

McMurdo F1 DSC Marine VHF Radio with DSC



Operation Manual

Controls



Disclaimer

Information contained in this manual is supplied in good faith, but is liable to change without notice. McMurdo Limited disclaims any liability for consequences arising from omissions or inaccuracies in the manuals and documentation provided with this product.

IMPORTANT: Before you use this transceiver, read and understand all the instructions in this manual.

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Rapid Distress Call

1. Turn the radio ON (press **POWER**)



2. Open the cover over the **DISTRESS** button and **press the button**. If the button is pressed for 5 seconds an 'undesigned' distress call will be made. If the button is released before 5 seconds, you can select the type of emergency.



If the position information is too old to be valid, you will be prompted to update it. (See Page 6 for full details.)

3. If there is insufficient time to enter position information **keep pressing the Distress Button. Do not release the button until you see this screen.**

Distress Call
Undesignated
Wait for Acknowledge
Reset **16**

4. Wait approximately 15 seconds for an acknowledgement.
5. When the acknowledgement is received, the radio switches automatically to Channel 16.

Pick up the microphone, press the PTT (TALK) button and call for help:



'MAYDAY, MAYDAY, MAYDAY
This is *Ship name, Ship name, Ship name*
MAYDAY
This is *Ship name, Callsign.*
Position:.....
Nature of distress:.....
Help needed:.....
(any other information)
OVER'

IMPORTANT: Do NOT make a distress call unless there is grave and imminent danger. It is an offence to make any unjustified distress call.

Introduction

Thank you for choosing McMurdo for your VHF communication requirements.

McMurdo has supplied the maritime market for many years with communication products of high quality and excellent design, and considers it of utmost importance that all products are safe and easy to operate.

The product

The McMurdo F1 DSC VHF radiotelephone is designed to meet the high quality standard required for a product that plays an important role in the safety of the ship and its crew. The F1 DSC VHF radiotelephone is easy to operate and gives the user high quality effective radio communication to other ships as well as to shore based stations. Installation and maintenance is made very simple and can be carried out by untrained personnel.

A CD-ROM simulating the operation of the F1 DSC radiotelephone can be obtained from McMurdo on application. This, when installed on a PC-compatible computer, simulates the operation of the F1 radio together with a simulation of a second station for exchange of DSC messages.

VHF DSC Radios

VHF radios communicate on fixed frequency bands called *channels*. There are 57 public channels, numbered 1 to 28 and 60 to 88. (The system is different in US waters; setting the radio to **US** changes to that system.)

Some channels are reserved for particular functions:

Channel 16 is reserved for verbal distress calls and for 'All Stations' calls. This channel must NOT be used for other purposes.

Channel 70 is a channel reserved for digital data (DSC).

DSC (Digital Selective Calling) is a digital function which permits a caller to alert a particular DSC radio (or group of radios) that a standard radio communication is requested on a specific channel. In this respect, it is similar to a standard telephone call in that a specific number can be called; however, once the call is accepted, communication uses normal radio procedures.

DSC also permits automatic distress call alerting; where the appropriate information is available from external equipment, the alert includes the vessel's MMSI number, its position and the exact time of the distress alert. (The distress call is still made using conventional radio procedures; the DSC function only alerts other radio users to the intended call.)

Verbal Communication

Verbal communication is of two types: simplex and duplex.

- Simplex communication uses a single frequency, so only one transmitter can be operating at any time. This means that each party in the conversation must say 'over' when stopping transmitting so that the other party knows it is their turn to transmit. All ship-to-ship communication is in simplex mode. The F1 DSC radiotelephone supports simplex communication.
- Duplex communication uses two frequencies, so both parties can talk at the same time. The F1 DSC radiotelephone does not support full duplex operation.
- There is also a hybrid mode: semi-duplex. In this mode, one of the communicating parties operates in duplex mode and the other in simplex. A good example is ship to coast station communications. The F1 DSC radiotelephone supports semi-duplex communication.

DSC Digital Communication

DSC (Digital Selective Calling) is a system for establishing communication to a specified address, to a 'group' (a pre-defined set of addresses), or to 'all parties' for a digital distress call.

The key feature of the DSC system is the use of the vessel's MMSI (Maritime Mobile Station Identity) number to identify each vessel. (This number is treated as the vessel's DSC telephone number.) Consequently, before a DSC call can be made, the originating vessel's MMSI must be programmed into its radio and the receiving vessel's MMSI must be known to the caller.

All DSC communication is on Channel 70. The radio maintains a continuous watch on this channel for incoming messages, which are immediately reported. This monitoring also allows the system to transmit only when the channel is free.

The radio responds to three types of DSC message:

All ships calls. These calls are received by all vessels within range of the transmitter.

Individual calls. These calls are addressed specifically to the radio MMSI number.

Group calls. When the radio has been set up as a member of a group, it responds to calls addressed to the group number.

Key to Symbols:



Indicates that an Action key must be pressed.

Example: Press the **Menu** Action Key.



50°56'N at:08:40
001°34'E UTC
Menu **16** Pos



Indicates that the Scroll keys must be pressed to change data highlighted (displayed in inverse contrast characters) in a screen or menu, or to change channel in standby mode.

Shaded text

Indicates that the appropriate Action key must be pressed **after** data entry / selection is complete.



WARNING

Instruction to take particular care when performing an action that may have serious consequences, such as personal injury, electric shock or fire hazard.



CAUTION

Advice or information to prevent equipment damage .

IMPORTANT

Highly relevant information. Possible safety implications (example: position information could be omitted from a DSC Distress transmission if instruction disregarded).

NOTE


Inconvenience may occur if advice disregarded.





In the following text 'radio' and 'transceiver' all refer to the 'F1 DSC Radiotelephone'.


Installing and Using the Transceiver Safely


Installation (see also the F1 DSC radiotelephone Installation Manual)


 **WARNING:** Do not connect the transceiver to a mains (line) AC electrical supply, as an electric shock or fire hazard could result.

 **CAUTION:** Do not connect the transceiver to a DC supply exceeding 16V or reverse the supply polarity. Damage to the transceiver can result.

 **CAUTION:** Do not bypass the power cable inline fuse (such as cutting the cable shorter).


 **CAUTION:** The transceiver is designed for operation in the temperature range -15°C to $+55^{\circ}\text{C}$. Do not install (or use) the transceiver in areas which exceed this range.


 **CAUTION:** The transceiver is water resistant to international standards. However, if either the transceiver or microphone casing is damaged (e.g. due to heavy impact) then the sealing cannot be guaranteed.


 **WARNING:** Do not install the transceiver in a position where;

- a) the controls of your vessel may be obstructed.
- b) it may obstruct your normal movement around your vessel.
- c) it may cause bodily injury.
- d) it cannot be easily accessed in an emergency.


Use

 **WARNING:** Certain parts of the chassis can become hot during extended periods of operation, notably the rear panel (connectors and radiator fins). Avoid touching these areas when the radio is operating.

 **WARNING:** Do not touch the rear connections, notably the antenna connector, when the transceiver is operating and do not touch the antenna whip (mast) or connecting cable when operating the transceiver, for RF exposure and electrical safety reasons. Refer to Radio Frequency Exposure Warning.

 **WARNING:** Opening the transceiver cover will invalidate the warranty. Do not open the cover when the transceiver is operating, or connected to a power supply.


Maintenance

 **CAUTION:** Avoid using chemical solvents to clean the transceiver as some solvents can damage the case material.

NOTE: The transceiver contains no user serviceable parts. Return to your Service Agent for repair.


Radio Frequency Exposure Warning

To meet the current requirements for Radio Frequency Exposure it is necessary to install the antenna mast correctly and operate the equipment according to the instructions.

 **WARNING:** The antenna mast must be mounted at a minimum distance (vertical separation) of 3 metres from the head of any person to meet international safety directives on Maximum Permissible Exposure (MPE) / Specific Absorption Rate (SAR).

The assumptions used in this assessment are: full transmit power and a good antenna are used (assumed to be a 9dBi gain omnidirectional type).

Where no suitable structure exists to achieve a 3 metre vertical separation then the antenna base must be mounted at least 1 metre above the head of any person within range and all persons must stay outside the 3 metre safety radius.

 **WARNING:** Do not transmit when persons are closer than 3 metres to the antenna. If any person (e.g. the operator) must be closer, then a grounded RF shield should be interposed between that person and the antenna.

Failure to adhere to these limits could expose persons within the 3 metre radius to RF radiation in excess of the MPE / SAR limits.

Rules of Operation

Licensing

IMPORTANT: In most countries the operator of the transceiver must possess a current radio telephone licence, and the equipment must be registered (Call Sign and MMSI number). Please contact the relevant authority in your country for more information.

IMPORTANT: Normal users of the transceiver should be trained, licensed operators, but this rule is waived in an emergency and any person can transmit a Distress Call.

General radio operating procedures

Monitor Channel 16 when not using a different channel. The transceiver is designed to revert to this channel.

False alarms cost lives and money. Do not make unjustified Distress Calls.

Information you overhear, but not intended for you, must remain private and should not be used or repeated.

Do not use profane or indecent language.

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Controls and Indicators



Power

The Power button is an ON/OFF switch. Because it is separate from the volume control, there is normally no need to reset the volume level after switching ON the radio. To switch on the radio press **Power**, briefly, until display becomes active.



Volume

The Volume knob is a standard rotary control. It controls the volume of both the internal and external speakers.

Squelch

The Squelch knob sets the level at which signals become audible. It is used to suppress the background noise, and should be set at the point where the noise is just inaudible. Setting Squelch at too high a level may suppress weak signals.

Distress

This control is a button which is concealed by a sprung cover, so preventing accidental activation of the DSC automatic distress alert operation.



16

This button immediately switches the radio to a listening watch on Channel 16. This function takes priority over any activity other than a distress call.



1/25

This button toggles the output power of the radio between 1W and 25W on successive operations.



dual watch

This button allows the radio to monitor both the selected channel and Channel 16 automatically.



To use the Dual Watch function, first set the radio to the desired channel, then push the **dual watch** button. The display will alternately display the selected channel number and channel 16, at a rate which is controlled by the scan dwell time (refer to the 'Setting Profiles' section for information on this parameter).

Pressing the dual watch button again cancels the dual watch and returns the radio to a listening watch on the selected channel.

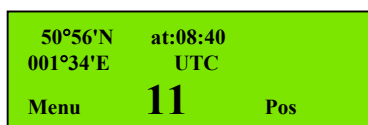
light

This button controls the backlighting of the display and keyboard.



When the button is first pushed, it sets the keyboard backlight ON and the display backlight DIM. Successive pushes of the button cycle the lighting through the sequence:

Display	Keyboard
DIM	ON
FULL	ON
OFF	OFF
DIM (reversed)	ON

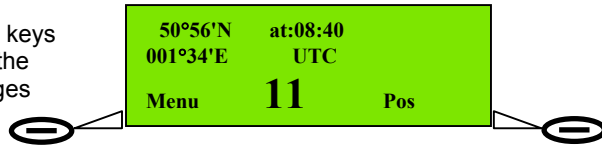


Scroll keys

The Scroll Keys are the two buttons on the right of the display. Scrolling is used to cycle through available choices, to move the display list up and down and to set the channel. Scroll also allows DSC messages to be read in their entirety.

Action keys

The Action Keys are the two keys indicated by pointers below the display. Their function changes according to the operational mode of the radio, and is shown by appropriate labels on the display.



In 'normal' mode ('standby screen'), the **Left Action key** and **Right Action key** have the functions **Menu** and **Pos**, respectively.

Menu displays the parameters for digital control of the radio; the scroll keys move through the menu or sub-menu items.

Pos displays the positional data (if any) last acquired by the radio, either from numeric entry or from the electronic NMEA interface, and allows these data to be changed manually.

PTT key

(PTT switch). Press-to-Talk key.

Press *and hold* the PTT key to make a voice (telephony) call.

Release the PTT key when you stop talking.

Indicators

US

This indicator lights to show that the radio is operating with the US specification of VHF channels. This setting is selected using the Profiles menu.

TX

This indicator lights when the radio is transmitting.

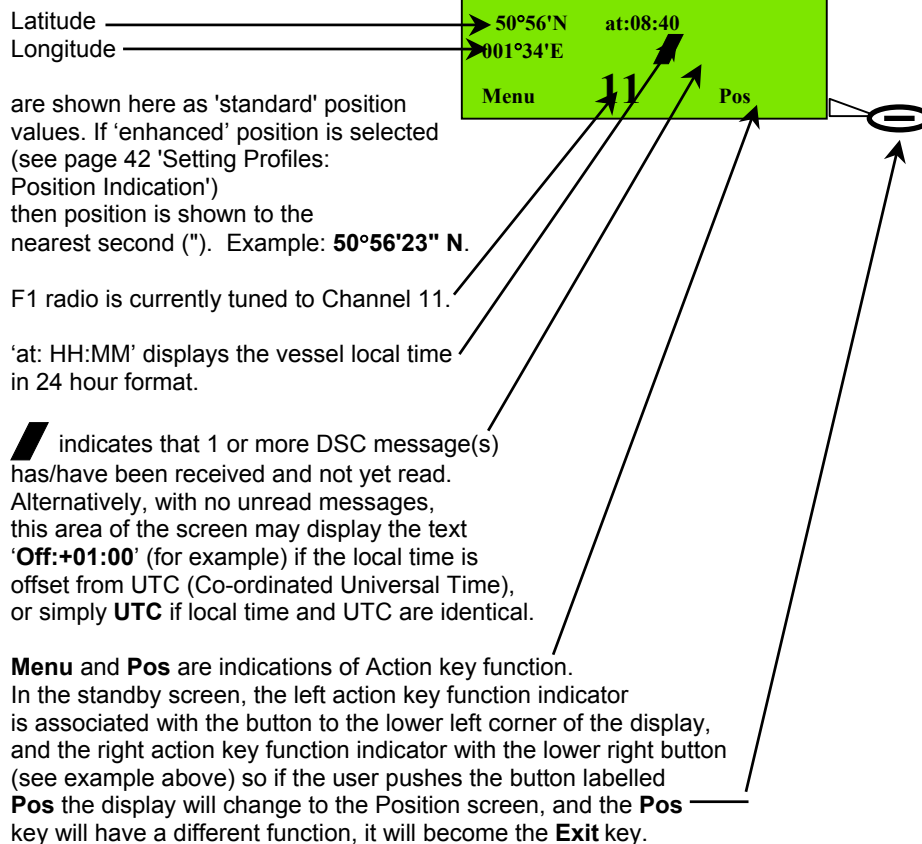
1W

This indicator lights when the radio is operating in its low power (1W) mode.

Display

The 'standby screen' is shown here.

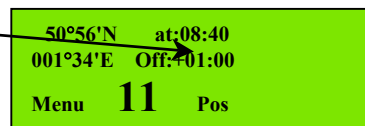
This is the display for normal radio operation.



Standby screen showing offset time value **Off:+hh:mm**.

Where no offset exists the text **UTC** is displayed.

In either case no unread messages exist, or else the text is replaced by ▬.

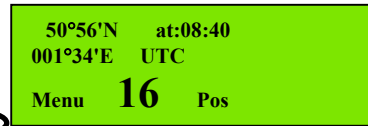


NOTE: if the 'Auto Dim' feature (see 'Display and Keyboard Dimming : Auto Dim') is enabled, the display will dim after 5 minutes of keypad inactivity. Any single key press in the auto-dimmed state will brighten the display, (but not perform other any action) so an additional key press is required to initiate the desired action.

How to Access F1 Radio Features Using the Menu

The F1 radio is easy to operate. Many functions are available from simple front panel controls, but most features are accessible from the easy to navigate 'menu' (series of linked software controls).

The main menu is accessible from standby mode. The standby display (or 'screen') is shown here.

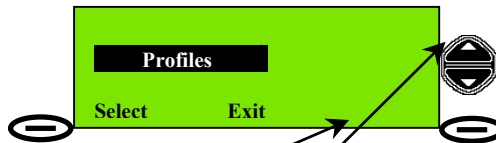


The **Menu** action key (associated with the **Menu** label on the standby screen) must be pressed to allow access to menus. The menu comprises nested levels of screens providing options to select or setup various features of the radio. As the menus are navigated the action key labels change, dependent on the options available at each level of menu.

At its most basic, navigation of menus requires selection of menu mode or level (normally left Action key), examination of available options (via the Scroll keys), followed by selection of the desired option (left Action key again).

Once the desired option has been selected, or the user decides not to effect a change, then the right Action key (normally labelled **Back** or **Exit**) is pressed to return to previous menu levels, and ultimately to the standby screen.

This example shows the effect of pressing **Menu**, followed by a single press of the Scroll Up key.



Subsequently, pressing the Left Action key (now labelled **Select**) will allow the user to access a menu sub-level called Profiles (radio settings), and the first sub-menu option is **Scan dwell time**.



If you want to change Scan Dwell Time press the **Select** action key, otherwise use the scroll keys to list other menu options, then press **Select** to change the desired option settings.

If you do not want to change anything at this menu level, press the **Back** key (Right Action key).

The menu hierarchy (or structure) is described in more detail in 'Appendix B: Menu Hierarchy' section of this manual.

Basic Telephony Operations

Power On/Off

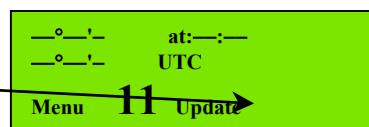
The F1 radio is switched ON and OFF by the POWER button (see page 1).

When the radio is switched ON, it performs a series of self-tests including memory and key and display illumination tests. When complete the display shows radio identity and type information, then switches automatically to a listening watch on Channel 16.

If any problem is encountered, a message is displayed. These messages and the appropriate corrective actions are discussed in 'Appendix C: Error Messages / Troubleshooting'.

Note that the radio automatically looks for a GPS¹ signal source (connected to the radio NMEA² interface) to provide positional information and time and date. During the check for a GPS source the display reads **Search for position**. If GPS is not available after 2 minutes, the message **Pos update not found** is displayed for 2 seconds and the missing position, time and date information is represented on the display by blanks (—). The screen now appears as follows:

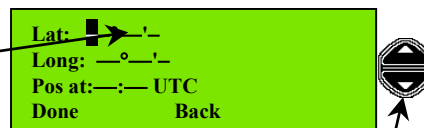
Time / date and position information can now be entered manually, using the **Update** Action-key.



Note: until the user enters time / date and position information, the radio will emit a beep every minute as a warning that important safety data will not automatically be sent with DSC messages.

Entering Time, Date and Position

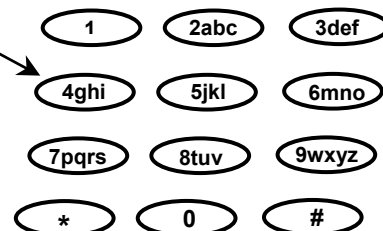
Press the **Update** key. This screen is now displayed. A cursor (text entry point) appears (flashing) above the first latitude character entry point. To move the cursor to the right press the lower scroll key.



To move left press the upper scroll key.

To enter digits press the numeric keys 0–9.

The cursor moves right one digit for each digit entered, until the end of the line is reached. The last character (N or S for latitude, or E or W for longitude) is set by pressing any key from 0–9, * or #. Each press changes to E/W or N/S.



¹ GPS = Global Positioning System

² NMEA = National Marine Electronics Association

To move to another line press a scroll key. Time (**hh:mm**) must now be entered in the **Pos at:—:—** blank area. If time is not entered (and the **Done** Action-key is pressed) the message **Invalid Time** will appear for 2 seconds. Note that entering a time via the Position Update screen will not update the radio clock time³. It is a static time, which should be updated every 4 hours as a minimum, where no GPS data source is available. Clock time (and date) is set in 'Profiles'⁴ (accessible via the **Menu** Action key).

³ The radio internal clock operates only when power is available to the radio, and must be manually set, or the clock sets itself using a GPS data source.

⁴ Please refer to the 'Setting Profiles' section of this manual for details on setting clock time.

Receiving and Transmitting

The radio will operate as a basic transceiver for verbal communication without requiring any information programmed into it.

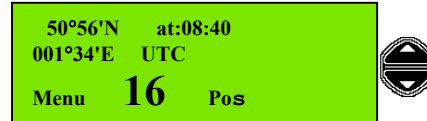
However, it cannot be used as a DSC communication system before it has a 'profile' set into it (i.e. as a minimum, the MMSI number must be set).



Please refer to the 'Setting Profiles' section 'Setting the MMSI' for more information.

Listening for Voice Communications (Telephony Calls)

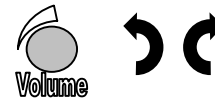
To prepare to listen to telephony calls:

1. Ensure the radio is in the standby state (standby screen is shown here) using the action keys if necessary.

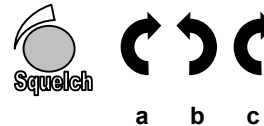


2. Set the radio to an appropriate channel. This is normally channel 16 (the radio is designed to monitor channel 16 by default). If a different listening channel is required press the scroll keys:  or  to increase or decrease the channel number, or use the numeric keys to set the channel directly. See also 'Private Channels'.

3. Set volume control to a comfortable level. A suitable starting level is with the volume control rotated fully anti-clockwise and then rotated a few degrees clockwise.



4. (a) Rotate the squelch control fully clockwise to 'squelch' the channel, (b) then rotate slowly anti-clockwise until noise is heard on the free channel, (c) then rotate slightly clockwise to squelch the channel again.

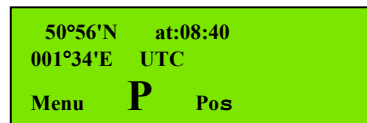


5. Readjust the volume control if necessary. If sound cannot be heard, check that the internal speaker is enabled (go to Profiles->Speaker settings).

Private Channels

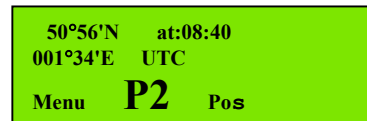
To select a Private Channel (example P1, M2):

1. Press the  key then the  key (for **P**).



2. Press .

3. You have now selected Private Channel **P2**.



Subject to certain restrictions, your Service Agent can set up your Private Channels. [See also 'Setting Channel Numbers' on page 9.]


Receiving Telephony (Voice) Calls

When a call is received and the call sign of your vessel (or station name) is heard in loudspeaker (or handset where appropriate):

1. Pick-up the fist-microphone or handset and press *and hold* the PTT key, to answer the call.

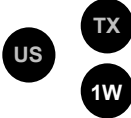
2. Say:
'<CALLING STATION NAME>
This is <YOUR STATION NAME>'.


NOTE: It is essential to propose a working channel for subsequent communications (not Channel16).

3. Say: '**Over**'
then *release the PTT key* and wait for an acknowledgement from the caller, which should include the new working channel (if suggested).



4. Set the radio to the working channel (please refer to the Setting Channel Numbers section) before resuming communication.


NOTE: Press the PTT key *only* when talking.
If a simplex channel is used (refer to Appendix D: Channel Specifications) it is necessary to say '**Over**' when you stop talking.

For normal communications, very near to coasts, in ports and marinas, use the 1W power setting.
(Press **1/25** the key until the 1W LED is lit.)


Setting Channel Numbers

The active channel is changed using the scroll keys or by entering the channel number from the keyboard, when in standby mode.

To change a channel using the keyboard press a numeric key (example '2'). The existing channel setting clears and '2' appears channel indication section of the display.


If no other numeric key is pressed within 2 seconds then the F1 radio is set to channel 2.
If another numeric key is pressed (example '3') then the displayed digit '2' moves left by 1 digit position and '3' becomes the channel units digit.
The radio is now set to channel 23.
[See also 'Private Channels' on page 8.]


Making Telephony (Voice) Calls

To initiate a radio telephone (telephony) call:

1. Ensure the radio is in standby mode and select a channel (channel 16⁵ or another suitable channel).

2. Select transmit power: 1W for short range, or 25W.

3. Pick-up the fist-microphone or handset and press *and hold* the PTT⁶ key.

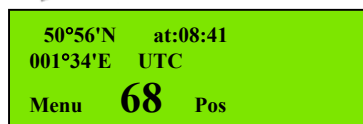
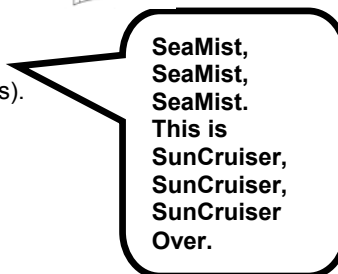
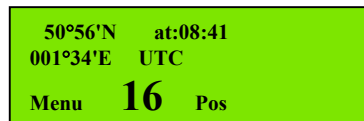
4. Say:
'<CALLING STATION NAME>' (3 times)
'This is <YOUR STATION NAME>' (3 times).
'Over'.

5. Release the PTT key and listen.

6. When the call is answered, the called party may suggest a working channel. If in agreement, switch to the channel (example channel 68), using numeric keys or scroll keys.

It is necessary to say 'Over' when you stop talking, and say 'Out' when the entire communication is terminated.

Do not say 'Over and Out', as this is incorrect.



NOTE: *If you make contact on Channel 16 always continue the telephony call on another channel!*

NOTE: Press the PTT key *only* when talking.
It is necessary to say '**Over**' when you stop talking.

Returning to Channel 16

To return to **channel 16**⁵ simply press the dedicated **16** key. This will immediately return the radio to the standby mode from any other mode (example: menu mode) and set channel 16.

⁵ Channel 16 is the internationally agreed channel *for initial contact only*.

⁶ 'TX' indicator is lit when the PTT key is pressed. If PTT is pressed for more than 5 minutes, the F1 radio stops transmitting, a warning beep is heard, and the 'TX' indicator is no longer lit. To transmit again simply release PTT, then press PTT again for the duration of your transmission.

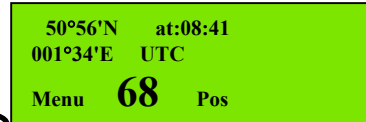
Speaker Mute Function

NOTE: If an external speaker is fitted, at power on the external speaker is muted, and the internal speaker unmuted.

The F1 radio internal and external speakers can be independently muted.

To change the mute status of the speakers:

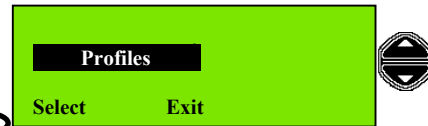
1. In standby mode, press **Menu**.



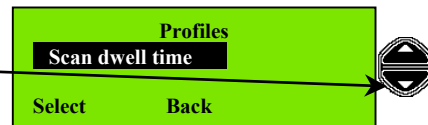
2. Press the Scroll Up key to select **Profiles**.



3. When **Profiles** menu option is displayed press **Select** action key.

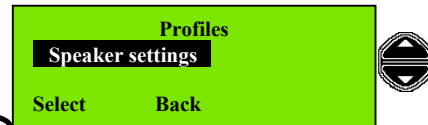


4. In the Profiles menu **Scan Dwell Time** is shown as the first item. Press the Scroll Down key 4 times to display the **Speaker Settings** option.



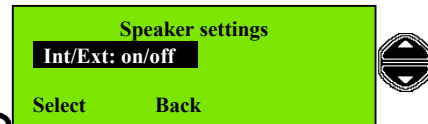
5. The Profiles menu display now shows **Speaker Settings**.

Press **Select**.



6. Scroll to the desired speaker mute option:

Int/Ext:	on/off
Int/Ext:	on/on
Int/Ext:	off/off
Int/Ext:	off/on



Then press **Select**.

7. In the example both speakers will be unmuted. Press **Select** action key to execute the change and return to standby mode.



NOTE: Alarm tones will not be muted.

Display and Keyboard Dimming

The LCD (Liquid Crystal Display) backlight illumination level can be changed using the **light** key.

Each press of the **light** key will cycle through different combinations of illumination levels for display and keyboard as listed here:

Display	Keyboard
DIM	ON
FULL	ON
OFF	OFF
DIM (reversed)	ON

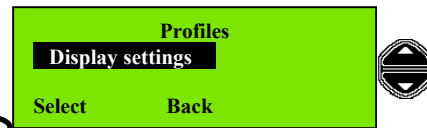
Auto Dim

The F1 radio provides an Auto Dim feature.

The default state is Auto Dim 'On'. In this state if the display backlight is set to 'Full', after 5 minutes with no activity, the display backlight will be set to 'Dim'.

To switch off the Auto Dim feature:

1. Press **Menu**, then use the Scroll keys to highlight **Profiles**, then press **Select**. Now use the Scroll keys to highlight **Display settings** in the Profiles menu, then press **Select**.



2. In the Display Settings menu, use the Scroll keys to highlight **Automatic Dim On/Off**, then press **Select**.



3. The Automatic Dim On/Off state is **On**. Use the Scroll keys to change state to **Off**.



4. Finally press **Select** to execute the change and exit.



Basic DSC Operations

All DSC communication is on Channel 70. The radio maintains a continuous watch on this channel for incoming messages, which are immediately reported. This monitoring also allows the system to transmit only when the channel is free.

Receiving an Individual DSC Call

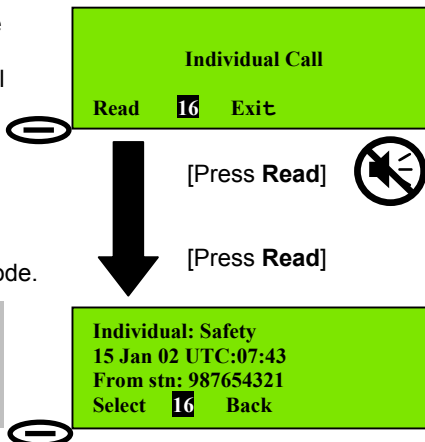
When the radio receives an individual DSC message an alarm will sound, and the message **Individual Call** is displayed.

If the call type is 'Distress' or 'Urgency' the alarm ('notify beep') will sound repeatedly every second. This screen will remain until you **Read** the message or **Exit**.

To read the message:

1. Press **Read** action key (or any key).
Alarm tone is cancelled.
2. Press Read key again to go to Read mode.

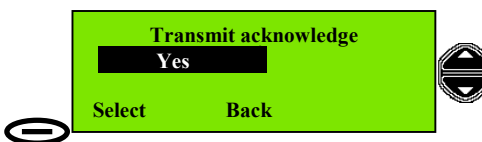
NOTE: If the call type is 'Safety' or 'Routine' the alarm will sound twice only. If the message is not read within 1 minute the radio will return to standby mode.



3. The **Read** mode screen is displayed, and the message details are now shown; if necessary, scroll up and down to display the complete message. To acknowledge the message press **Select**.

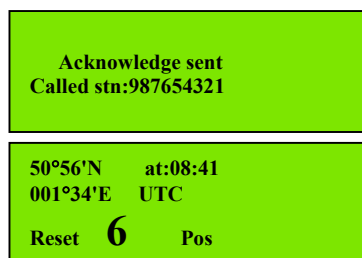
4. You now have a choice:
Transmit Acknowledge?
 - **Yes** (default)
 - **No**.

Use the scroll keys to change the option to acknowledge the received message.



NOTE: Normal practice is to acknowledge a received DSC message, especially Distress or Urgency messages.

5. Press **Select** to transmit a DSC acknowledgement. A DSC Acknowledge message is transmitted and the display briefly shows **Acknowledge sent** and the MMSI of the called station. The radio now switches to the caller proposed channel ready for communication. Press **Reset** to restore the original channel, if desired.



Transmitting a DSC Call to a Ship Station

To transmit a call to a ship station
(individual call):

1. Press **Menu** action key to display top level menu selection; (**Send DSC messages**).

50°56'N at:08:41
001°34'E UTC
Menu **16** Pos

2. Press **Select** action key to display the **Send DSC Messages** menu.

Send DSC Messages
Select Exit

3. The first (default) option displayed in the **Send DSC Messages** menu is **Individual or group**.

This call is to an individual station so press **Select** to display the **Individual or group** menu.

Send DSC Messages
Individual or group
Select Back

4. The first option displayed in the **Individual or group** menu is **Called stn MMSI**.

If you know the MMSI of the ship station press **Select** to display the **Called stn MMSI** entry screen.

Individual or group
Called stn MMSI
Select Back

5. Use the numeric keys to enter the MMSI, and **Clear** to backspace and correct any error. Ensure 9 digits are entered, then press **Select**.

(when MMSI entered)

Called stn MMSI
MMSI:2091107 |
Select Clear

6. Now the radio prompts for a working channel number to include in the DSC message. If the current channel is OK press **Send**, otherwise use the scroll keys or numeric keys to change the channel, then press **Send**.

Individual Call
Call stn: 209110734
Working Channel: **6**
Send Back

7. The message is now transmitted and the radio display now shows **Wait for Acknowledge**.

Individual Call
Call stn: 209110734
Wait for Acknowledge
Reset Back

The radio will remain in this state waiting for acknowledgement for 5 minutes, or until **Reset** is pressed.

If acknowledgement is received the radio switches to the specified working channel (normally channel 6) to allow verbal communication.

Transmitting an Individual DSC Call Using Called Station Name

To Transmit an Individual Call Using Station Name:

1. Press **Menu** action key to display top level menu selection; (**Send DSC messages**).

50°56'N at:08:41
001°34'E UTC
Menu **16** Pos

2. Press **Select** action key to display the **Send DSC Messages** menu.

Send DSC Messages

Select Exit

3. The first (default) option displayed in the **Send DSC Messages** menu is **Individual or group**.

This call is to an individual station so press **Select** to display the **Individual or group** menu.

Send DSC Messages

Individual or group

Select Back

4. The first option displayed in the **Individual or group** menu is **Called stn MMSI**.

Use the Scroll keys to change the option to **Called stn Name** then press **Select**.

Individual or group

Called stn Name

Select Back

5. The display shows **Called stn Name** and a station name. The example here is **SeaMist**. Use the Scroll keys to move through the directory and change the station name.

The numeric keys also have an alternate function, allowing characters to be entered. Using this feature it is possible to enter the initial character for the station name, which causes the F1 radio to search for that name. If the F1 finds the name it will display the station name and MMSI ready for a DSC transmission. If not it will attempt to display the closest alphabetically matched name from the directory. For more details on this feature see the 'Directory : Adding a Directory Entry' section of this manual. When the desired station name is displayed press **Select**.

Called stn Name
Name: SeaMist

Select Back

6. Now the radio prompts for a working channel number to include in the DSC message. If the current channel is OK press **Send**, otherwise use the scroll keys or numeric keys to change the channel, then press **Send**.

Individual Call

Call stn: SeaMist

Working Channel: **6**

Send Back

The message is now transmitted and the radio display shows **Wait for Acknowledge**. The radio will remain in this state waiting for acknowledge for 5 minutes or until **Reset** is pressed.

If acknowledgement is received the radio switches to the specified working channel (normally channel 6) to allow verbal communication.

Individual Call

Call stn: SeaMist

Wait for Acknowledge

Reset Back

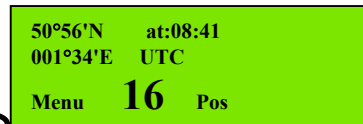
Transmitting a Call to a Coast (Shore) Station

When calling a Coast Station (ie a fixed installation whose MMSI number begins '00....'), it is that station which selects the channel number for communication. As a consequence, it is necessary to wait for the acknowledgement as this contains the calling channel number.

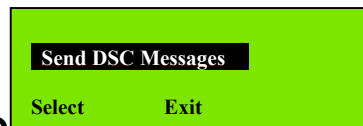
Calling a Coast Station produces a prompt **Insert position** **Yes**; to select **No**, use the scroll keys. (This replaces the working channel selection, which is not used in the outgoing call; however, it is often useful for the Coast Station to know the position of the calling vessel.)

To Transmit a Call to a Coast Station:

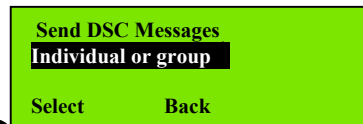
1. Press **Menu** action key to display top level menu selection; (**Send DSC messages**).



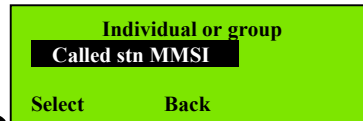
2. Press **Select** action key to display the **Send DSC Messages** menu.



3. The first (default) option displayed in the **Send DSC Messages** menu is **Individual or group**. This call is to an individual station so press **Select** to display the **Individual or group** menu.



4. The first option displayed in the **Individual or group** menu is **Called stn MMSI**. If you know the MMSI of the Coast Station press **Select** to display the **Called stn MMSI** entry screen.⁷



⁷ If you want to make a Station Name Call to the Coast Station, follow the procedure outlined in 'Transmitting an Individual DSC Call Using Called Station Name' page 15, steps 4-5, and select a station name associated with a coast station MMSI, then proceed to complete steps 6-8 in this section 'Transmitting an Individual DSC Call to a Coast (Shore) Station Name', on page 17.

5. Use the numeric keys to enter the MMSI, and **Clear** to backspace and correct any error. Ensure 9 digits are entered, then press **Select**.

(when MMSI entered) 

Called stn MMSI MMSI:00232144	
Select	Clear



6. The radio recognises the '00' prefix as a Coast Station call; the display changes to **Coast station Call** and you are prompted to insert a position (to be sent with the transmission). If you do not want to include your position in the message, use the scroll keys to change the prompt from **Yes** to **No**.

Coast station Call Call stn:002321447 Insert position Yes	
Select	Back



7. The message is now ready to be sent. The left action key has now changed from **Select** to **Send**.

Press **Send**.

Coast station Call Call stn:002321447	
Send	Back



8. The message is now transmitted and the radio display now shows **Wait for Acknowledge**. The radio will remain on this state waiting for acknowledge for 5 minutes or until **Reset** is pressed.

Coast station Call Call stn:002321447 Wait for Acknowledge	
Reset	Back

If acknowledgement is received, the calling station acknowledge message includes the channel for verbal communication. The F1 radio will then switch to that channel. In this example the Coast Station selected channel 22.

50°56'N	at:08:41
001°34'E	UTC
Menu	22 Pos

Transmitting a Call to a Group

When calling a group of stations (i.e. stations all of which share a group MMSI number, which begins '0...'), no DSC acknowledgement is required or possible.

To Transmit a Call to a Group of Stations:

1. Press **Menu** action key to display top level menu selection; **Send DSC messages**.

50°56'N at:08:41
001°34'E UTC
Menu **16** Pos

2. Press **Select** action key to display the **Send DSC Messages** menu.

Send DSC Messages
Select Exit

3. The first (default) option displayed in the **Send DSC Messages** menu is **Individual or group**.

This call is to a group so press **Select** to display the **Individual or group** menu.

Send DSC Messages
Individual or group
Select Back

4. The first option displayed in the **Individual or group** menu is **Called stn MMSI**.

If you know the MMSI of the group you wish to contact press **Select** to display the **Called stn MMSI** entry screen.

Individual or group
Called stn MMSI
Select Back

5. Use the numeric keys to enter the MMSI, and **Clear** to backspace and correct any error. Ensure 9 digits are entered, then press **Select**.

(when MMSI entered)

Called stn MMSI
MMSI:021172222 |
Select Clear

6. The radio recognises the '0' prefix as a group call; the display changes to **Group Call**, and the radio prompts for a working channel number to include in the DSC message. If the working channel is not OK, use the Scroll keys or numeric keys to change the channel, then press **Send**.

Group Call
Call stn:021172222
Working Channel: **6**
Send Back

7. The message is now transmitted to the group, the radio channel changes to the working channel and the left action key now has the function **Reset**. The radio will remain in this state for 30 seconds or until **Reset** or PTT key is pressed.

50°56'N at:08:42
001°35'E UTC
Reset **6** Pos

Note: To transmit an All Ships Call see page 31.

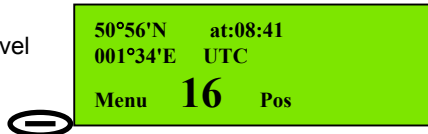
Full Telephony Operations

Changing the Priority Channel

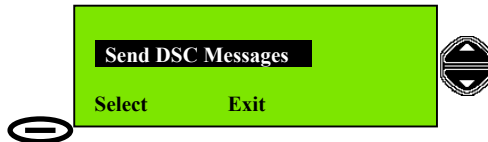
The Priority Channel is the channel which is always monitored, and is selected when the transceiver is switched on. The Priority Channel is normally set to Channel 16, but it can be changed to any available channel by the operator.

To Change the Priority Channel:

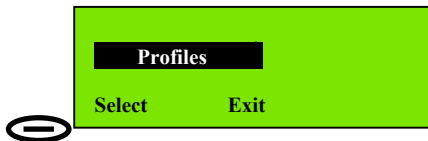
1. Press **Menu** action key to display top level menu selection; **Send DSC messages**.



2. Press the Scroll Up key to display the **Profiles** menu.



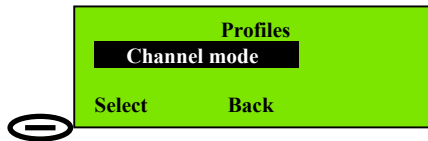
3. Press **Select**.



4. The first option displayed in the **Profiles** menu is **Scan dwell time**. Press the down scroll key 3 times until the option displayed is **Channel mode** then press **Select**.

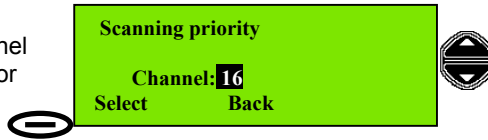


5. The first option in the Profiles menu is **Channel mode**. Press **Select**.




6. The option (setting) displayed in the Channel mode menu is either **International** or **US**. Press **Select**.

7. The radio prompts for the Priority Channel number (highlighted). Use the scroll keys or numeric keypad to change the Priority channel, then press **Select**.




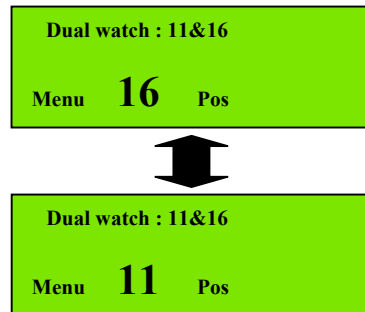
Dual watch

The feature allows the radio to monitor automatically both the Priority Channel and a selected additional channel.

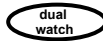
To use the Dual Watch function, first set the radio to the desired channel, then push the  key.

The display will alternately display selected channel number and channel 16, at a rate which is controlled by the Scan Dwell Time (refer to the 'Setting Profiles' section for information on this parameter).

Pressing the  key again cancels the Dual Watch and returns the radio to a listening watch on the channel at which the Dual Watch function is stopped.



The following points describe Dual Watch in more detail:

- The Additional Channel can be any available channel.
- Dual Watch starts by watching the Additional Channel for 850 milliseconds (ms), then sampling the Priority Channel for 150ms, and returning to the Additional Channel for 850ms. This sequence continues until activity is detected on one of the channels.
- If activity is detected on the Priority Channel the scanning sequence will be stopped for the duration of the activity and Priority Channel will be displayed in large characters.
- If activity is detected on the Additional Channel, then the Additional Channel will be monitored for 1.8 seconds and the Priority Channel will be monitored for 150ms.
- The Dual Watch function can be stopped at anytime by pressing the  key. The radio is then set to the channel at which the Dual Watch function is stopped.

Channel scanning

Channels may be sequentially monitored for activity using the Channel Scanning facility of the F1 radio.

While scanning the radio automatically maintains a watch on a channel for the duration of the set dwell time. The dwell time can be set in the Profiles menu. If no signal is detected the radio moves to the next channel in the sequence of channels, which may be the next consecutive channel.

Scan program


Scanning is controlled by Scan Programs (lists of channels to scan) which are stored in the F1 radio. You can store up to 9 different scan programs

To summarise the features of the Scan Program facility:

- The transceiver has 10 scan programs (including 'Scan All').
- When 'Scan All' is selected all channels available to the operator will be scanned.
- Each Scan Program can be configured individually
- The numbers of channels in an individual scan program is limited to 30 (except for the Scan All program).
- All channels available to the operator can be programmed into a scan sequence
- The operator can set the Channel Dwell Time within the range 200 milliseconds (ms) to 1.8 seconds, in steps of 50 ms.
- The Channel Dwell Time can only be varied for the channels in the Scan Program. (The dwell time for the Priority Channel remains 150 ms.)

To setup the radio for scanning refer to the 'Scanning All Channels: Creating and Editing a Scan Program' section.

Incoming DSC Call During Scanning and Dual Watch

During Scan or Dual Watch incoming DSC calls will be displayed as incoming calls for 1 minute. When the 1 minute period has elapsed the radio will return to the Dual Watch or Scan operation, and the LCD screen shows the Scan or Dual Watch display, as appropriate. A message symbol () is displayed if an unread DSC message has been received.

However if the incoming call is an All Ships Call of the Category 'Distress, Urgency or Safety' the display will continue to show the incoming call and the Scan and Dual Watch activity will be stopped. In this situation the Scan and Dual Watch activity has to be reactivated by the operator.

IMPORTANT: The Scan Program only defines the channels to be used from the legal channels available when the radio is configured by your supplier. It is the responsibility of the user to ensure that the radio is operating in the correct channel mode (i.e. International or US) before initiating a scan.

Scanning All Channels

To Scan All Channels:

1. Press **Menu** action key to display top level menu selection; **Send DSC messages**.



50°56'N at:08:41
001°34'E UTC
Menu **16** Pos

2. Use the Scroll keys to display the **Channel scanning** menu.



Send DSC Messages
Select Exit



3. Press **Select**.



Channel scanning
Select Exit

4. The first option displayed in the **Channel scanning** menu is **Run scan program**. Press **Select**.



Channel scanning
Run scan program
Select Back

5. The first option displayed in the **Run scan program** menu is **Scan: ALL**. Press **Select**.



Run scan program
Scan: **ALL**
Select Back

6. The scan program is now running. The **Scan: ALL run** screen is displayed.

Scan:ALL run
Stop **27** Back

The channel is incremented every X ms, where X is the dwell time, and every 1.8 seconds the Priority Channel (normally Channel 16) is monitored for activity. If activity is detected on any channel the radio will stop scanning and channel on which activity was selected will remain selected. After 5 seconds of no activity on the channel, the radio will resume scanning. Squelch level should be adjusted for correct operation. If the squelch level is too low (control too far counter-clockwise), scanning will halt. If the squelch level is too high (control too far clockwise), weak signals may not be heard.

NOTE: During channel scan, channels with a 1W maximum allowable transmission power requirement cause the radio to select 1W power for those channels.

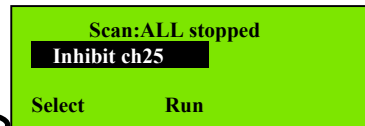
Inhibiting a Channel

To Inhibit a Channel when Scanning:

1. The scan program is now running.
The **Scan ALL run** screen is displayed.
Press **Stop**.



2. The screen now displays the new scan status:
Inhibit chXX, where XX was the channel when **Stop** was pressed. Example: Ch25.
Press **Select**.



The scan program is now running again,
But channel 25 is now temporarily deleted
from the list of channels to be scanned, and
the radio will skip over channel 25 when
selecting channels during the scan process.



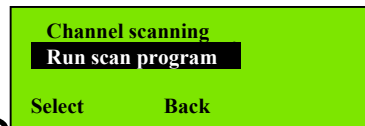
Channel inhibition can be applied to additional channels, and is performed exactly
as described in steps 1 and 2 above.

To restore the original 'Scan All' state (all channels scanned) press the **Back** key
then the **Select** key. Scanning is then resumed for all channels.

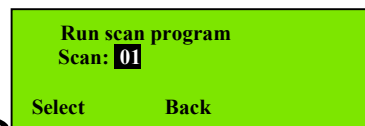
Running a Scan Program (1-9)

To Run a Scan Program (Scan Program 1 to Scan Program 9):

1. In standby screen, press **Menu**, then scroll
to **Channel scanning** and press **Select**.



2. Scroll to **Run scan program** and press
Select.



3. Display shows **Scan: ALL**.
Scroll to **Scan: 01** (or to the Scan Program of
your choice. When the desired Scan Program
is displayed press **Select** to start the Scan
Program.

[See also 'Full Telephony Operations: Creating and Editing a Scan Program' page
24.]

Creating and Editing a Scan Program

To Create (and Edit) a Scan Program:

1. Press **Menu** action key to display top level menu selection; **Send DSC messages**.



50°56'N	at:08:41
001°34'E	UTC
Menu	16 Pos

2. Use the Scroll keys to display the **Channel scanning** menu.



Send DSC Messages	
Select	Exit

3. Press **Select**.



Channel scanning	
Select	Exit

4. The first option displayed in the **Channel scanning** menu is **Run scan program**. Use the Scroll keys to display the **Edit scan program** menu. Press **Select**.



Channel scanning	
Run scan program	
Select	Back

5. The first option displayed in the **Edit scan program** menu is **Scan: ALL**. Use the scroll keys to highlight a Scan Program to create or edit. (Scan programs **01** to **09** are available). Press **Select**.



Edit scan program	
Scan: ALL	
Select	Back

6. Scan Program **01** is used in this example. Press **Select** to begin editing the program.



Edit scan program	
Scan: 01	
Select	Back

7. Edit screen for Scan Program **01** is displayed. No channels entries have been found in this Scan program so the first channel entry (number 1, of a possible 30 entries) is shown with the channel number field displayed as **xxx** (blank entry).

Scan: 01 edit	
1:xxx	
Store	Delete

8. To make a scan table containing the following entries:

Scan Program 01	
Entry	Channel
1	11
2	13
3	6
4	10
5	67

Press numeric key '1' twice to enter 'Channel 11'.

First press of the numeric key displays **1** second press displays **11**. 2 seconds after the last key press, the radio will move to the next entry, ready for editing, so edit each channel by pressing the numeric keys quickly.

Scan: 01 edit

1: **xxx**

Store Delete


9. The second entry is now highlighted **xxx** ready for editing (vacant channel entry position). Enter **13** and wait for 2 seconds for the radio to move down the list and highlight the third entry.

Scan: 01 edit

1: 11

2: **xxx**

Store Delete



If you make a mistake, or want to change an entry, use the Scroll Up key to highlight and re-edit the entry, then continue adding entries as normal. (If the entry you re-edited was several entries further up the list, use Scroll Down to move past the correct entries until the first vacant entry position is again highlighted.)


10. Continue to enter channel numbers into the remaining entries 3 to 5. Press **Store** to save the Scan Program.

Scan: 01 edit

5: 67

6: **xxx**

Store Delete






11. Display confirms **Scan program stored**, then returns to the **Edit scan program** selection screen.

You can either create/edit another scan program (use the scroll keys to select Scan Program **02**, for example) or move up to a higher menu level (or to the standby screen) by pressing the **Back** / **Exit** key.

Edit scan program

Scan: 01

Select Back

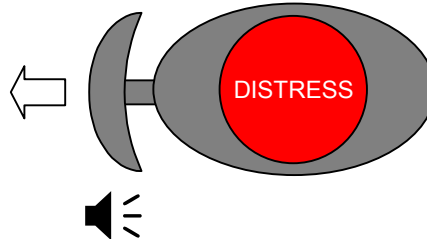
DISTRESS

Rapid Distress Call

IMPORTANT:

To send a Distress Call,
(without designating the distress type),
do this:

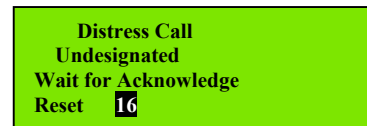
1. Open the Distress Button cover.
2. Press and hold the Distress Button.
Keep pressing the button.



You will hear an Alarm Tone.

3. The display will show different screens and may prompt you for more information.
Ignore the prompts.

Keep pressing the button
until you see this screen.



4. If you have sufficient time transmit a voice distress message
(If possible wait 15 seconds for any DSC acknowledgement before transmitting.)

Pick up the microphone, press the PTT (TALK) button and call for help:

'MAYDAY, MAYDAY, MAYDAY
This is *Ship name, Ship name, Ship name*
MAYDAY
This is *Ship name, Callsign.*
Position:.....
Nature of distress:.....
Help needed:.....
(any other information)
OVER'

IMPORTANT: Do NOT make a distress call unless there is grave and imminent danger. It is an offence to make any unjustified distress call.

Full DSC operations

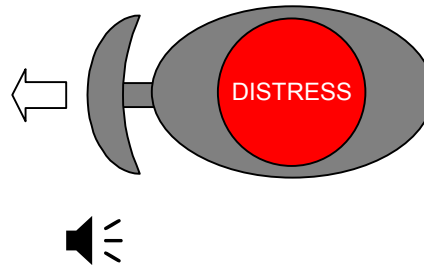
Distress Call Including Nature of Distress

To make a Distress Call including Nature of Distress (Method 1):
(GPS connected)

1. Open the Distress Button cover.
2. Press the Distress Button
for less than 5 seconds.

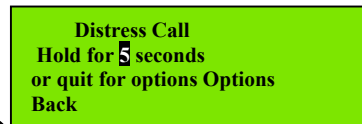
(A 1 second push is sufficient.)

You will hear an Alarm Tone.



3. The radio displays the Pre-Distress Warning screen. You can choose:

- not to send a Distress Message (press **Back**)
- or
- continue to the Distress Options (press **Options**).



NOTE: This sequence applies to a radio with GPS connected (position available).

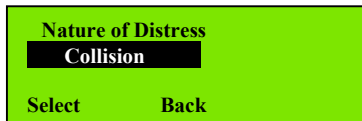
4. The display now shows the Nature of Distress menu.
Undesignated distress is the first option.

To select a different Nature of Distress option use the Scroll keys to scroll through the list of options.

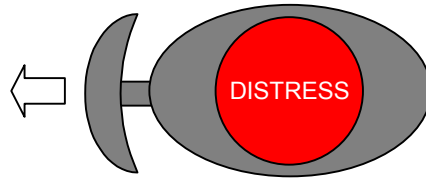


5. When you see the Distress option you need, press **Select**.

Example: Collision.



6. Press **and hold** the Distress Button for at least 5 seconds.



You will hear an Alarm Tone.




7. Display shows 'Distress Call' and an instruction to hold the Distress Button for **5** seconds.

Distress Call
Hold for **5** seconds
or quit for options

8. Continue to hold the Distress Button, display shows a countdown number, in seconds, until the Distress Message is sent. Count is from **5** down to **0** seconds before the Distress Message is transmitted.

Distress Call
Hold for **4** seconds
or quit for options

 **WARNING:** If you release the Distress Button before 5 seconds has elapsed the Distress Message is **not** transmitted.

Instead the display will revert to the Distress Call setup screen shown in step 3.

Distress Call
Hold for **0** seconds
or quit for options

9. When count reaches **0** a Distress Call (including Distress Category) is transmitted, and the radio selects channel 16.

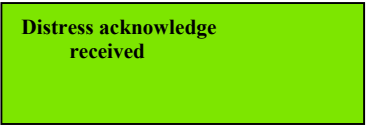
Distress Call
Collision
Wait for Acknowledge
Reset **16**

10. The F1 radio waits for acknowledgement of the Distress Message.

11. If no acknowledgement received the F1 radio will wait for a random time between 3.5 and 4.5 minutes, then automatically retransmit the Distress alert. The radio will continue to retransmit the Distress message every 3.5 to 4.5 minutes until acknowledgement is received or **Reset** is pressed.

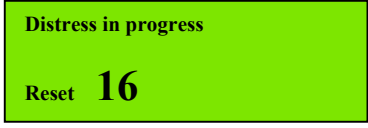
Not acknowledged
Distress alert
Retransmission
Reset **16**

12. If an acknowledgement is received the display shows **Distress acknowledge received** for 4 seconds, then the state is changed to **Distress in progress**.

A rectangular screen with a black border and a light blue background. The text "Distress acknowledge received" is centered in black, with "Distress acknowledge" on the top line and "received" on the bottom line.

Distress acknowledge
received

13. **Distress in progress** screen is displayed after an acknowledgement or if **Reset** is pressed.

A rectangular screen with a black border and a light blue background. The text "Distress in progress" is centered on the top line. Below it, the word "Reset" is on the left and the number "16" is on the right, both in black.

Distress in progress

Reset 16

In the 'Distress in progress' state, the distress message is *not* re-transmitted.

14. Wait approximately 15 seconds for an acknowledgement before transmitting a voice MAYDAY, as described on Page 26 step 4.

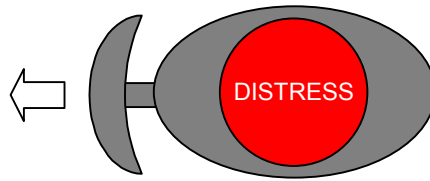
IMPORTANT: Do NOT make a distress call unless there is grave and imminent danger. It is an offence to make any unjustified distress call.

To make a Distress Call including Nature of Distress (Method 2):
(GPS unavailable)

1. Open the Distress Button cover.
2. Press the Distress Button
for less than 5 seconds.

(A 1 second push is sufficient.)

You will hear an Alarm Tone.



- 3a.** The radio displays the Pre-Distress Warning screen.



Distress Call
Hold for **5** seconds
or quit for options Options
Back

- 3b.** No position information is available; display shows, briefly **Position too old.**

Assumes that position and time information not entered when radio switched on, or that this information is more than 4 hours old.

Distress Call
Position too old
quit for update

- 3c.** Radio prompts for your position and time (either local if local time offset value is known) or UTC as standard. Enter your position as described in 'Basic Telephony Operations' / 'Entering Time and Position'.

- 3d.** Position and Time information is now valid;
You can choose:

- *not to send a Distress Message*
(press **Back**)

or

- *to enter your position*
- use numeric, *, #, and scroll keys,
(then press **Done**)

or

- *to continue to the Distress Options*
(press **Options**)

or

- *to override the position entry prompt*
to continue to the Distress Options
(keep pressing and holding
Distress Button).

Lat: --°--'
Long: ---°--'
Pos at:--:-- UTC
Done Back

Distress Call
Hold for **5** seconds
or quit for options Options
Back

Now apply steps 4-14 in the section 'To make a Distress Call including Nature of Distress (Method 1)', page 27-28.

Transmitting an All Ships Call

When sending an All Ships message, no DSC acknowledgement is required or possible. Obviously, an All Ships call is not addressed to a specific station and so does not need the details of the called party; it does, however, give the choice of Safety or Urgency messages.

An **Urgency** message is used when safety is threatened but there is no imminent danger. The verbal information transmitted after an Urgency message is prefixed '**PAN PAN**'

A **Safety** message concerns important navigational or meteorological information. The verbal information transmitted after a Safety message is prefixed '**SECURITÉ SECURITÉ SECURITÉ**'.

To transmit an All Ships call:

1. Press **Menu** action key to display top level menu selection; **Send DSC messages**.



50°56'N at:08:41
001°34'E UTC
Menu 16 Pos

2. Press **Select** action key to display the **Send DSC Messages** menu.



Send DSC Messages
Select Exit

3. The first (default) option displayed in the **Send DSC Messages** menu is **Individual or group**, so use the Scroll keys to change the option to **All Ships**, then press **Select**.



Send DSC Messages
All Ships
Select Back



4. The first option displayed in the **All Ships Call** menu is **Urgency**.



All Ships Call
Urgency
Select Back



(Select Urgency or Safety)

5. If your message is not of the type 'Urgency' use the Scroll keys to change the option to **Safety**.
Now press **Select**.



All Ships Call
Safety
Select Back



6. The radio prompts for a working channel number to include in the DSC message. If the default working channel is not suitable use the scroll keys or numeric keys to change the channel, then press **Send**.



All Ships Call	
Safety	
Working Channel: 6	
Send	Back




7. The message is now transmitted to All Ships.

If acknowledgement is received, the radio channel changes to the working channel and the left action key now has the function **Reset**.

50°56'N	at:08:42
001°35'E	UTC
Reset	6 Pos

The radio will remain on this state for 30 seconds or until **Reset** or PTT is pressed, then it will revert to a listening watch (standby screen).

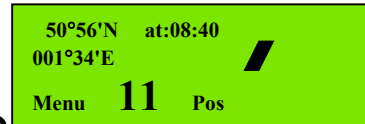
Received message log

The radio retains two lists of received messages, one for Distress and All Ships calls, and one for all other calls. Any message which is unread causes an indicator () to be displayed when the radio is in listening mode.

These lists each retain 20 calls; when a list is full, a new call overwrites the oldest call in the list.

To read received DSC messages:

1. (In standby screen) press the **Menu** key.



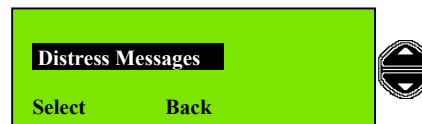
2. Use the scroll keys to highlight the **Received Messages** option in the menu.



3. Press **Select**.



4. Distress Messages are listed first. If you wish to read the Distress Messages log, press **Select**, otherwise (as in this example) use the scroll keys to highlight **Ordinary Messages**.

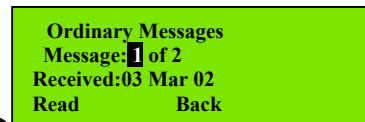


5. Press **Select**.

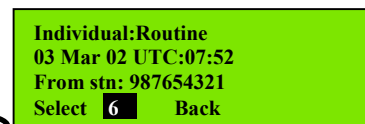
(If no messages are stored the display shows **Log empty**.)



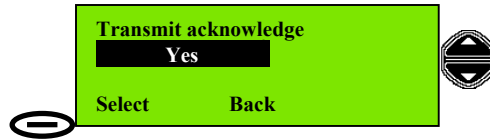
6. The number of messages are listed (maximum 20) together with an indication of the message to select (and the date that message was received. Press **Read**.



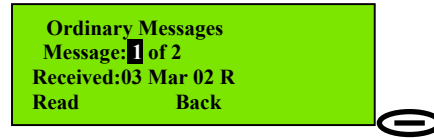
7. The details of the call are now displayed. In this example an Individual call of routine category was made at 07:52 UTC, the calling station MMSI was 987654321, and the working channel is channel 6.



8. To acknowledge the message press **Select**, otherwise use the scroll keys to highlight **No** and press **Select**, or press **Back**.



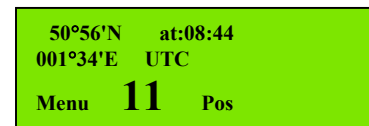
9. If **Back** is pressed the screen returns to the list of received DSC messages. Message **1** now has a character 'R' attribute. This indicates that the message has been read.



10. To read more messages use the scroll keys to highlight the appropriate message number, then repeat steps 6 to 8 to read / acknowledge the message(s).



11. If you return to the standby screen (and all messages have been read) the **11** is removed.



Distress (and Urgency) messages are treated in exactly the same way, but are stored (and accessed from) the Distress Log.

As is usual with all such messages, the complete text of the message can be read by scrolling up and down.

Note: While a call is being displayed, the left Action key shows **Select** if no acknowledgement has been sent (and the message is of the type which can be acknowledged) or **Reset** if the message has been acknowledged. In the first case, pressing **Select** produces a prompt to acknowledge the message. It is thus possible to defer the acknowledgement of messages until a convenient time; the sender will then be informed that the called party (i.e. you) is now ready to communicate.

Directory

The directory allows the user to store the names of vessels, coast/shore stations, etc together with the corresponding MMSI. A total of 50 entries may be stored. The directory may be searched for a particular name; entries may be added and erased.

Adding a Directory Entry

To Add an Entry to the Directory:

1. Press **Menu** and scroll to **Directory**. Press **Select** and scroll to **Add Entry**.

2. Press **Select**.

3. The cursor appears at the first character of the station name. In the Directory-Add Entry screen, the numeric keys can be used to enter alphabetic values, as printed beside each key. See 'Appendix A: Character Entry' for more details.

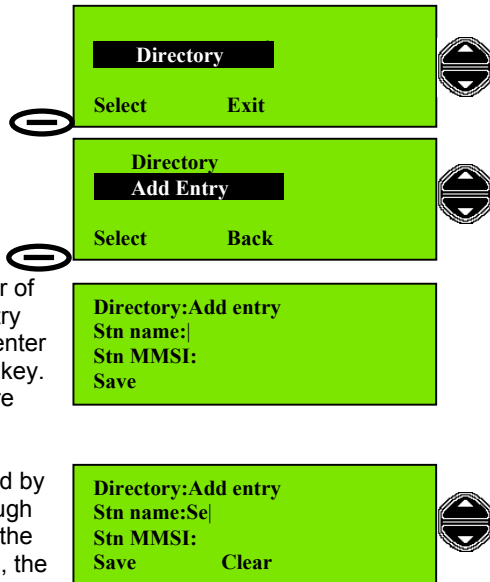
4. Characters are added from the keyboard by pressing the appropriate key to cycle through the available letters (eg to enter 'n', press the '6' key twice). Once a character is entered, the next character can be entered immediately provided it is set by a different key. If the same key must be used (for example, to enter 'e' after entering 'd'), wait two seconds after the key was last pressed for the cursor to move to the next character position.

In the example screen the first 2 characters of the name '**Seamist**' are entered; for upper-case, followed by 4 presses of the key, the again (lowercase) , then 2 presses of the key.

5. If an incorrect character is entered, the **Clear** key deletes the last character. If an error is noticed in the middle of an entry, use the Scroll keys to move the cursor to the right of the erroneous character, then press **Clear** to delete it. The new character can be entered at the cursor position as described in steps 4 and 5.

To enter the MMSI number, scroll down to the line **Stn MMSI**. The keys return to numeric mode. Enter the MMSI number using the numeric keys.

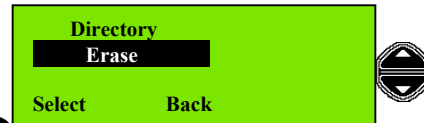
When both the name and MMSI number are correct, press **Save**. The display will confirm that the entry has been saved. Names are saved in alphabetic order in the directory. If an entry is incorrect, it cannot be edited once it has been saved. The entry must be erased, re-entered and saved again.



Erasing a Directory Entry

To Erase a Directory Entry:

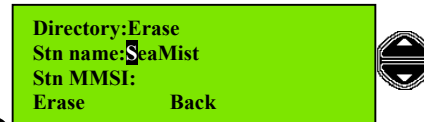
1. Press **Menu**, scroll to **Directory**, and press **Select**.



2. Scroll to **Erase** and press **Select**.



3. The display shows the first Station Name entry (list in alphabetic order) and MMSI number. Scroll through the list of names (or enter an initial character using the character entry method described in 'Adding a Directory Entry', steps 4 and 5) to find the desired entry.



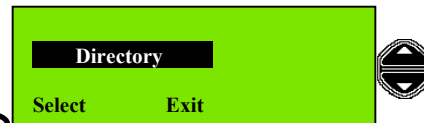
4. Press **Erase**. The display will confirm that the entry has been erased.



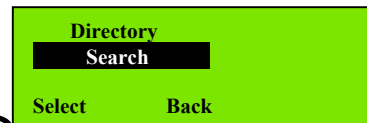
Search for a Directory Entry

To Search for a Directory Entry:

1. Press **Menu**, scroll to **Directory**, and press **Select**.



2. **Search** is the first displayed Directory option. Press **Select**.



3. The display shows the first Station Name entry (list in alphabetic order) and MMSI number. Scroll through the list of names (or enter the first character using the character entry method described in 'Adding a Directory Entry', steps 4 and 5) to find the desired entry, (wait until the first name starting with that letter is displayed, then the other names which also start with the same letter can then be accessed by scrolling. This method is much faster for finding names towards the end of the alphabet, particularly if the list is full).



Individual or Group Calls Using the Directory

To Transmit DSC Calls Using a Station or Group Names from the Directory:

Please refer to the 'Basic DSC Operations: Transmitting an Individual DSC Call Using Called Station Name' section, page 15. The Group Stations are accessed, using the directory, in the same way as Individual Stations.

Setting Profiles

The radio cannot be used to transmit in DSC mode until, as a minimum, its MMSI number has been programmed into it.

Setting the MMSI Number

The MMSI (Maritime Mobile Service Identity) number is a 9-digit identifier which enables a registered vessel to be identified.

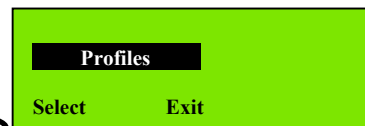
MMSI numbers are of three types: individual, group and coast station.

- An Individual Number identifies a single radio installation.
- A Group Number is an assigned number which allows several vessels to receive a single addressed call (example: a fleet of vessels). Group Numbers always start '0....'
- A Coast Station number identifies a fixed installation e.g. a Coastguard radio. Such numbers always start '00...'

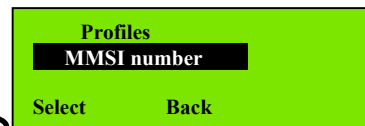
When the radio is purchased, the supplier may configure the radio with the correct individual MMSI; otherwise, the MMSI number is normally set to 000000000. This must be changed before the radio can transmit in DSC mode.

NOTE: Only one individual MMSI number may be stored in the radio. If the wrong MMSI number is stored, only a Service Agent can remove it. 2 MMSI entry attempts are allowed within 1 hour. Refer to Installation Manual.

1. From the standby screen, press the **Menu** key.

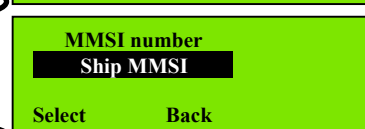


2. Scroll through the options to find **Profiles**. Press the **Select** key.



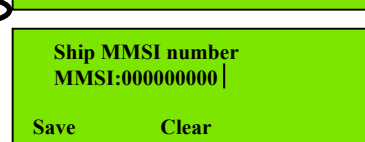
3. Scroll to **MMSI number** and press **Select**.

4. The first option displayed in the **MMSI number menu** is **Ship MMSI number**. Press **Select**.



5. The MMSI number appears as **000000000**; this must first be cleared.

Press the **Clear** key repeatedly until the number is blank. Carefully enter the correct MMSI number using the numeric keys. Incorrect entries can be erased using the **Clear** key.



6. When the number is correct, check it again. When you are satisfied that no error has been made, press the **Save** key. The individual MMSI number is now saved in the memory of the radio. It cannot be changed by the user.

Group MMSI Numbers

A radio may be a member of up to 4 MMSI groups (for example, a group MMSI could be assigned to a fishing fleet).

Setting a group MMSI is similar to the process for setting the individual MMSI.

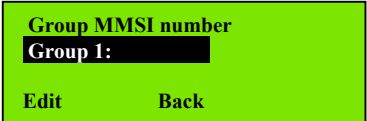
1. After selecting **Profiles – MMSI number**, scroll to **Group MMSI** and press **Select**.
Group 1 is displayed first;
Groups 2, 3, and 4 are displayed by scrolling.



MMSI number
Group MMSI
Select Back

This screenshot shows a green screen with the title 'MMSI number'. Below the title, 'Group MMSI' is highlighted in a black box. At the bottom, there are two buttons: 'Select' and 'Back'. To the right of the screen is a circular navigation button with four arrows.

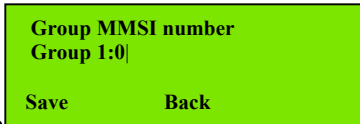
2. Press **Edit** to enter the Group MMSI number. When entering the MMSI number, the first '0' cannot be changed (because it identifies a MMSI as a group number). The **Back** Action key changes to **Clear** as you enter digits.



Group MMSI number
Group 1:
Edit Back

This screenshot shows a green screen with the title 'Group MMSI number'. Below the title, 'Group 1:' is highlighted in a black box. At the bottom, there are two buttons: 'Edit' and 'Back'. To the right of the screen is a circular navigation button with four arrows.

3. When the Group MMSI is entered, press **Save**. The **Edit** screen, showing the group MMSI is then displayed and it is possible to **Edit** the number again, or use the **Back / Exit** key to return to the standby screen.



Group MMSI number
Group 1:0
Save Back

This screenshot shows a green screen with the title 'Group MMSI number'. Below the title, 'Group 1:0' is highlighted in a black box. At the bottom, there are two buttons: 'Save' and 'Back'. To the right of the screen is a circular navigation button with four arrows.

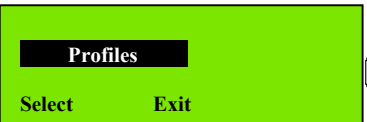
Unlike the individual MMSI number, Group MMSIs can be edited and deleted.

Scan Dwell Time

The Scan Dwell Time is the length of time the radio monitors each channel when in Scan mode.

To set the Scan Dwell Time:

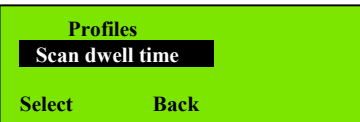
1. In standby screen, press **Menu**, then scroll to **Profiles** and press **Select**.



Profiles
Select Exit

This screenshot shows a green screen with the title 'Profiles'. Below the title, 'Profiles' is highlighted in a black box. At the bottom, there are two buttons: 'Select' and 'Exit'. To the right of the screen is a circular navigation button with four arrows.

2. **Scan dwell time** is the first option displayed. Press **Select**.



Profiles
Scan dwell time
Select Back

This screenshot shows a green screen with the title 'Profiles'. Below the title, 'Scan dwell time' is highlighted in a black box. At the bottom, there are two buttons: 'Select' and 'Back'. To the right of the screen is a circular navigation button with four arrows.

3. The Dwell Time is changed using the Scroll keys. Time increments / decrements are 50ms. Press **Save** when the desired dwell time is displayed.



Scanning [msec]
Set dwell time: 200
Save Back

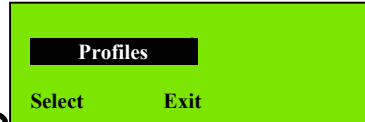
This screenshot shows a green screen with the title 'Scanning [msec]'. Below the title, 'Set dwell time: 200' is highlighted in a black box. At the bottom, there are two buttons: 'Save' and 'Back'. To the right of the screen is a circular navigation button with four arrows.

Key Beep

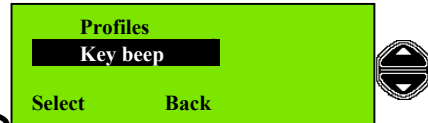
The key beep volume may be set as high, low or off. This option is changed using the scroll keys.

To set Key Beep mode:

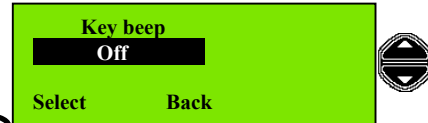
1. In standby screen, press **Menu**, then scroll to **Profiles** and press **Select**.



2. Scroll to **Key beep** and press **Select**.



3. Scroll through the selections **Off / Low / High**. When the desired option appears press **Select**.

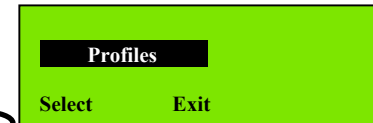


Channel Mode

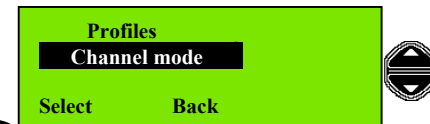
This sets the frequency channels to International or US mode of operation. US mode is used only when the vessel is in US waters. Again, selection is by the scroll keys. Additionally, Priority Channel can be changed in this menu.

To set Channel Mode:

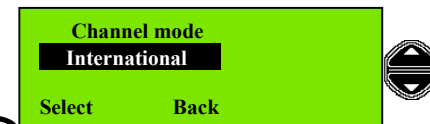
1. In standby screen, press **Menu**, then scroll to **Profiles** and press **Select**.



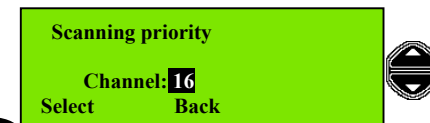
2. Scroll to **Channel mode** and press **Select**.



3. Scroll between the options **International** and **US**. When the desired option is displayed press **Select**.



4. International mode is selected in this example. Scanning priority channel may now be set. Use either the scroll keys or numeric keys to enter a new Priority Channel if desired.



Speaker Settings

This control allows any combination of internal and external speakers to be active. The four possibilities are selected by the scroll keys.

To set Speaker Options:

1. In standby screen, press **Menu**, then scroll to **Profiles** and press **Select**.



2. Scroll to **Speaker settings** and press **Select**.



3. Scroll through the **Int/ext:** (internal / external speaker) selections. When the desired option appears press **Select**.



NOTE: Alarm tones cannot be muted.

See also Speaker Mute Function under Basic Telephony Operations.

Notify Beep Volume

This control sets the volume of the alert tone used to attract the attention of the operator. The scroll keys change the volume level.

To set Notify Beep Volume:

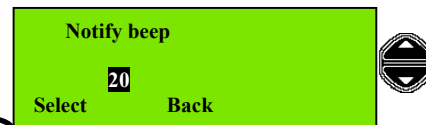
1. In standby screen, press **Menu**, then scroll to **Profiles** and press **Select**.



2. Scroll to **Notify beep** and press **Select**.



3. Scroll through volume levels 10-30. The Notify beep is heard for each scroll action – at a higher or lower volume for the appropriate scroll direction. When the desired volume is reached press **Select**.



This control does not affect the Alarm level (volume), which is always $\geq 90\text{dBA}$. Only the volume of warning beeps (Notify Beeps) used to alert the operator to (example: bad GPS connection, data entry errors, etc.), is adjusted.

LCD Contrast Adjust

This control allows the contrast of the LCD display, and thus the viewing angle of the screen, to be adjusted using the Scroll keys.

To set the Contrast Level:

1. In standby screen, press **Menu**, then scroll to **Profiles** and press **Select**.



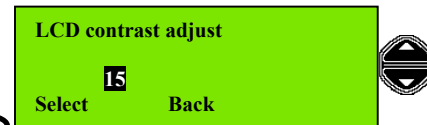
2. Scroll to **Display settings** and press **Select**.



3. The first option displayed in the **Display settings** menu is **LCD contrast adjust**. Press **Select**.



4. Scroll through contrast levels **0-30**. When the desired level is reached press **Select**. (Default level is **15**).



If the screen becomes dark and cannot be adjusted by the scroll keys, press the right action key (the **Back** button) to return to the previous setting.

Auto Dim

The F1 radio provides an Auto Dim feature.

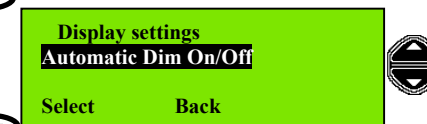
The default state is Auto Dim 'On'. In this state if the display backlight is set to 'Full', after 5 minutes with no activity, the display backlight will be set to 'Dim'.

To change the settings of this feature:

1. In standby screen, press **Menu**, then scroll to **Profiles** and press **Select**.



2. Scroll to **Display settings** and press **Select**.



3. Scroll to **Automatic Dim On/Off** and press **Select**.



4. Scroll between **On** and **Off** states. When the desired state is shown press **Select**.



[See also 'Basic Telephony operations: Display and Keyboard Dimming' section, page 12.]

Software Version

This control displays the radio software version. No change is possible.

To display Software Version:

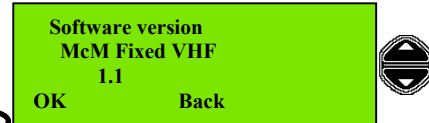
1. In standby screen, press **Menu**, then scroll to **Profiles** and press **Select**.



2. Scroll to **Software version** and press **Select**.



3. **Software version** is displayed. The version number may differ from the version displayed in your radio.



4. Press **OK** to return to standby screen.



Position Indication

This controls whether the position information is displayed on-screen (**Display On/Off**), and sets the format of the display (**Enhanced position**). **Enhanced position** displays position in degrees, minutes and seconds.

To change the settings of this feature:

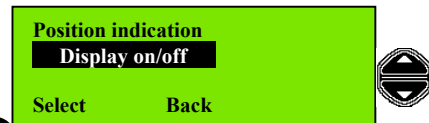
1. In standby screen, press **Menu**, then scroll to **Profiles** and press **Select**.



2. Scroll to **Position indication** and press **Select**.



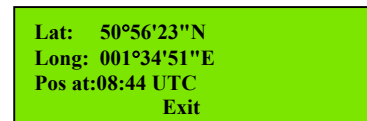
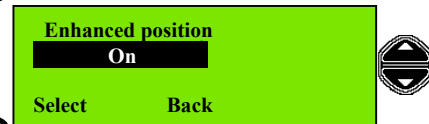
3. Scroll between the options **Display On/Off** and **Enhanced position**. When the desired option appears press **Select**.



4. Scroll between **On** and **Off** states for **Display On/Off** or **Enhanced position**. When the desired state is shown press **Select**.



The enhanced position is displayed only when the **Pos** button is pressed in standby screen. When enabled, it is also sent with a Distress message.



Time/Date and Offset

This control allows the time and date to be set (from the numeric keys).

Time may be displayed as UTC or as local; local time is set as an offset (number of hours difference) from UTC. When setting the offset, the first position is the positive/negative setting; pressing any numeric key or '*' or '#' toggles '+' or '-'.

To set Time and Date:

1. In standby screen, press **Menu**, then scroll to **Profiles** and press **Select**.



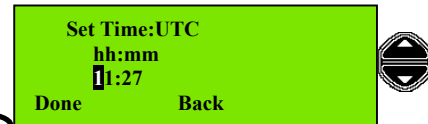
2. Scroll to **Time/Date and Offset** and press **Select**.



3. The first option is **Set Time/Date**. Press **Select**.

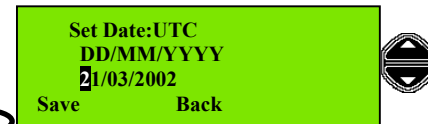


4. Use the scroll keys to move the cursor position in the **hh:mm** field. Use the numeric keys to change the time.



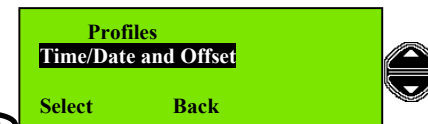
5. To complete the change and move to the date entry screen, press **Done**.

6. Use the scroll keys to move the cursor position in the **DD:MM:YYYY** field. Use the numeric keys to change the date.



To set Time Offset:

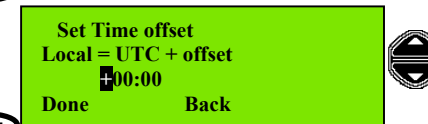
1. In standby screen, press **Menu**, then scroll to **Profiles** and press **Select**.



2. Scroll to **Time/Date and Offset** and press **Select**.



3. Scroll to **Set Time offset**. Press **Select**.



4. Use the scroll keys to move the cursor position in the **+00:00** field. Use the numeric keys to change the time offset, and '*' key to set '+' or '-' then press **Done**.

Radio Test

This control performs a self-test on the radio. The screen displays the result of the test. The results, and actions to be taken, are discussed in 'Appendix C: Error Messages / Troubleshooting'.

To perform Radio Self Test:

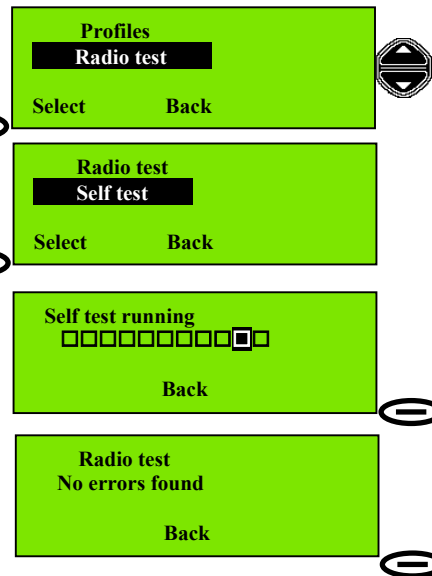
1. In standby screen, press **Menu**, then scroll to **Profiles** and press **Select**.

2. Scroll to **Radio test** and press **Select**.

3. There is only one test option in this radio version. With **Self test** highlighted, press **Select**.

4. Observe the progress of the test (display shows **Self test running**) and watch the indicator LEDs flash, progress bar (on display) advance and hear the beeps which track progress.

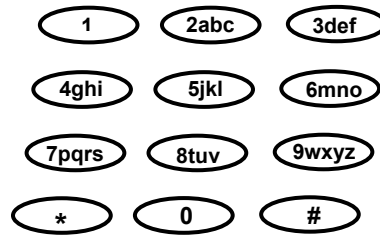
5. When the test is complete you should see the message **No errors found**. If the display shows anything else please refer to 'Appendix C: Error Messages / Troubleshooting' for an explanation.



APPENDICES

Appendix A: Character Entry

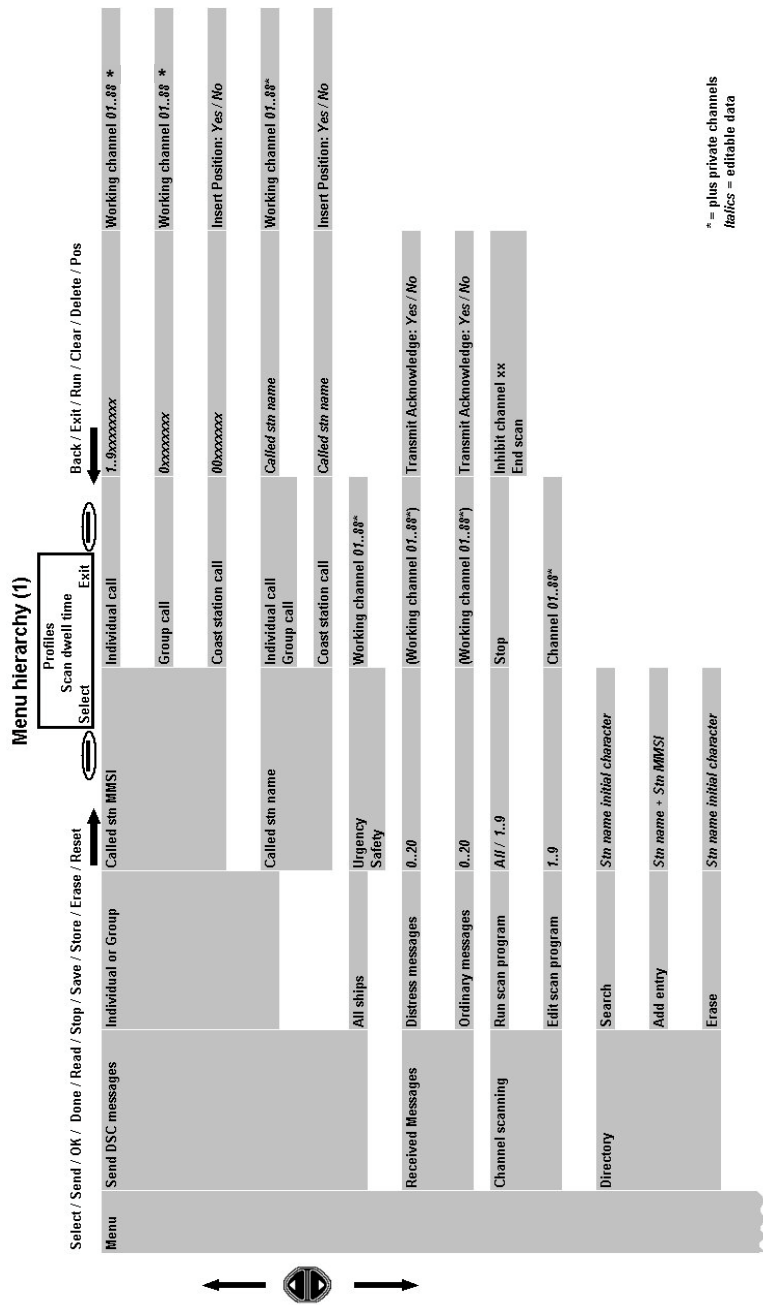
To enter station names using numeric keypad, use keys 0-9 to access letters a-z as follows:



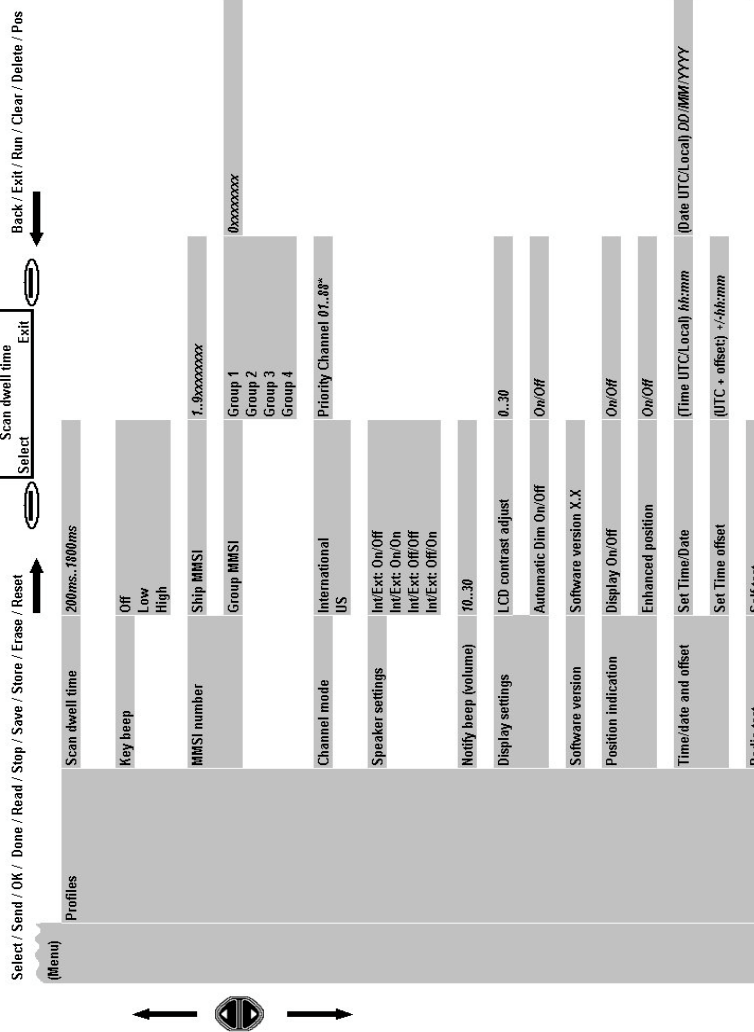
In a mode requiring alphanumeric entries, press the appropriate key (1 to 5 presses) until the desired character is displayed, as shown in the table below.

	First press	Second press	Third press	Fourth press	Fifth press
*	+	-	*		
0	-	<SPC>	0		
1	1				
2abc	a / A	b / B	c / C	2	
3def	d / D	e / E	f / F	3	
4ghi	g / G	h / H	i / I	4	
5jkl	j / J	k / K	l / L	5	
6mno	m / M	n / N	o / O	6	
7pqrs	p / P	q / Q	r / R	s / S	7
8tuv	t / T	u / U	v / V	8	
9wxyz	w / W	x / X	y / Y	z / Z	9
#	Toggles upper and lower case character entry.				

Appendix B: Menu Hierarchy



Menu hierarchy (2)



* = plus private channels
 Italics = editable data

Appendix C: Error messages / Troubleshooting

Problem	Probable Cause / Solution
Radio cannot be switched on.	<ol style="list-style-type: none"> 1. Poor connection to power supply / battery. (Check connections.) 2. Fuse blown. (Inspect wires and fuse.)
No sound from radio.	<ol style="list-style-type: none"> 1. Volume control set too low. (Rotate volume control clockwise.) 2. Squelch level too high. (Back off squelch – rotate squelch control anticlockwise.) 3. Water in front of speaker. (Drain water.)
Radio will not scan (scan program selected and running)	1. The squelch level may be set incorrectly for operation of scanning function. If the squelch level is too low (control too far counter-clockwise), scanning will halt. If the squelch level is too high (control too far clockwise), weak signals may not be heard.
No sound heard from speaker	1. If, after setting volume and squelch appropriately, sound still cannot be heard then the internal speaker may be disabled. (The transceiver is supplied with the internal speaker enabled.) To re-enable the speaker, go to Profiles -> Speaker settings.

The radio performs a series of self tests when power is first switched on. The mode-indicator and keyboard LEDs, plus LCD backlight, are cycled, and the LCD display contrast settings are briefly exercised. During this sequence, internal self tests (such as synthesiser lock and memory integrity) are performed and the LCD display shows a progress bar during the test sequence. If errors are detected the radio will display an error screen. Possible error screens are shown here, each with an explanation.

Power-Up Self-Tests (1)	
Type of Test / Error Message	Probable Cause / Solution
<div style="border: 1px solid black; background-color: yellow; padding: 10px; text-align: center;"> Error observed during initialisation See Operator Manual </div>	This may be caused by a checksum error or other internal fault. (If the error is still present after the radio is switched off and on again, then it will be necessary to consult a Service Agent, because the radio may be using incorrect information, and may try to operate outside its design limits.)

Pos update not found Menu 16 Update	When the radio switches on, it tries to find a source of GPS derived positional information, via the NMEA port, and the display message is 'Search for Position'. If no position information is detected within 2 minutes, the display message is 'Pos update not found'.
Error detected Synth out of lock See operators manual	Radio synthesiser lock could not be confirmed. Operation of the radio is inhibited. (If the fault persists after the radio is switched off and on again, then it will be necessary to consult a Service Agent.)
Error detected Register invalid See operators manual	A fault was found when checking data in the processor registers. Operation of the radio is inhibited. (If the fault persists after the radio is switched off and on again, then it will be necessary to consult a Service Agent.)

Power-Up Self-Tests (2)	
Type of Test / Error Message	Probable Cause / Solution
RAM memory fault DSC Disabled OK	A data integrity fault has been detected in non-volatile memory. DSC operation is inhibited. The radio may be used as normal (press OK). (Please contact a Service Agent so that the data error can be corrected.)
RAM memory fault Private Channels Disabled OK	Private Channels checksum invalid. Private Channel operation is inhibited. The radio can be used as normal except for Private Channels (press OK). (Please contact a Service Agent so that the data error can be corrected.)
RAM memory fault Directory and Group may be corrupted OK	Checksum of Directory or Group MMSI data is invalid. The radio will attempt to correct the error(s). This is a non-critical error and the radio can be used as normal (press OK). (If the error persists or recurs it is advisable to contact a Service Agent.)
RAM memory fault Profiles set to default OK	Checksum of Profiles is invalid. (The radio will reset all Profiles to the default state when OK is pressed.)

RAM memory fault Scan programs cleared OK	Checksum of Scan Programs is invalid. (The radio will clear Scan Programs to default when OK is pressed.)
RAM memory fault DSC Log mismatch OK	Checksum of DSC Log data is invalid, (Distress and Ordinary Log data). (The radio will attempt to correct the fault but a list mismatch may occur. Press OK to continue.)

User Initiated Self-Tests	
Type of Test / Error Message	Probable Cause / Solution
Pos update not found Menu 16 Update	If this test is run within 2 minutes of power-up and no source of GPS derived positional information, via the NMEA port, is found the display message is 'Pos update not found'. (Please check the GPS connections.)
Pos update not found OK	If the radio received a valid NMEA command, but no more GPS information within 1 minute after that command then the radio assumes the GPS connection is lost. Please check your GPS connections. (Press OK to continue)
Position too old OK	Position information is more than 4 hours old. (For safety reasons you should re-enter your position, or if GPS is available, connect your GPS unit.)
Error detected Synth out of lock See operators manual OK	The radio synthesiser lock could not be confirmed. This can cause problems with transmission and reception. Operation of the radio is inhibited. (If the fault persists after the radio is switched off and on again, then it will be necessary to consult a Service Agent.)
Error detected Register invalid See operators manual OK	A fault was found when checking data in the processor registers. Operation of the radio is inhibited. (If the fault persists after the radio is switched off and on again, then it will be necessary to consult a Service Agent.)

Operational Error Messages (1)	
Type of Test / Error Message	Probable Cause / Solution
Length of stn MMSI must be 9 digits	Range check: MMSI number. An attempt was made to save an MMSI number of less than 9 digits. (Please enter 9 digits.)
Ship MMSI number can not be 000000000	Range check: Ship MMSI as default. An attempt was made to save a default MMSI number. (Please enter a valid MMSI number.)
Group MMSI number can not be a coast station	Range check: Group MMSI. An attempt was made to save a Coast Station MMSI into a Group MMSI memory. (Please remove one of the leading '0's.)
Invalid time	Out of range: Time / Date / Timezone (offset). If invalid Time, Date or Timezone is entered the radio will display 'Invalid Time / Date / Timezone' (Please re-enter correct value.)
Out of range!	Out of range: possible messages: Invalid character', 'Latitude->Degrees', 'Latitude->Minutes', 'Latitude->Seconds', 'Longitude->Degrees', 'Longitude->Minutes', 'Longitude->Seconds'. (Please re-enter correct value.)
Scan program empty	Scan Program empty. An attempt was made to run an empty Scan Program. (Please use Edit Scan Program to enter channels into the Scan Program.)
Scan program full	Scan Program full. An attempt was made to add more than 30 channels into a Scan Program. (Do not enter more than 30 channels or re-edit the Scan Program.)
Erase before insert	Directory: an attempt was made to enter more than 50 names. (Do not enter more than 50 names or erase an existing entry to proceed.)

Operational Error Messages (2)	
Type of Test / Error Message	Probable Cause / Solution
No name entered!	Directory: an attempt was made to save an entry without a name (no characters were entered). (Please enter some characters into the 'name' field.)
Log empty	Log empty: An attempt was made to view an empty Distress or Ordinary Message Log. (No messages were received.)
Individual Call Call stn: 123456789 Sending Reset	Busy DSC Channel. If not sending a Distress message, and if the DSC Channel is not free, then a message 'Sending' is displayed, while the channel is busy (radio not squelched).
DSC Aborted	Busy DSC Channel. If the radio is squelched it will look for a free DSC Channel after 1-10 seconds (random). After 4.5 minutes without a free DSC Channel or after Reset is pressed the display shows 'DSC Aborted'.

Appendix D: Channel Specifications

International

Channel	Tx MHz	Rx MHz	SIMPLEX		DUPLEX	
			Intership	Port	Port	Public
1	156.050	160.650			○	○
2	156.100	160.700			○	○
3	156.150	160.750			○	○
4	156.200	160.800			○	○
5	156.250	160.850			○	○
6	156.300	160.300	○			
7	156.350	160.950			○	○
8	156.400	156.400	○			
9	156.450	156.450	○	○		
10	156.500	156.500	○	○		
11	156.550	156.550		○		
12	156.600	156.600		○		
13	156.650	156.650	○	○		
14	156.700	156.700		○		
15	156.750	156.750	○	○		
16	156.800	156.800	Distress and calling			
17	156.850	156.850	○	○		
18	156.900	161.500			○	○
19	156.950	161.550			○	○
20	157.000	161.600			○	○
21	157.050	161.650			○	○
22	157.100	161.700			○	○
23	157.150	161.750			○	○
24	157.200	161.800			○	○
25	157.250	161.850			○	○
26	157.300	161.900			○	○
27	157.350	161.950			○	○
28	157.400	162.000			○	○

Channel	Tx MHz	Rx MHz	SIMPLEX		DUPLEX	
			Intership	Port	Port	Public
60	156.025	160.625			○	○
61	156.075	160.675			○	○
62	156.125	160.725			○	○
63	156.175	160.775			○	○
64	156.225	160.825			○	○
65	156.275	160.875			○	○
66	156.325	160.925			○	○
67	156.375	156.375	○			
68	156.425	156.425		○		
69	156.475	156.475	○	○		
70	156.525	156.525	DSC	DSC		
71	156.575	156.575		○		
72	156.625	156.625	○			
73	156.675	156.675	○	○		
74	156.725	156.725		○		
75	156.775	156.775		○		
76	156.825	156.825		○		
77	156.875	156.875	○		○	○
78	156.925	161.525			○	○
79	156.975	161.575			○	○
80	157.025	161.625			○	○
81	157.075	161.675			○	○
82	157.125	161.725			○	○
83	157.175	161.775			○	○
84	157.225	161.825			○	○
85	157.275	161.875			○	○
86	157.325	161.925			○	○
87	157.375	157.325		○		
88	157.425	157.425		○		

US Channels

Channel	Tx MHz	Rx MHz	SIMPLEX	DUPLEX
1	156.050		○	
2				
3	156.150	156.150	○	
4				
5	156.250	156.250	○	
6	156.300	156.300	○	
7	156.350	156.350	○	
8	156.400	156.400	○	
9	156.450	156.450	○	
10	156.500	156.500	○	
11	156.550	156.550	○	
12	156.600	156.600	○	
13	156.650	156.650	○	
14	156.700	156.700	○	
15		156.750	○	
16	156.800	156.800	Distress and calling	
17	156.850	156.850	○	
18	156.900	156.900	○	
19	156.950	156.950	○	
20	157.000	157.000	○	
21	157.050	157.050	○	
22	157.100	157.100	○	
23	157.150	157.150	○	
24	157.200	161.800		○
25	157.250	161.850		○
26	157.300	161.900		○
27	157.350	161.950		○
28	157.400	162.000		○

Channels	WX	Rx MHz
P1	WX1	162.550
P2	WX2	162.400
P3	WX3	162.475
P4	WX4	162.425
P5	WX5	162.450
P6	WX6	162.500
P7	WX7	162.525
P8	WX8	162.650
P9	WX9	162.775
P10	WX10	163.275

Channel	Tx MHz	Rx MHz	SIMPLEX	DUPLEX
60				
61	156.075	160.675	○	
62				
63	156.175	160.775	○	
64	156.225	160.825	○	
65	156.275	160.875	○	
66	156.325	160.925	○	
67	156.375	156.375	○	
68	156.425	156.425	○	
69	156.475	156.475	○	
70	156.525	156.525	DSC	
71	156.575	156.575	○	
72	156.625	156.625	○	
73	156.675	156.675	○	
74	156.725	156.725	○	
75	156.775	156.775	○	
76	156.825	156.825	○	
77	156.875	156.875	○	
78	156.925	156.925	○	
79	156.975	156.975	○	
80	157.025	157.025	○	
81	157.075	157.075	○	
82	157.125	157.125	○	
83	157.175	157.175	○	
84	157.225	161.825		○
85	157.275	161.875		○
86	157.325	161.925		○
87	157.375	157.325		○
88	157.425	157.425	○	

BI Channels

Channel	Tx MHz	Rx MHz	SIMPLEX		DUPLEX	
			Intership	Port	Port	Public
1	156.050	160.650			○	○
2	156.100	160.700			○	○
3	156.150	160.750			○	○
4	156.200	160.800			○	○
5	156.250	160.850			○	○
6	156.300	160.300	○			
7	156.350	160.950			○	○
8	156.400	156.400	○			
9	156.450	156.450	○	○		
10	156.500	156.500	○	○		
11	156.550	156.550		○		
12	156.600	156.600		○		
13	156.650	156.650	○	○		
14	156.700	156.700		○		
15	156.750	156.750	○	○		
16	156.800	156.800	Distress and calling			
17	156.850	156.850	○	○		
18	156.900	161.500			○	○
19	156.950	161.550			○	○
20	157.000	161.600			○	○
21	157.050	161.650			○	○
22	157.100	161.700			○	○
23	157.150	161.750			○	○
24	157.200	161.800			○	○
25	157.250	161.850			○	○
26	157.300	161.900			○	○
27	157.350	161.950			○	○
28	157.400	162.000			○	○

Channel	Tx MHz	Rx MHz	SIMPLEX		DUPLEX	
			Intership	Port	Port	Public
60	156.025	160.625			○	○
61	156.075	160.675			○	○
62	156.125	160.725			○	○
63	156.175	160.775			○	○
64	156.225	160.825			○	○
65	156.275	160.875			○	○
66	156.325	160.925			○	○
67	156.375	156.375	○			
68	156.425	156.425		○		
69	156.475	156.475	○	○		
70	156.525	156.525	DSC	DSC		
71	156.575	156.575		○		
72	156.625	156.625	○			
73	156.675	156.675	○	○		
74	156.725	156.725		○		
75	156.775	156.775				
76	156.825	156.825				
77	156.875	156.875	○		○	○
78	156.925	161.525			○	○
79	156.975	161.575			○	○
80	157.025	161.625			○	○
81	157.075	161.675			○	○
82	157.125	161.725			○	○
83	157.175	161.775			○	○
84	157.225	161.825			○	○
85	157.275	161.875			○	○
86	157.325	161.925			○	○
87	157.375	157.325		○		
88	157.425	157.425		○		

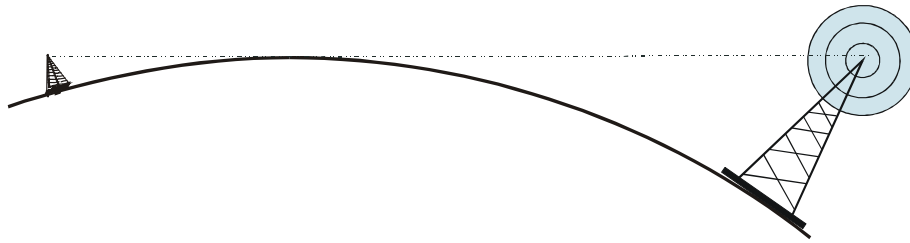
OTHER INFORMATION

Line of Sight distances

		Base station antenna height (metres)					
		0.5	1	3	5	10	30
Ship antenna height (metres)	0.5	3.1	3.8	5.4	6.6	8.6	13.8
	1	3.8	4.5	6.1	7.2	9.3	14.4
	3	5.4	6.1	7.7	8.8	10.9	16.1
	5	6.6	7.2	8.8	10.0	12.0	17.2
	10	8.6	9.2	10.9	12.0	14.1	19.3
	30	13.8	14.4	16.1	17.2	19.3	24.4

Distances are nautical miles.

The illustration shows the line of sight (the curvature of the Earth is exaggerated for clarity).



McMurdo Limited Product Warranty

Subject to the provisions set out below McMurdo Limited warrants that this product will be free of defects in materials and workmanship for a period of 24 months from the date of purchase.

McMurdo Limited will not be liable to the buyer under the above warranty:-

- for any defect arising from fair wear and tear, wilful damage, negligence, abnormal working conditions, failure to follow McMurdo Limited's instructions (whether oral or in writing) including a failure to install properly and/or to use the recommended DC supply, misuse or alterations or repair of the product by persons other than McMurdo Limited or an Approved Service Agent;
- for parts, materials or equipment not manufactured by McMurdo Limited in respect of which the buyer shall only be entitled to the benefit of any warranty or guarantee given by the manufacturer to McMurdo Limited;
- if the total price for the product has not been paid.

McMurdo Limited does not make any other promises or warranties (express, implied or statutory) about the product except where the product is sold to a consumer in which case the statutory rights of a consumer are not to be affected.

In order to be valid, claims must be made under the above warranty in writing as soon as practicable after discovery of the defect or failure and within the warranty period referred to above. Proof of purchase will be required. The claim should be sent together with the product in question to the address set out below or to an Approved Service Agent.

Following a valid warranty claim McMurdo Limited shall be entitled to repair or replace the product (or part) in question free of charge, or at McMurdo Limited's sole discretion to refund to the buyer the price of the product (or a proportional part of the price). McMurdo Limited shall not be liable to a buyer who is not a consumer for any other loss or damage (whether indirect, special or consequential loss of profit or otherwise) costs, expenses or other claims for compensation which arise out of or in connection with this product. In the case of a consumer McMurdo Limited shall only be liable where other loss or damage is foreseeable.

Nothing shall limit McMurdo Limited's liability for death or personal injury caused by its negligence.

This warranty is to be interpreted under English law.

All enquiries relating to this warranty or Approved Service Agents should be sent to:

McMurdo Limited

Silver Point, Airport Service Road, Hampshire, PO3 5PB, United Kingdom

Telephone: Int + 44 (0) 23 9262 3900

Fax: Int + 44 (0) 23 9262 3999

Web: www.mcmurdo.co.uk

Email: sales@mcmurdo.co.uk

Declaration of Conformity

**The Declaration of Conformity is included in the
F1 Radio Installation Manual.**

Notes

Record Serial No.: _____

MMSI: _____

Date of Purchase: _____

Dealer Stamp

McMurdo Ltd

Silver Point
Airport Service Road
Portsmouth
Hampshire
United Kingdom
PO3 5PB
A member of Chemring Group PLC

www.mcmurdo.co.uk

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