected character;

- Press DEL to move back one character.

2.3 Selecting Special Call Types Using The Keypad

A wide range of outgoing call types may be selected by using the keypad to dial the appropriate modifier(s). When a modifier is dialled, its corresponding text meaning is displayed on the top line of the display. The required destination can then be dialled as for a normal call.

2.3.1 Call-Types Available

(i) Call-Back Requests

To make a Call-Back Request to a specified address, enter ☆ 0 ☆ followed by the address (Figure 11).

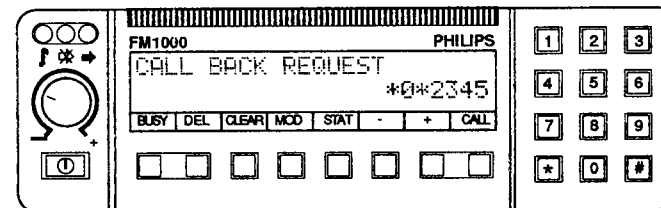**Figure 11 - Call-Back Request Call**

To cancel a Call-Back request the prefix # 0 ☆ is added to the address.

On appropriately configured radios, Call-Back requests can also be made and cancelled using special status values, see section 2.1.1.

(ii) Diverting Calls

To divert speech and/or data calls to another radio a prefix is added to the number of that radio:

	Type of Diversion		
	Speech and Data	Speech	Data
Divert Own Calls Cancel Diversion	☆ 41 ☆ n # # 41 #	☆ 411 ☆ n # # 411 #	☆ 412 ☆ n # # 412 #

Note: n is the number of the radio to which calls are to be diverted.

For example to divert speech and data calls to radio 3456 press ☆ 4 1 ☆ 3 4 5 6 followed by CALL , CALLR or # (Figure 12).
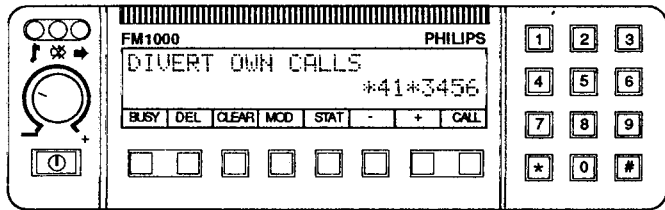
Figure 12 - Diverting Own Calls

(iii) Cancelling Incoming Diversions

To cancel incoming diverted speech and/or data calls, enter one of the following numbers:

	Type of Diversion		
	Speech and Data	Speech	Data
Cancel Diversion	# 45 #	# 451 #	# 452 #

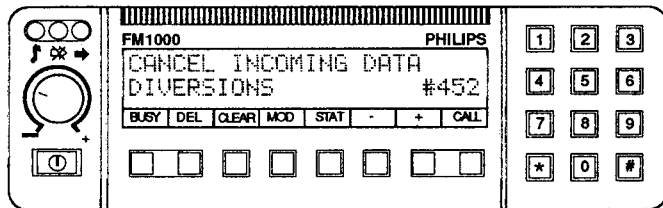On cancelling incoming data diversions the display will be as in Figure 13.

Figure 13 - Cancelling Diversion

(iv) Sending Status Values

Status values 1 to 30 may be sent by prefixing the call destination with ★0nn★ where nn is the status value to be transmitted.

For example to send status value 12 to radio 2237, enter

| ★ | 0 | 1 | 2 | ★ | 2 | 2 | 3 | 7 |

followed by CALL , CALLR or # (Figure 14).

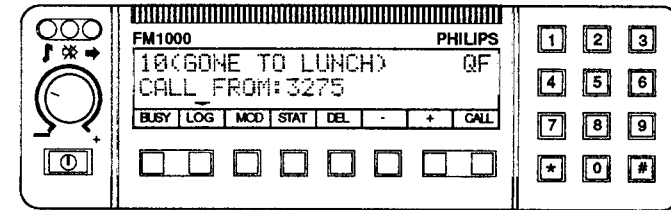A received Status value (1 to 30) in the queue is displayed as in Figure 21.

Figure 21 - Logged Status Call With Queue Full Indicator On

The same options are available as for Call-back requests, but status calls are only deleted from the queue when the Delete button, DEL , is pressed. Occasionally it will not be possible to return calls to an out-of-fleet user.

2.6 External Alert ALERT

This button is used to control an external alert device such as a vehicle horn and/or lights. It is can be enabled for when the user needs to be alerted outside the vehicle and will operate when the radio is called. An indicator may be on whenever the External Alert facility is enabled. Press the button again to cancel the External Alert.

Note: Users are advised that this facility, if used for the purpose of sounding the vehicle horn or flashing any external lights, must be confined to locations and times where its use cannot infringe the Road Traffic Acts or other legislation.

2.7 Store Facility MEM

The Memory button is used to save an entered dialled number in one of the short-form memories. After dialling the number (Figure 22), pressing MEM produces the display prompt to enter the memory in which the dialled number is to be stored* (Figure 23). For example to store the number in Memory 14, press 1 4 .

*Note: To function in this mode, use of the MEM button must be preceded by a dialled number, otherwise the button will have a Recall function (see section 2.8). The memory numbers which can be edited in this way are numbers 10 to 19 inclusive.

(vi) Data Calls

A non-prescribed Data call can be made to a selected number by adding the prefix ∗31∗ (Figure 17). A Data call can only be made if suitable equipment is connected to the radio.
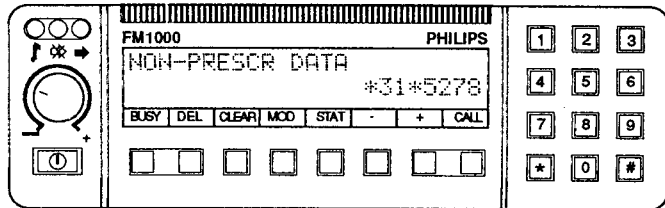

Figure 17 - Making A Data Call

(vii) Priority Calls

To make a Priority Call to a selected number the prefix ∗8∗ is added to the call address. A priority prefix can be added to individual, conference, broadcast and data calls. Figure 18 shows a priority speech call.
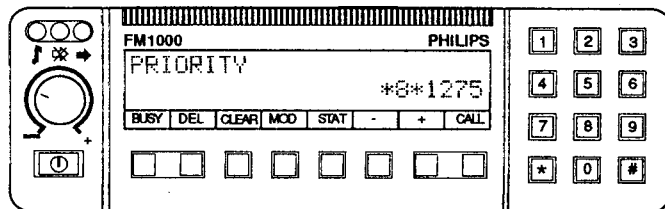

Figure 18 - Making A Priority Call

(viii) Emergency Calls

An Emergency call is selected by adding the prefix ∗9∗ to the address. The prefix may be added to individual, conference, broadcast and data calls. Figure 19 shows an Emergency Broadcast call
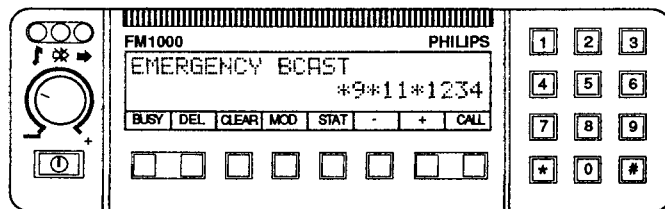

Figure 19 - Emergency Broadcast Call

2.4 Busy (Do Not Disturb) Mode BUSY

Pressing the BUSY button at any time selects the 'Busy' or 'Do Not Disturb' mode. All incoming calls, except emergency calls are rejected. Outgoing calls are not affected but the Busy indicator will remain on as a reminder.

A further press of the BUSY button will cancel the Busy mode. If Call-Logging mode (see section 2.5) is in force it will be cancelled when 'Busy' is selected.

Alternatively the Busy mode may be selected or cancelled by dialling the appropriate codes on the keypad:

	Busy Mode		
	Speech and Data	Speech	Data
Enable Busy Mode	∗ 49 #	∗ 491 #	∗ 492 #
Cancel Busy Mode	# 49 #	# 491 #	# 492 #

The Busy indicator is on whenever the radio is busy for either speech or data calls. The exact busy mode selected is indicated by the idle display.

2.5 Call-Logging Mode And The Call Queue

Pressing the LOG button will select Call-Logging Mode allowing incoming calls to be queued for answering later. Outgoing calls are not affected but the Call-Logging indicator will remain on as a reminder.

A further press of the LOG button will return the unit to normal operation. If Busy mode is in force, it is cancelled when Call-Logging mode is selected.

When the queue is full, then any further calls will be rejected. Emergency or Include Calls override this mode since they cannot be queued.

Call-Logging Mode may also be selected or cancelled by dialling the appropriate codes on the keypad:

	Call-Logging Mode		
	Speech and Data	Speech	Data
Enable Call-Logging	∗ 48 #	∗ 481 #	∗ 482 #
Cancel Call-Logging	# 48 #	# 481 #	# 482 #

The idle display indicates the type of Call-Logging mode selected. The Call Queue may contain up to 20 calls for attention later. Whenever the radio is idle, the oldest item in the queue is displayed automatically,

e.g. a request to call unit 4530 (Figure 20). If the queue is full, the Queue indicator will flash 'QF' (Figure 21), otherwise it will indicate the number of calls in the queue.
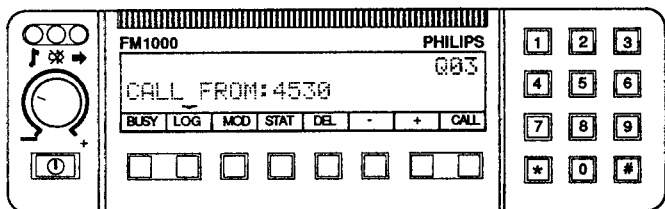

Figure 20 - Call Queue with 3 items

When the Call queue is displayed, options are as follows:

- Press CALL or CALLR to call back the number on the display. The number is then deleted from the queue if the call succeeds immediately or is accepted for call-logging;

- Use STAT to select a status value (see section 2.1) for transmission to the number by pressing CALL , CALLR or # ;

- Press DEL to delete the entry from the queue; the next entry in the queue will then be displayed;

- Use Call n e.g. C1 , MEM button or the keypad to select an alternative call. The displayed item is deleted from the display but not from the queue; it will be restored when the alternative call is cancelled, cleared or completed;

- Press MOD and then CALL , CALLR or # to make another type of call to the displayed number;

- Use the Decrement button - to examine older entries in the queue;

- Use the Increment button + to examine newer entries in the queue.

The source of some calls received from other fleets cannot be displayed. These may be called back as for other calls. Telephone type calls (i.e. PABX, PSTN, PAX and ESINET) are logged but cannot be called back.

A Call-back request, at any point on the queue, will be deleted if a call is made to or from the requesting party.
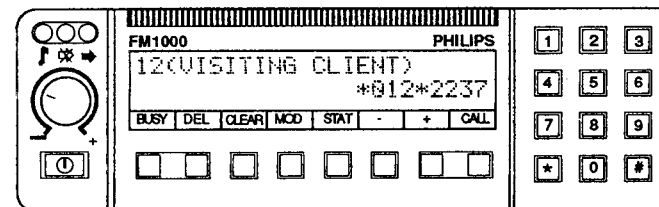

Figure 14 - Dialling A Status Call

Alternatively the Status value may be sent to another destination by first dialling the status and then pressing a Call n button e.g. C1 .

(v) Conference And Broadcast Group Calls

When a normal Group Call is made, for example to Group 7123 (Figure 15) any party in that Group is able to transmit during the call. To prevent the recipients of the call from transmitting during the call, a Broadcast Call can made by adding the prefix *11* (Figure 16).

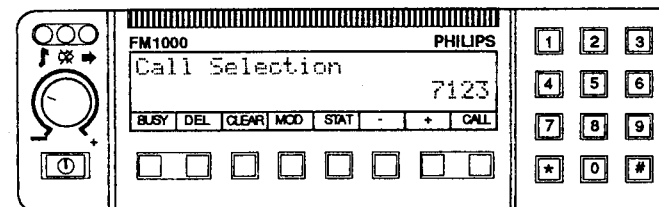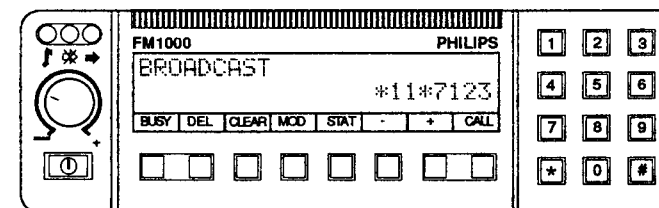**Figure 15 - Group Call**

Figure 16 - Broadcast Group Call