DSC VHF

RT-450DSC

Installation and operation guide

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Operator warning

Navicom advises you to meet the requirements for prevention of Radio Frequency Exposure. Unauthorized changes or modifications to this equipment may void compliance with ETSI Rules. Any changes or modification must be approved in writing by Navicom LTD.

This equipment has been tested to comply with the limits for Class D Digital Marine Devices. These limits are designed to provide reasonable protection against harmful interference. This equipment can generate or radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications and the human body. Never transmit before you make sure the antenna is properly located.

This device is only an aid to navigation. Its performance can be affected by many factors including equipment failure or defects, environmental conditions, and improper handling or use. It is the user's responsibility to exercise common prudence and navigational judgement, and this device should not be relied upon as a substitute for such prudence and judgement. Your NAVICOM VHF radio generates and radiates radio frequency (RF) electromagnetic energy (EME). This equipment must be installed and operated in accordance with the instructions contained in this handbook. Failure to do so can result in personal injury and/or product malfunction.

Table of contents

Equipment description

1.1 Introduction

Congratulations on your purchase of NAVICOM marine radio. NAVICOM is a VHF DSC Marine Mobile Radio with output power of 25/1 Watt. It should be powered by a 12VDC power supply.

The radio can support DSC (Digital Selective Calling) operation with specially designed DSC unit, which meets the standard of ITU-R, M493-9. When connected to a GPS, it will display the position (longitude and latitude) of the vessel. A compact fist microphone makes for convenient operation of the equipment

Other features of the radio includes:

- Access to all available International channels (currently allocated).
- Allows 10 memory channels for quick recall and memory scan.(Where permitted)
- Provides as many as 20 user programmable names with MMSI, 10 distress calls and 20 individual calls for DSC communications.
- Rotary volume control with power on/off, rotary channel selector and rotary squelch adjustable knob give you more convenient operation of the radio.
- Outstanding performance of waterproof complying with Japanese Industry Standard level 7.

  25 watts high output power allows you make contact with others at long ditance and 1-watt low power for short distance.
- Separate ***16*** button, for quick selection of the emergency call on CH16.
- Adjustable brightness of backlighting for good visibility of the large LCD External interface easy to connect to GPS and external speaker.
- Mounting gimbal for firm and reliable location of your base station in different conditions.
- Optional Flush Mount Kit.

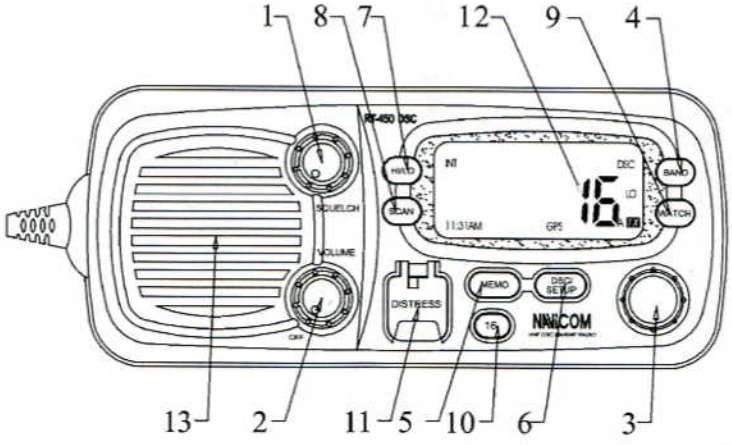
1.2 ETSI information

ESTI (European Telecommunications Standard Institute) has stipulated the specific requirements **(EN 301 025-1/2/3)** for marine radio with **class D DSC** feature. For use on non-SOLAS vessels.

Controls and LCD display

2.1 Controls and connexions

2.1.1 Base station panel



1. Volume and On/Off Knob: 0-270° rotary control. Power off at Zero Degree.

2. Squelch 0-270° rotary control.

3. Channel/Select Rotary encoder (no stop) with momentary push to enter.

In VHF (INT) and MEM mode, the default operation selects channels in the active band. When the knob is rotated the channel is displayed on the LCD Display.

In DSC Mode and Set-Up (in Channel 70 Selected), the default rotary operation selects (using an arrow ">") from menu items on screen, and the momentary push action enters the selected item. See DSC Operation for detailed description.

4. Band: Press and release the ***BAND*** key to enter normal VHF Mode (INT band). When pressed, the international band is indicated on the LCD by text. When returning to VHF mode from either DSC or MEM mode, the selected channel is the last active INT channel used. This setting is stored in NVM (non-volatile memory).

5. Memory: Press and release for less than 1 second to select Memory Mode. "MEMORY" characters appear on the display indicating Mode of operation. While in memory mode, channel knob selects from memory channels programmed into the radio.

When radio is in normal VHF Mode, press and hold the ***MEM*** key for 1 second or more to store current channel and band as a memory channel. Channels are memorised in sequence entered. When a memory channel is stored, press the ***MEM*** key for 1 second or more to remove the channel from memory.

6. DSC: Press and release to select DSC Mode. Channel 70 is automatically selected, and the Send Call Menu appears on the display. See DSC Operation for complete description of DSC function.

7. Hi/Low: Press and release ***HI/LO*** key to toggle between 25 and 1 Watt power output. "HI" or "LO" icon appears on LCD display to indicate the setting. HI/LOW functions in the normal VHF Mode or MEM Mode. In DSC mode ***HI/LO*** key has no function and will produce an error tone when being pressed.

8. Scan: Press and release the ***SCAN*** key (for less than 1 second) to activate scanning. Scan mode is Priority type (Scan 1,16,2,16,3,16...). A text appears on the display to indicate the Scan Function is active. When the scan function is active, press and release ***SCAN*** button to deactivate scan function.

When radio is in Memory Mode, memory channels are scanned. When in normal VHF Mode, channels of INT band are scanned. When in DSC Mode, scan has no function and an error tone is produced.

9. Dual/Tri Watch: Press and release ***WATCH*** button (for less than 1 second) to activate dual watch function. Characters appear on the display to indicate the watch function. When dual watch is active, press ***WATCH*** button to deactivate.

Dual Watch monitors the working channel **and** channel 16.

Tri watch monitors the working channel, channel 16 and channel 9.

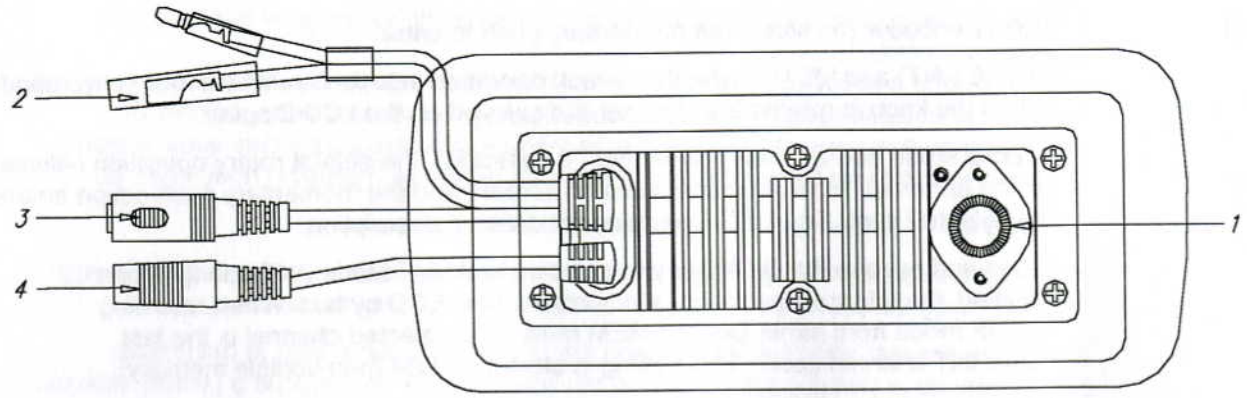
10. 16: Press and release ***16*** button to quickly access to the channel 16.

11. Distress: Open spring cover & Press and release the ***DISTRESS*** button to send a DSC Distress call. MMSI and Nature of Distress are included in the signal. Position and time are included in the broadcast if appropriate NMEA data is vailable. See DSC Operation for details of sending the call.
The Distress function or any other transimitted DSC function does not operate unless a user's MMSI has been entered

12. LCD: Large LCD (1"×1.5") with viewable area of 4×12 dot matrix makes for easy reading

13. Built-in Speaker: Guarantees a clear ring and voice communication.

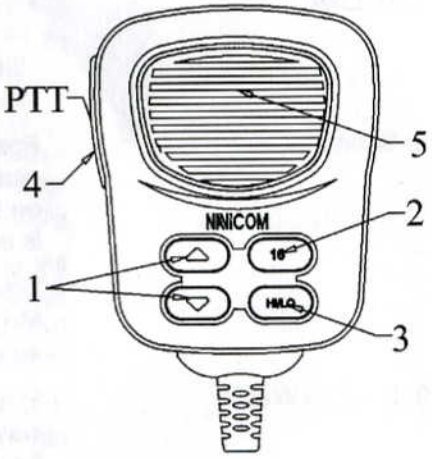
2.1.2 Base station (rear)



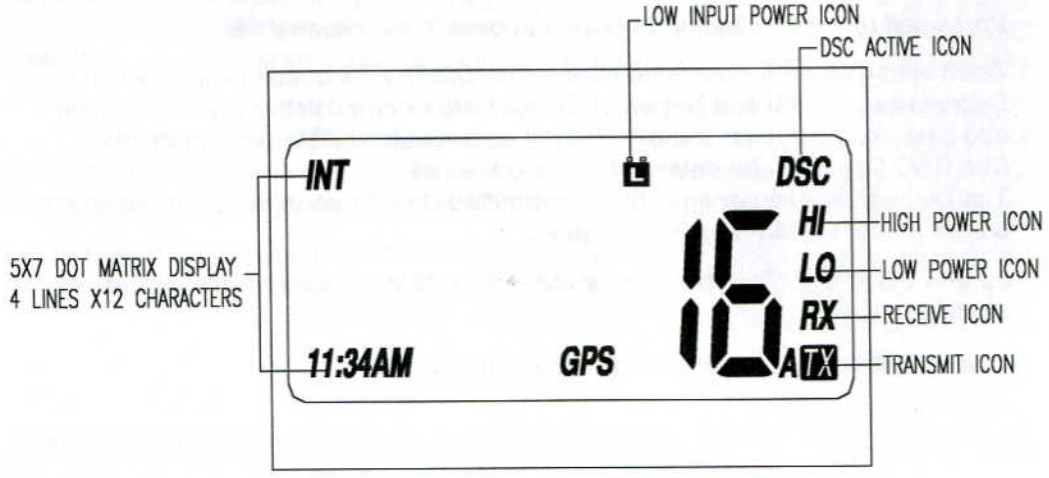
1. Antenna socket — Connects a suitable antenna to your marine VHF radio to get a satisfactory communication
2. Power Source: — Connects the radio to a 12 VDC power source.
3. Jack socket for external speaker: — If needed, you can also use this cable to Connect an externalspeaker
4. GPS Connector — Connects the radio to a GPS receiver to acquire the position and time information of your vessel.

2.1.3 Handset

1. Channel Up/Channel Down — 2 Keys, press and release to change channel.
2. 16 — Press and release ***16*** button to access channel 16 quickly.
3. Hi/Low: — Press and release ***HI/LO*** button to toggle between 25 Watt power output and 1 Watt output. "HI" or "LO" icon appears on LCD display to indicate the setting.
4. PTT: — Push to key the Transmitter
5. Internal Microphone: — For voice communication.

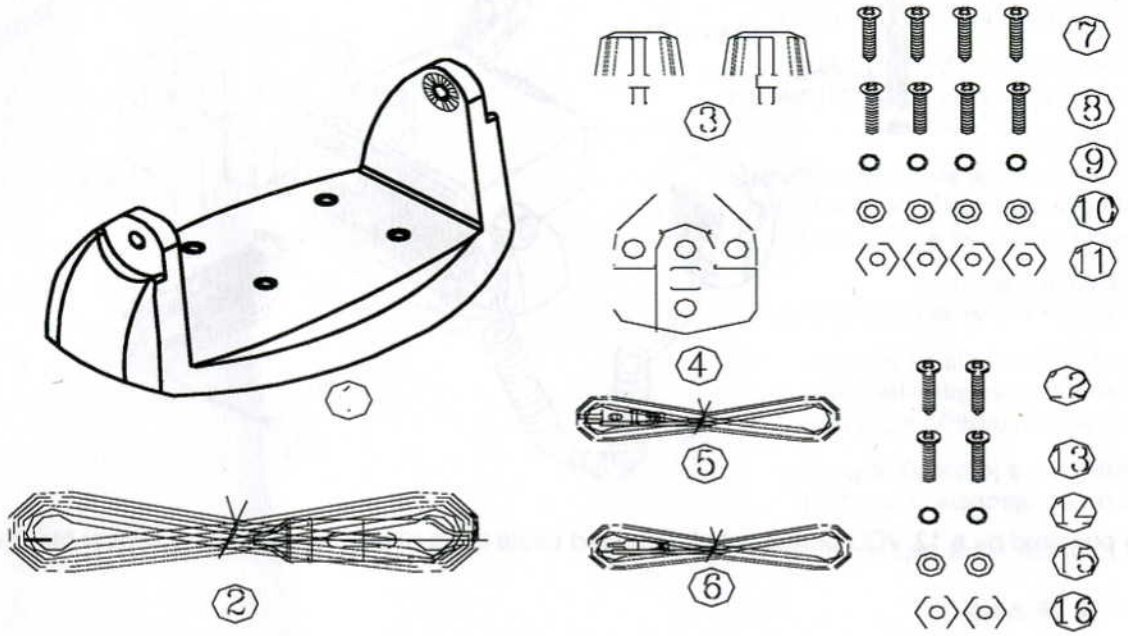


2.2 Liquid cristal display



3.1 Supplied accessories

Manufacturer supplies you the following accessories as standard.



(1) Mounting Gimbal (1 set)

(2) Power Supply Cable and External Speaker Connection Cable (1 set)

(3) Mounting Knob (2 pcs)

(4) Wall Hanger (1 pcs)

(5) Speaker Connection Cable (1 set)(Φ 3.5)

(6) GPS Connection Cable (1 set) (Φ 2.5)

(7) Self-tapping Screw for Fixing Mounting Gimbal (4 pcs)

(8) Flat Screw for Fixing Mounting Gimbal (4 pcs)

(9) Plain Washer (4 pcs)

(10) Spring Washer (4 pcs)

(11) Nut (4 pcs)

(12) Self-tapping Screw for Fixing Wall Hanger (2 pcs)

(13) Flat Screw for Fixing Wall Hanger (2 pcs)

(14) Plain Washer (2 pcs)

(15) Spring Washer (2 pcs)

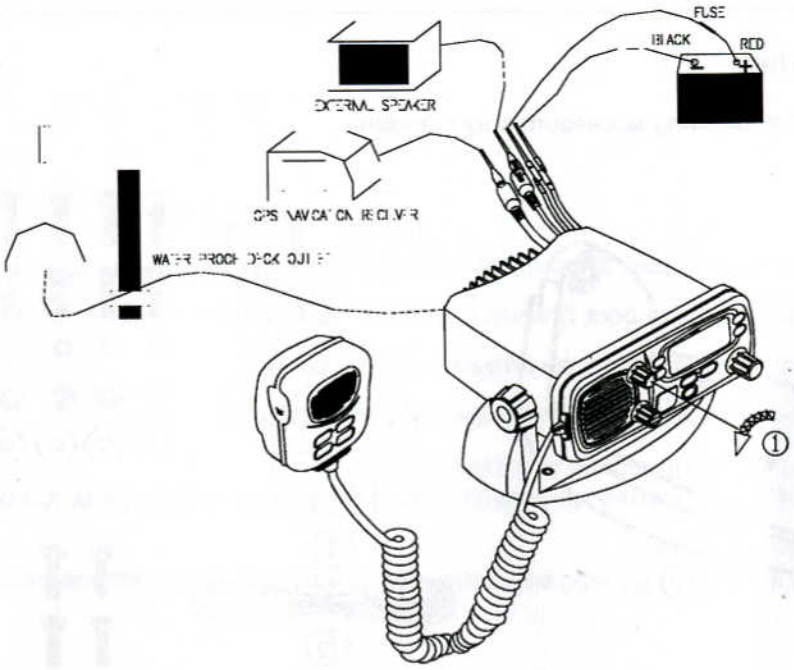
(16) Nut (2 pcs)

3.2 Location

To safely, efficiently and conveniently use your marine radio, find a mounting location that:

- Is far enough from any compass like devices to avoid any interference caused by the speaker magnet in your radio during their operation;
- Provides accessibility to the front panel controls;
- Allows connection to a power supply and an antenna;
- Has free space nearby for installation of a handset hanger;
- Where the antenna can be mounted at least 3 feet from radio.

3.3 Connexions



Power supply

You radio should be powered by a 12 VDC power supply. The red cable is for positive pole and the thicker black one is for negative pole.

External speaker

If required, you can connect your radio to an external speaker with the supplied connection cable. The white cable is for positive pole and the thinner black one is for negative pole.

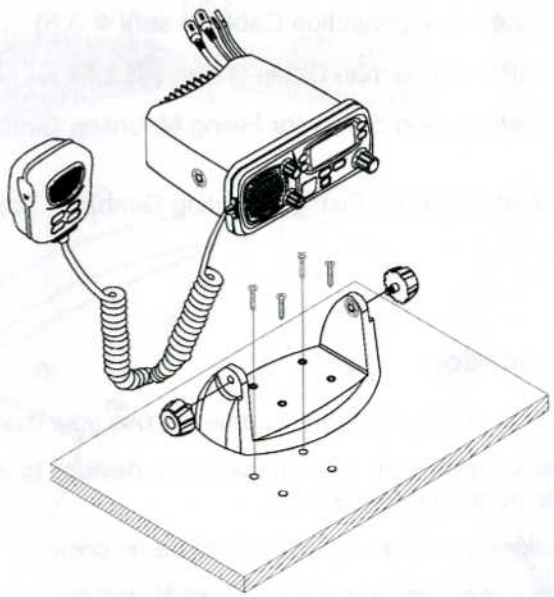
GPS equipment

When your marine radio NAVICOM is connected to a GPS equipment, it can obtain NMEA information of both its current location (longitude and latitude) and the local GMT. ("+" white, "-" black)

Antenna

A very important part for the performance of any communication system is a suitable antenna. Consult your dealer about antennas and ask them to help best mount to your radio.

3.4 Mounting the radio



To mount the radio on your vessel:

1. Find an appropriate location defined in section 3.2;
2. Place the mounting bracket on the location surface, use a pencil to mark the location of four holes where the fixing screws are to be inserted.

Caution: Be careful to not drill through the mounting surface.

3. Remove the bracket, drill four holes smaller than the screw diameter, then re-place the mounting bracket on the surface aligning the drilled holes;
4. Insert the four fixing screws and secure the bracket to the mounting surface using the supplied bolts, spring washers, plain washers and nuts;

Caution: if you can not reach behind the mounting surface to attach the nut on the bolts, use the supplied self-tapping screws to fasten the bracket.

5. Insert the four fixing screws and fasten them with a Philip screw driver do not to screw too tightly;

6. Mount the base station onto the bracket so that the keys on both sides of the bracket match the pits on the sides of the base station (these selectable pits allow the direction of the radio to be adjusted for a greater using comfort) (15° rotation in each way and a general tolerance of 45°).

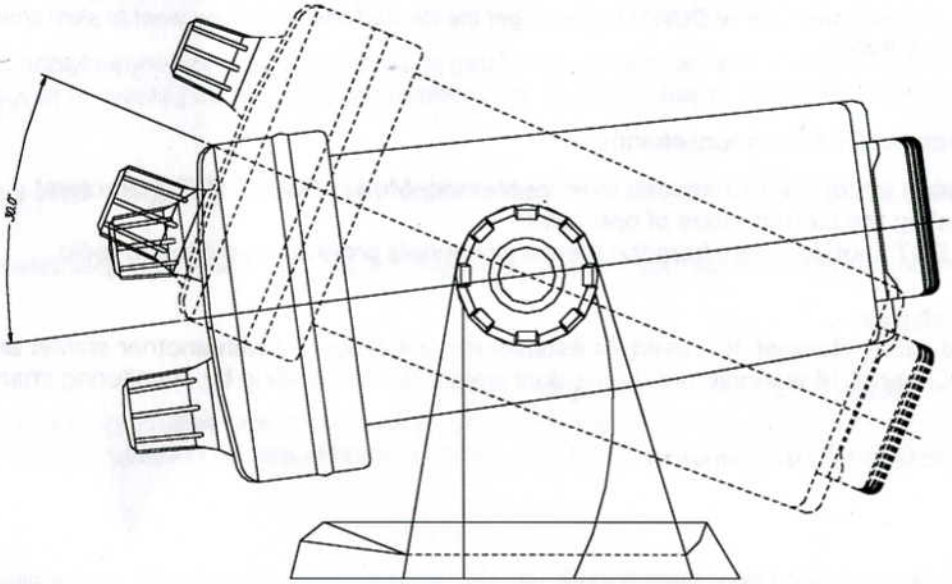
7. Attach the supplied mounting knobs on the sides of the bracket to fix the base station securely.

Caution: KEEP the radio and handset at least 1 meter away from any magnetic devices such as compass on your vessel.

The supplied universal mounting bracket allows you mount your base station from overhead or on dashboard with a big scope of angle reaching 45^0.

To change the angle after installation:

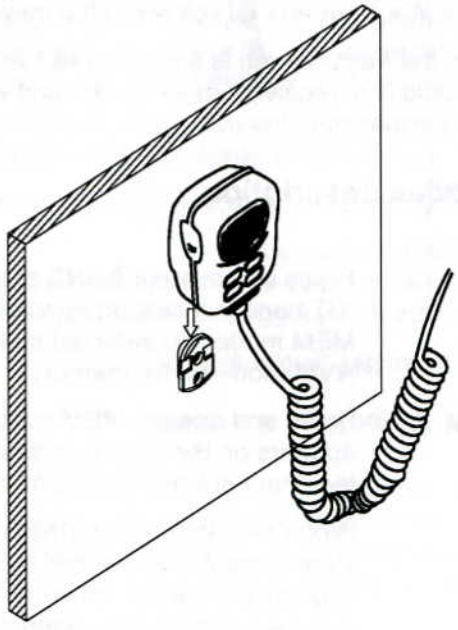
1. Loosen the mounting knob at the sides of gimbal first.
2. Then adjust the base station to an appropriate direction with matching of the keys on the inner sides of gimbal and pits on the outer sides of base station.
3. Tighten the knob to secure.



3.5 Antenna mounting / EME exposure

For optimal radio performance and minimal human exposure to radio frequency electromagnetic energy, make sure the antenna is:

- Connected to the radio before transmitting;
- Properly mounted;
- Located where it will be away from people;
- Located at least three feet (91 cm) from the Base Station transceiver and Handsets;
- The connector is standard type of PL259.



3.6 Mounting the handset

Find a mounting location near the base station to mount the handset wall hanger. The distance between the base station and the wall hanger should be less than the length of the handset cable.

Basic operation

After the radio has been installed, make sure the power supply and antenna are properly connected. Rotate the ***VOLUME/POWER*** knob clockwise to turn on the radio and select a comfortable volume level. Turn the ***SQUELCH*** knob clockwise until the background noise disappears.

4.1 Channel selection

INT Channels

There are altogether 55 International channels plus 75 & 76 listed in the channel list section. These channel groups may be specified for the operating area. To select the desired channel:

1. Press ***BAND*** button to enter the VHF mode;
2. In VHF mode, rotate ***CHANNEL/SELECT*** knob to select channel in the active band. As the knob is being rotated, the channel is displayed on the LCD display;

Note: The radio switches to the next / previous channel as the CHANNEL/SELECT is rotated one step to the right / left, and a beep is sounded at the samen time. You can also press UP or DOWN button to get the desired channel; if you want to skim channels quickly, just press and hold the UP or DOWN button.

Memory Channels

You can store as many as 10 channels as memory channels.

1. Press and release ***MEM*** button for less than 1 second to enter Memory Mode. "MEMORY" characters appear on the display indicating the current mode of operation.
2. Rotate the ***CHANNEL/SELECT*** knob to select from the memory channels programmed into the radio.

Channel 16

Channel 16 is the distress and safety channel. It is used for establishing initial contact with another station and for emergency communications. Channel 16 is monitored during dual watch. While standing by, monitoring channel 16 is a must.

The ***16*** key gives you a quick access to the channel 16.

4.2 Transmission and reception

CAUTION: Transmitting without an antenna being connected may damage the radio.

1. Press the ***PTT*** (Push-To-Talk) button on the handset, the TX indicator is displayed on the LCD.
2. Speak in a clear normal voice into the microphone.
3. When the transmission is finished, release the ***PTT*** button. TX will disappear from the LCD display. Now The radio is in receiving mode (silent and waiting for a signal) where it will automatically receive any communication.

4.3 Modes description

Band: Press and release ***BAND*** button to enter normal VHF Mode (INT bands). When pressed, the INT band is indicated on the LCD. When returning to VHF mode from either DSC or MEM mode, the selected channel is the last active INT channel used. This setting is stored in NVM (non-volatile memory).

Memory: Press and release ***MEM*** button for less than 1 second to select Memory Mode. "MEMORY" appears on the display indicating the mode of operation. While in memory mode, the channel knob selects from memory channels programmed into the radio.

When the radio is in normal VHF Mode, press and hold ***MEM*** button for 1 second or greater to store current channel and band as a memory channel. Channels are remembered in sequence entered. When a memory channel is stored, pressing the ***MEM*** key for 1 second or more will remove the channel from memory.

DSC: Press and release to select DSC Mode. Channel 70 is automatically selected, and the Send Call Menu appears on the display. See DSC Operation for complete description of the DSC function.

Distress: Open the protection cover, then press and release the ***DISTRESS*** button to enter the distress Mode. Channel 70 is automatically selected with high power, and the Send Call Menu appears on the display. See Distress Operation for complete description of distress function.

4.4 Functions description

High/Low: Press and release ***HI/LO*** to toggle between 25 Watt power output and 1 Watt power. "HI" or "LO" icon appears on LCD display to indicate the setting.

When the radio is tuned to channels restricted to low power output, pressing the ***HI/LO*** key has no function.

High/Low functions in the normal VHF Mode or MEM Mode. In DSC mode the ***HI/LO*** key has no function and will produce an error tone when being pressed.

Scan: Press and release the ***SCAN*** key (for less than 1 second) to activate scanning. Scan mode is Priority type (Scan 1,16,2,16,3,16...). A text appears on the display to indicate that the Scan Function is active. When the scan function is active, press and release ***SCAN*** button to deactivate the scan function. When the radio is in Memory Mode, memory channels are scanned. When in normal VHF Mode, channels from the selected band are scanned. When in DSC Mode, scan has no function and an error tone is produced.

Dual Watch: Press and release the ***WATCH*** key (for less than 1 second) to activate the dual watch function. Characters appear on the display to indicate the watch function. When dual watch is active, press ***WATCH*** button to deactivate.

Dual Watch monitors the working channel and channel 16.

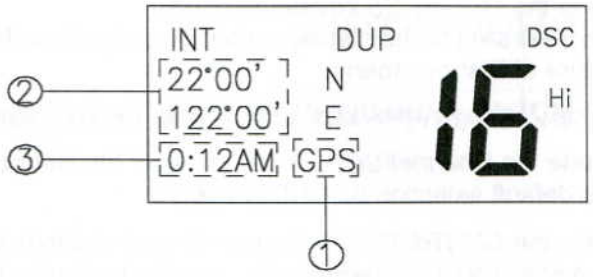
4.5 Position and time indication

Your transceiver can display the position of the vessel's (longitude and latitude) as well as time and date information, if connected to a GPS receiver. If the position data become corrupted or are not detected, "GPS" disappears and an alert tone of 1-minute duration that can be cancelled by any button is sounded at 4 hour intervals to encourage manual input of position data. If no manual input is made for 23.5 hours, GPS disappears from the screen, the position data transmitted goes to 9's and all the time data goes to 8's.

1.GPS INDICATOR

"GPS" appears when a GPS receiver is connected.

"GPS" disappears when no GPS receiver is connected.



2. POSITION INDICATOR

Shows the GPS position data or the position data is entered manually

3.TIME INDICATOR

Shows the GPS time date or the time date is the radio's clock time "local" appears when the offset time date on the "set-up" menu are entered. and no GPS receiver is connected

UTC" appears when the position date is input manually

NOTE:

If GPS data reception is interrupted for 2 min, the LCD displays 'PLEASE INPUT POSITION!' and an alert tone is sounded. The "GPS" indicator disappears. "UTC" appears instead of "GPS" as the timeis now displayed according to the radio unit' s clock. the position data retains the most recent data in such cases.

If no GPS receiver is connected. turn on power, "NO GPS INFORMATION!" is displayed on the LCD. The time is displayed according to the radio unit' s clock. For 10 min the LCD displays "PLEASE INPUT POSITION" and an alert tone is sounded to encourage manual input of the position date and time date.

Digital Selective Calling

5.1 Introduction

5.1.1 Digital Selective Calling (DSC)

Digital Selective Calling is a semi-automated method of establishing a radio call, for VHF, MF and HF radio calls. It has also been designated as part of the Global Maritime Distress and Safety System (GMDSS). It is planed that DSC will eventually replace aural watches on distress frequencies and will be used to announce routine and urgent maritime safety information broadcasts. This new service will also allow mariners to initiate or receive distress, urgency, safety and routine calls to or from another vessel equipped with a DSC transceiver.

5.1.2 Marine Mobile Service Identity (MMSI)

An MMSI is a nine digit number used on Marine Transceiver capable of using Digital Selective Calling (DSC). This number is used like a telephone number to selectively call other vessels. Refer to section 6.11 (USER MMSI ENTRY).

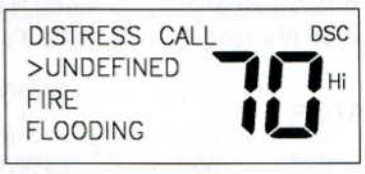
5.2 DSC Menu navigation

Once in DSC mode, the ***Channel/Select*** key is used to select items within the DSC Send Call menu. Rotating the ***Channel/Select*** knob selects successive items within the DSC Menu (and subsequent sub-menus). When the Menu list contains more items than will fit on the LCD, the list scrolls to reveal additional items. Pressing the ***Channel/Select*** knob enters (or actions) the selected function. At any time while in DSC Mode, pressing and releasing the ***DSC*** key returns the screen to the DSC Send Call menu and aborts the current operation. Pressing any other mode key (**BAND, MEM**) while in the DSC Mode aborts the DSC function (except a Distress Call) and changes to the Mode of operation accordingly.

5.3 Sending a DSC Call

5.3.1 Distress Call

Sending a Distress Call



Distress calls are initiated with the following procedure:

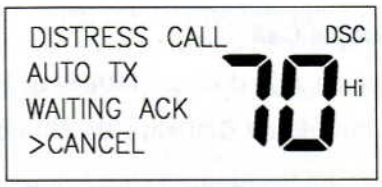
1. Open the Distress cover.
2. Press the *DISTRESS* key momentarily.
   The Text area of the display reconfigures to show the Nature of Distress menu.

Note: Only having a MMSI code of your radio, can you initiate a DSC transmission. To enter the MMSI code, see 6.11.

3. Rotate the *Channel/Select* knob to select the Nature of Distress by using ">" arrow.
   The default selection is "UNDEFINED".
4. Press the *DISTRESS* key for more than 4 seconds to send the Distress call. The acoustic alarms counting second will sound intermittently. The whole display flashes in sequence with the "beeps".

   If DISTRESS button is released before 4 seconds, the initiation of distress call is not activated and you should press 16 key to exit and return to VHF mode; If DISTRESS button is pressed for more than 4 seconds, the DISTRESS call is sent whether channel 70 is busy or not. When Distress is sent, the display ceases to flash, the acoustic alarm goes to a continuous tone until acknowledgement is received or any key is pressed to cancell the acoustic alarm.

During the distress call sequence, the Distress Cancellation menu is displayed.
During the distress call sequence, the radio simultaneously watches Channel 70 for a DSC Acknowledgement and Channel 16. When the distress call is acknowledged, the acoustic alarm stops and the display returns to normal VHF operation on Channel 16, with High power selected. If no acknowledgement is received, the unit retransmits the DISTRESS call at random intervals of 3.5 to 4.5 minutes whether Channel 70 is busy or not until a response is received or the call is manually cancelled. By pressing 16 Key, the radio returns to normal VHF.



Sending a Call to Cancel a Transmitted Distress Call

1. From the Distress Cancellation Menu, cancel the Distress Call by pressing the ***Channel/Select*** key.
   The text area of the display reconfigures to have the user confirm the distress cancellation.
2. Select "YES" and push ***distress key*** to transmit a call to cancel the transmitted distress call. Select "NO" and press **Channel/Select** button to abort cancellation.
   Once cancellation has been confirmed, the radio returns to normal VHF operation on channel 16 with high power selected.

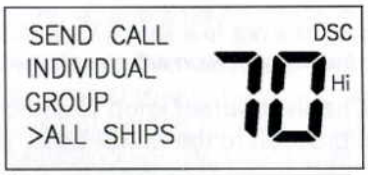
5.3.2 All Ships Call

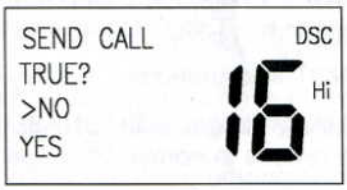
Send an All Ships Call

All Ships calls are initiated with the following procedure.

Note: Pressing the DSC key at any time aborts the current function and selects the Send Call Main Menu.

1. Press ***DSC*** key.
   The Send Call Menu appears in the text area of the display.
2. Rotate the ***Channel/Select*** knob to select "ALL SHIPS".
   Press the ***Channel/Select*** knob to enter.
   The Send Call Menu reconfigures to display the Call Type selection menu.
3. Rotate the ***Channel/Select*** knob to select the call type, either: URGENCY or SAFEFY. Push the ***Channel/Select*** knob to enter the selected call type.
   If the call type is Urgent or Safety, the talk channel is automatically set to Channel 16, and the Text Area of the display reconfigures to show the confirmation screen.
4. Press the ***Channel/Select*** knob to confirm the sending or press ***16*** key to quit the Text Area of the display confirmation screen
5. Rotate the channel/select knob to select "yes", press the channel/select knob to send the call.





5.3.3 Group Call

Before sending a GROUP call, you should enter the GROUP MMSI in set-up mode, for which, please refer to 6.12 Group MMSI.

Send a GROUP Call

Group calls are initiated with the following procedure.

Note: Pressing the DSC key at any time aborts the current function and selects the Send Call Main Menu.

1. Press ***DSC*** key.
   The Send Call Menu appears in the text area of the display.
   Rotate the ***Channel/Select*** knob to select "GROUP". Press the ***Channel/Select*** knob to enter.
   The Send Call Menu reconfigures to display the Call Type selection menu.
   The default call type is ROUTINE.
2. Select "GROUP". Press the ***Channel/Select*** knob to enter.
   The Send Call Menu reconfigures to display the select "CH".

3. Rotate the channel/Select knob to select the designed channel.

4. Press the ***Channel/Select*** knob to send a GROUP CALL ,then press "PTT" to communicate

5.3.4. Individual Call

You can make an individual call (**MMSI or BUDDY LIST**), either to a ship or to a coast station.

Sending an Individual Call ship (MMSI not in Buddy List)

Individual calls are initiated with the following procedure.

Note: Pressing the DSC key at any time aborts the current function and selects the Send Call Main Menu.

1. Press ***DSC*** key.
   The Send Call Menu appears in the text area of the display.

2. Rotate the ***Channel/Select*** knob to select "INDIVIDUAL". Push the ***Channel/Select*** knob to enter. The Send Call Menu reconfigures to display the call shore / call ship selection menu .Rotate the **Channel/Select** knob to select call ship, push the ***Channel/Select*** knob to confirm. the" MANUAL MMSI" and "BUDDY LIST "appear on the screen. Select "MANUAL MMSI", and push the ***Channel/Select*** knob to enter the MMSI Enter screen

3. On the MMSI Enter screen, rotate the ***Channel/Select*** knob to change the individual digits in the MMSI number. Once each digit is set, press the **Channel/Select** knob to enter the digit and advance to the next. At the end of the MMSI number, the Text Area of the display reconfigures to show the "**select ch** " menu. The characters available in the digit string are 0-9 and "<" (back arrow). Selecting the "<" and pushing the **Channel/Select** knob selects the previous character in the MMSI for editing.

   (Only in the case of a call to a ship is it permitted to enter a talk channel from a trafic list of intership channels; a call to a coast station, the coast station will specify the channel to talk on in its acknowledgement.)

4. Rotate the ***Channel/Select*** knob to select the talk channel. Push the ***Channel/Select*** knob to enter the channel and proceed to the MMSI Enter screen. Otherwise, go to step 5.

5. From the Confirmation Screen, push the ***Channel/Select*** knob to send the call.
   The Text Area displays the CALLING {MMSI} message while the call is made.
   If the call is acknowledged, the text area momentarily displays the {MMSI} ACKNOWLEDGED message and the radio tunes to the Talk Channel and returns to normal VHF operation.

   If the call is NOT acknowledged, the Try Again Confirmation menu is displayed.

   If the call is acknowledged with "UNABLE TO ACKNOWLEDGE", the Talk Channel is automatically tuned and the radio returns to normal VHF operation.

Re-sending an Individual Call

1. From the Try Again Confirmation menu, select "YES" and push the **Channel/Select** key to send again. Or, select "NO" and press the **Channel/Select** key to cancel and return to normal VHF operation.

Sending an Individual Call ship (MMSI stored in Buddy List)

Individual calls to MMSI's in the Buddy List are initiated with the following procedures. The Buddy List is appended to the Send Call Main Menu. Pressing the ***DSC*** key at any time aborts the current function and selects the Send Call Main Menu.

1. Press the ***DSC*** key.
   The Send Call Menu appears in the text area of the display.
   Select" individual ". Push the ***Channel/Select*** knob to enter *the "call shore call ship"* selection menu

   Rotate the ***Channel/Select*** knob to select "call ship" and push the ***Channel/Select*** knob to enter call ship menu

2. Rotate the ***Channel/Select*** knob to select the desired name within the Buddy List. Push the ***Channel/Select*** knob to confirm.

   The Send Call Menu reconfigures to display the Talk Channel selection screen. The Call Type is defaulted as ROUTINE.

3. Rotate the ***Channel/Select*** knob to select the talk channel. Press the ***Channel/Select*** knob to enter "call ship send?" menu item.

(Only in the case of a call to a ship, is it permitted to enter a talk channel from a trafic list of intership channels; a call to a coast station, the coast station will specify the channel to talk on in its acknowledgement.)

4. From the Confirmation Screen, push the ***Channel/Select*** knob to send the call.
   The Text Area displays the CALLING {Name} message while the call is made.

   If the call is acknowledged, the text area momentarily displays the {Name} ACKNOWLEDGED message and the radio tunes to the Talk Channel and returns to normal VHF operation.

   If the call is NOT acknowledged, the Try Again Confirmation menu is displayed.

   If the call is acknowledged with unable to comply, the text area will display "UNABLE TO ACKNOWLEDGE" and pressing **Channel/Select** key may enter "re-send." menu item.

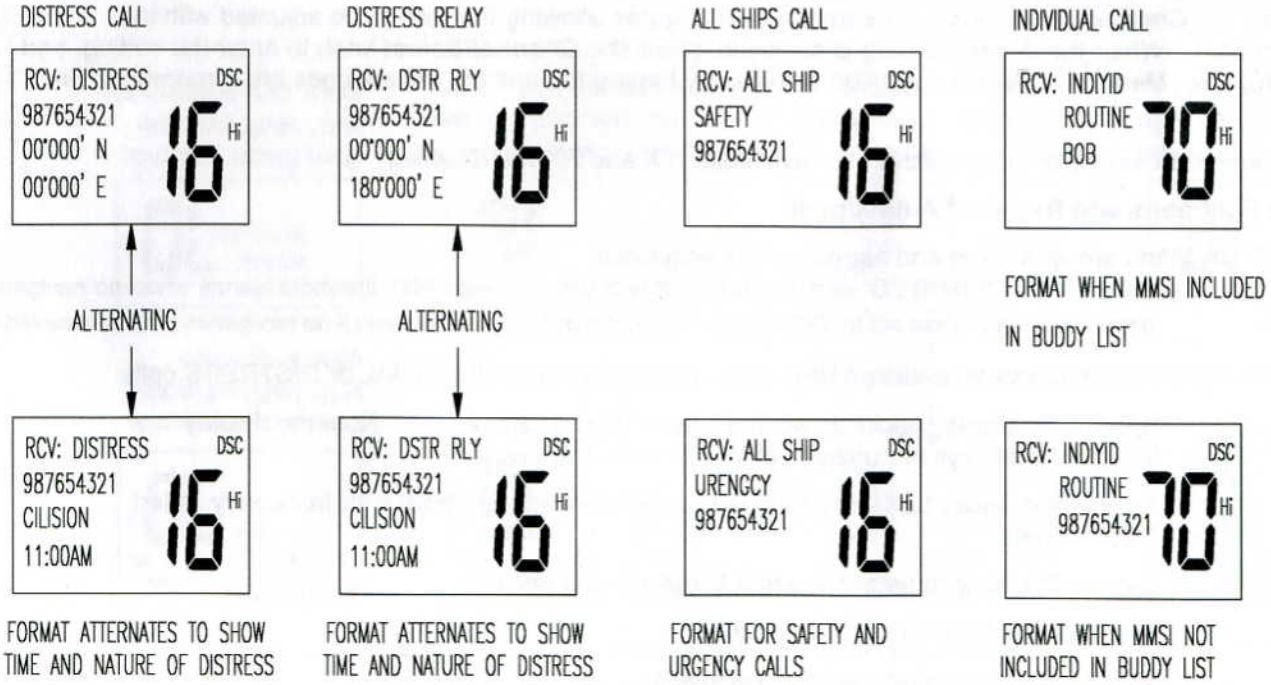
Re-sending an Individual Call

1. From the Try Again Confirmation menu, select "YES" and push the ***Channel/Select*** key to send again. Or, select "NO" and press the ***Channel/Select*** key to cancel.

5.4 Receiving a DSC Call

When a DSC call is received, the Base Station automatically responds based on the type of call.

The information displayed on the LCD varies depending upon the call type. See chart below.



5.4.1 Distress Call

When a distress call is received, the Base Station automatically tunes to channel 16, and the Distress Alarm Tone sounds. Pressing any key disables the alarm.

When position data is included within the signal, it is displayed in the Text Area of the LCD. When no position data is included within the signal, the message "X--, -- Y--, --" is displayed in the Text Area of the LCD.

5.4.2 Distress Relay Call

When a Distress Relay Call is received, the Base Station automatically tunes to Channel 16, and the Distress Alarm Tone sounds. Pressing any key disables the alarm.

When position data is included within the signal, it is displayed in the Text Area of the LCD.

5.4.3 All Ships Call

When an All Ships Call is received, the Base Station automatically tunes to Channel 16, and the Emergency Alarm Tone Sounds. Press any key to disable the alarm.

5.4.4 Individual Call

When an Individual call is received, the Base Station automatically tunes to the channel designated in the DSC signal, and the Call Alarm Tone Sounds. Press any key to disable the alarm.

The MMSI contained within the signal is displayed on the Text Area of the display. If the MMSI correlates to an MMSI stored in the Buddy List, the corresponding name is displayed in place of the MMSI.

When an Individual call is received, the Base Station always stores the DSC signal data in the Call Log. And the radio is automatically tuned to the designated channel.

Set-up menu

6.1 Description

A series of set up selections are available in a special mode accessed at start-up. To enter SET UP operation, press and hold ***DSC*** key for greater than 1 second at any time to abort the current function. The Text area displays the Set-Up Menu list.

6.1.1 Set-Up Menu Navigation

Items within the Set-Up Menu list are selected by rotating the ***Channel/Select*** knob. To confirm a selected item for adjustment, push the ***Channel/Select*** knob. The display reconfigures allowing the item to be adjusted with the ***Channel/Select*** knob. When the desired setting is achieved, press the ***Channel/Select*** knob to enter the setting, and move back to the Main Menu list. Set Up operation is exited by turning the unit off. All changes are remembered in EEPROM.

During Set-Up operation, no other radio features are available. TX and RX are disabled.

6.1.2 Set Up Functions and Range of Adjustment

Items in the SET-UP Menu are as follows and appear in this sequence.

GPS Alarm	Selects either "ENABLED" or "DISABLED". When set to "ENABLED", the radio alarms when no navigation data is received; when set to "DISABLED", the radio does not alarm even if no navigation data is received.
Call Log	Provides access to stored DSC calls wether they are INDIVIDUAL or DISTRESS calls.
Backlight	Selects the display backlight setting either HIGH, LOW or OFF. Note the display backlight is always on, unless set to OFF with this function.
Buddy List	Selects the Buddy List Entry routine to enter Names and MMSI's for frequently called DSC stations.
Position	Selects the position setting to enter longitude and latitude.
UTC Time	Selects the UTC time to enter the time.
Contrast	Selects display contrast setting: 1-4 levels.
ALARM Beep	Selects alarm beep volume, either HIGH or LOW.
Time Offset	Selects Time offset to correct UTM to local time. Setting range is -13 to +13. (New Zealand Daylight Savings Time requires a 13 hours offset.)

User MMSI	Selects the User MMSI Entry routine to enter the radio's user name and MMSI.
GROUP MMSI	Selects the Group MMSI Entry routine to enter the group's name and MMSI.
Reset	Select options to reset radio to factory settings. Select "SETTINGS" to return all user settings (Not User MMSI and Buddy List) to factory settings. Select Buddy List to erase individual selections within the Buddy List.

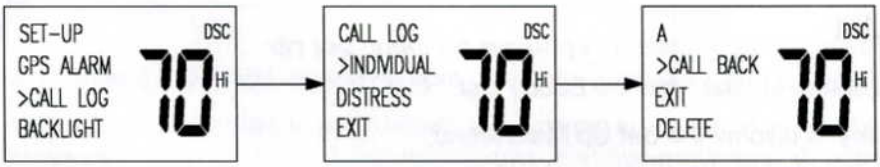
6.2 GPS ALARM ADJUSTMENT

1. Press and hold the ***DSC*** key to display the Set-Up menu.
2. Push the ***Channel/Select*** knob to display the GPS Alarm Adjustment menu.
3. Select "ENABLED" and push the ***Channel/Select*** knob to enable the GPS alarm function and return to the Set Up Main Menu. Select "DISABLED" and press the ***Channel/Select*** knob to disable the function and return to the Set Up Main Menu.

☺ ***When the GPS alarm function is enabled, the radio will alarm if no navigation data is received.***

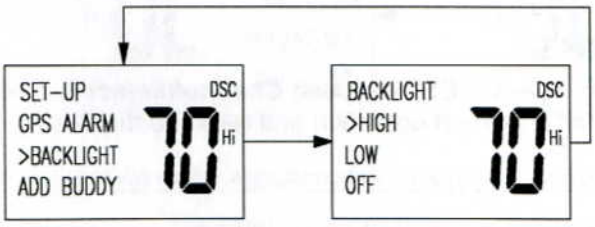
6.3 Call Log Operation

1. Press and hold the ***DSC*** key.
2. Rotate the ***Channel/Select*** knob to select "CALL LOG". Press the ***Channel/Select*** knob to display the Call Log.
3. Distress Call and Individual Call will be logged into CALL LOG. Maximum amount of logs for "DISTRESS CALL" is ten, while the one for "INDIVIDUAL" is twenty.
4. The Individual Call log sub-menu provides "CALL BACK" or "DELETE" selection items, while for Distress Call the only selection is "DELETE"..
5. If "call back"is selected,the operation process is the same as an individual call.



6.4 Backlight Adjustment

1. Press and hold ***DSC*** key.
2. Rotate the ***Channel/Select*** knob to select "BACKLIGHT". Press the ***Channel/Select*** knob to display the Backlight Adjustment menu.
3. Rotate the ***Channel/Select*** knob to adjust the setting. Press the ***Channel/Select*** knob to confirm the setting and return to the Set-Up Menu.



6.5 Buddy List Entry

1. Press and hold ***DSC*** key to display the Set Up menu.
2. Rotate the ***Channel/Select*** knob to select Buddy List. Press the ***Channel/Select*** knob to select Buddy List for enter.

   The display reconfigures to show the Buddy List entry screen.
3. Rotate the ***Channel/Select*** knob to select the first character (A-Z, 1-9, Space and Back Arrow "<") for the name. When the desired character is shown, push the ***Channel/Select*** knob to enter, and subsequently when the last digit is entered, the activation advances to the first MMSI digit.

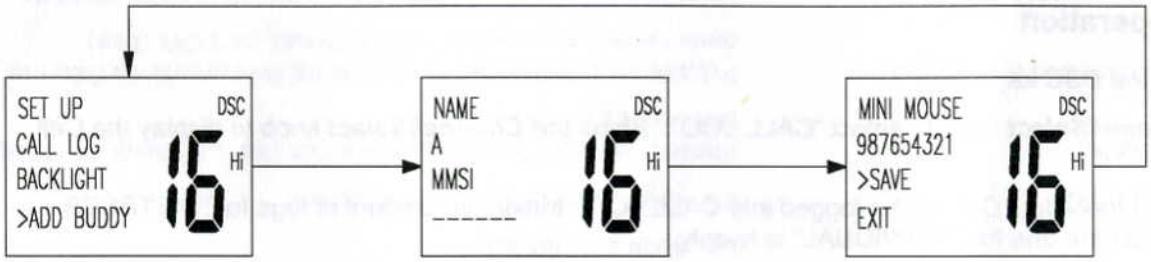
The characters available in the digit string are 0-9, A-Z and "<" (back arrow). Selecting the "<" and pressing the **Channel/Select** knob selects the previous character in the MMSI for editing.

If two spaces are entered in sequence, the activation advances to the MMSI field; or if the last one of the 12 characters is entered, the activation advances to the MMSI field.

Enter the MMSI using the ***Channel/Select*** knob to select and enter the digits (0-9) for the MMSI. Once the last digit of MMSI is entered, the display advances to the confirmation menu.

The characters available in the digit string are 0-9 AND "<" (back arrow). Selecting the "<" and pushing the **Channel/Select** knob selects the previous character in the MMSI for editing.

4. From the Confirmation Menu, rotate the channel-selecting knob to select "SAVE" (default selection) and press ***Channel/Select*** to permanently save the Name and MMSI. Select "EXIT" and press ***Channel/Select*** knob to discard the information and return to the Set-Up Main Menu.



6.6 Delete Buddy List

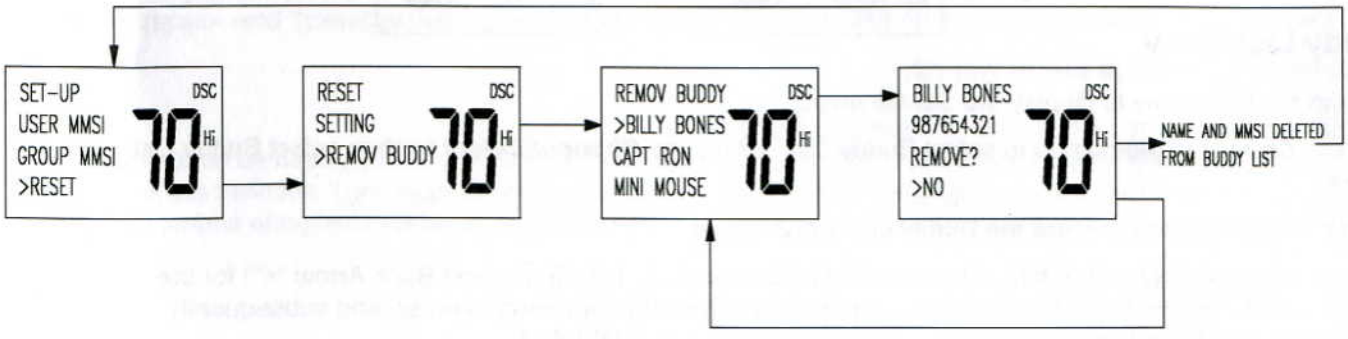
Follow this procedure to delete entries from the Buddy List.

1. Press and hold ***DSC*** key to display the Set Up Main Menu.
2. Rotate the ***Channel/Select*** knob to select "RESET". Press the ***Channel/Select*** knob to enter "RESET" for adjustment.

   The display reconfigures to show the Reset Menu entry screen.
3. Rotate the ***Channel/Select*** knob to select "BUDDY LIST". Press the ***Channel/Select*** knob to enter.

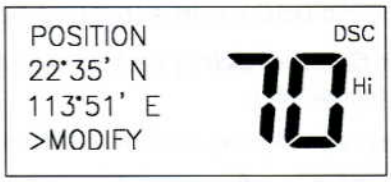
   The display reconfigures to show the Buddy List.
4. From the Buddy List, rotate ***Channel/Select*** knob to select the name to be removed. Press ***Channel/Select*** to enter.

   The Confirmation Menu appears.
5. From the Confirmation Menu, select "YES" and push ***Channel/Select*** to delete the name and return to the Set-Up Main Menu. Select "NO" to abort operation and return to the Set-Up Main Menu.



6.7 Position

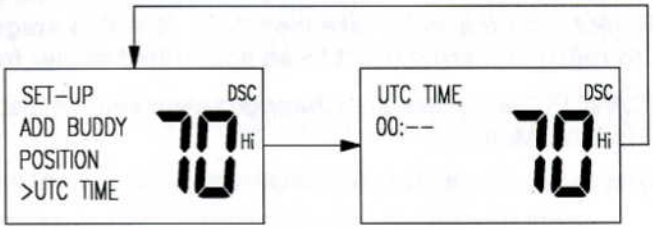
1. Press and hold ***DSC*** key to display the Set Up menu.
2. Rotate the ***Channel/Select*** knob to select "POSITION". Press the ***Channel/Select*** knob to display the position menu.
3. Rotate the ***Channel/Select*** knob to select the first character (N. S.). When the desired character is shown, press the ***Channel/Select*** knob to enter and subsequently activate the digit string (0 – 9) and press the ***Channel/Select*** knob.
4. Rotate the ***Channel/Select*** knob to select the digit. When the desired digit is shown, push the ***Channel/Select*** knob to confirm.
5. When the last digit of latitude and the longitude is entered, return to the set-up menu.



Note: The function is valid only when your radio is NOT connected to a functional GPS receiver.

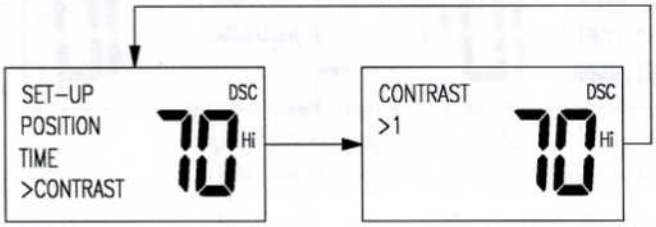
6.8 UTC Time

1. Press and hold down ***DSC*** key to display the Set Up menu.
2. Rotate the ***Channel/Select*** knob to select "TIME".
3. Push the ***Channel/Select*** knob to enter into TIME adjustment, when last digits are entered, return to the set-up menu.



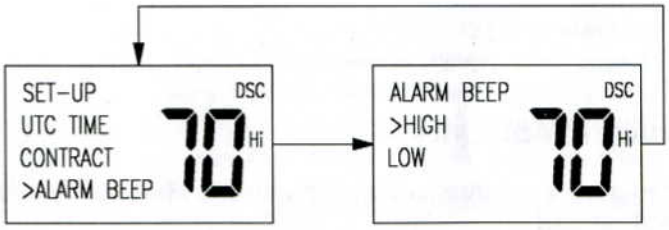
6.9 Contrast Adjustment

1. Press and hold the ***DSC*** key to display the Set Up menu.
2. Rotate the ***Channel/Select*** knob to select "CONTRAST".
3. When the display reconfigures, rotate the ***Channel/Select*** knob to adjust the setting. Push the ***Channel/Select*** knob to permanently enter the setting and return to the Set-Up Menu.



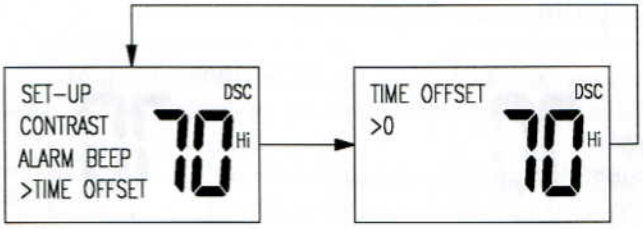
6.10 ALARM Beep Adjustment

1. Press and hold the ***DSC*** key to display the Set Up menu.
2. Rotate the ***Channel/Select*** knob to select "ALARM BEEP". Press the ***Channel/Select*** knob to select ALARM BEEP for adjustment.
3. When the display reconfigures, rotate the ***Channel/Select*** knob to adjust the setting. Push the ***Channel/Select*** knob to confirm the setting and return to the Set-Up Menu.



6.11 Time Offset Adjustment

1. Press and hold ***DSC*** key to display the Set Up menu.
2. Rotate the ***Channel/Select*** knob to select "TIME OFFSET".
3. Press the ***Channel/Select*** knob to select Time Offset for adjustment. When the display reconfigures, rotate the ***Channel/Select*** knob to adjust the setting (-13 to +13 hours). Push the ***Channel/Select*** knob to permanently enter the setting and return to the Set-Up Menu.



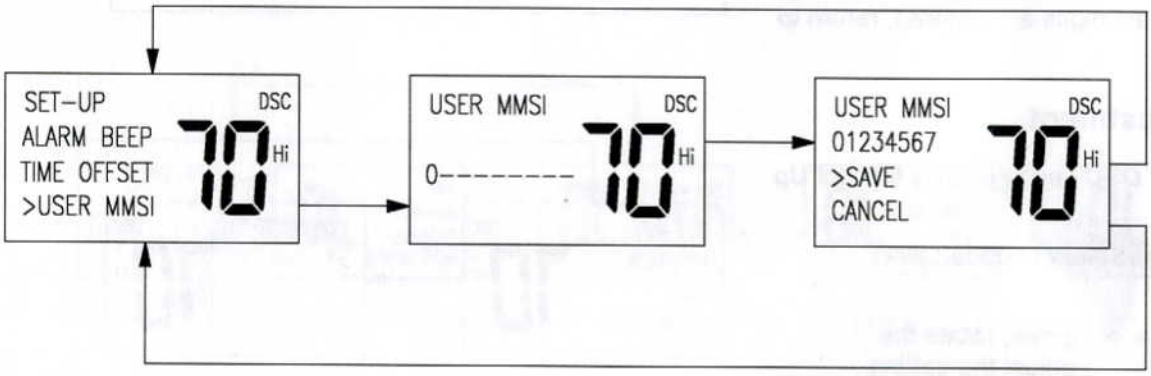
6.12 User MMSI Entry

N.B. ONCE SAVED IT CANNOT BE CHANGED BY THE USER.

1. Press and hold ***DSC*** key to display the Set Up menu.
2. Rotate the ***Channel/Select*** knob to select "USER MMSI". Press the ***Channel/Select*** knob to select User MMSI for adjustment.
3. The display reconfigures to show the User MMSI entry screen.
4. Rotate the ***Channel/Select*** knob to select the first character (1-9, or Space or Back Arrow "<") for the MMSI. When the desired digit is shown, press the ***Channel/Select*** knob to enter, and subsequently select the next character for adjustment. Enter each character for the name using this procedure. When the last digit is entered, the confirmation screen appears.

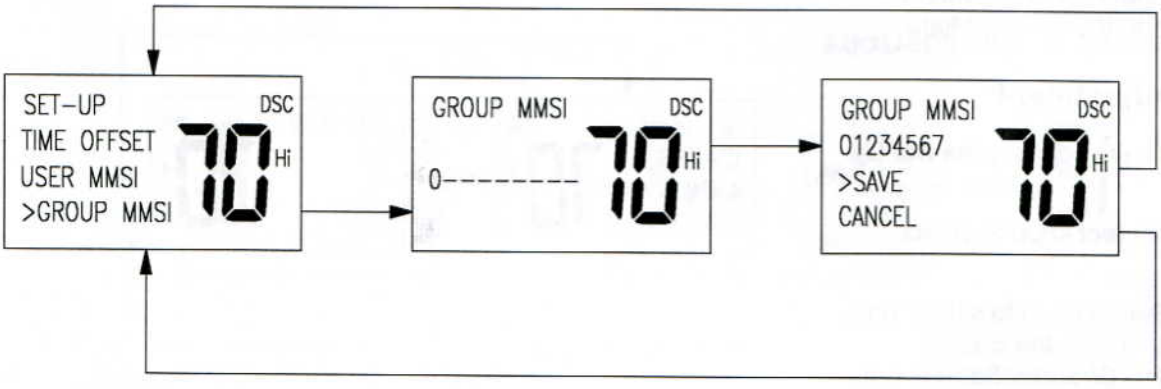
   The characters available in the digit string are 0-9 and "<" (back arrow). Selecting the "<" and pressing the ***Channel/Select*** knob selects the previous character in the MMSI for editing.
5. From the Confirmation Menu, Rotate the ***Channel/select*** knob to select "SAVE" (default selection) and press ***Channel/Select*** to permanently save the MMSI. **If at this stage you have incorrecty set the MMSI you will have to return the equipment to an accredited dealer for reset.**

   or Select "CANCEL" and press the ***Channel/Select*** knob to discard the information prior to SAVE and return to the Set-Up Main Menu.



6.13 Group MMSI Entry

The procedure is the same as that of the user's MMSI entry, with the exception that the Group MMSI will not be permanantly stored



6.14 Reset Operation

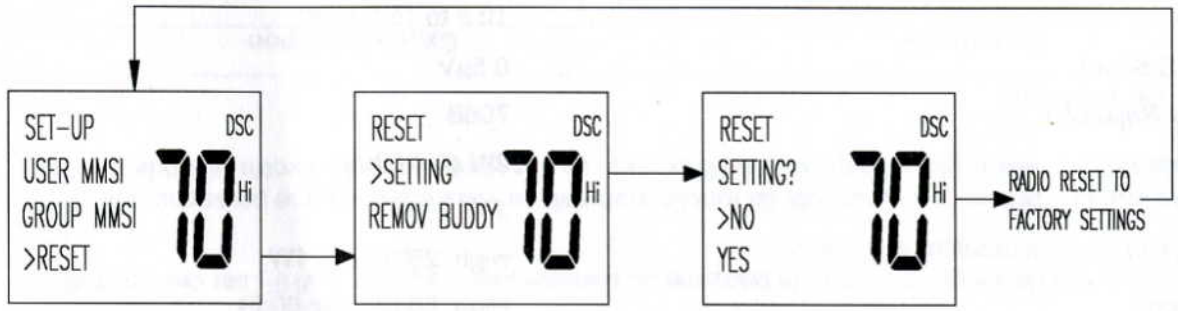
Follow this procedure to reset the User Settings.

1. Press and hold the ***DSC*** key to display the Set Up Main Menu.
2. Rotate the ***Channel/Select*** knob to select "RESET". Press the ***Channel/Select*** knob to select "RESET" for adjustment.

   The display reconfigures to show the Reset Menu Entry screen.
3. Rotate the ***Channel/Select*** knob to select "SETTINGS". Press the ***Channel/Select*** knob to enter.

   The display reconfigures to show the Confirmation Menu.
4. From the Confirmation Menu, select "YES" and press the ***Channel/Select*** knob to reset the category, and return to the Set-Up Main Menu. Select "NO" to abort function and return to the Set-Up Main Menu.

   All features are returned to factory settings, except User MMSI and Buddy List.



Maintenance

Your NAVICOM VHF Marine Radio is a marine radio water proofed to meet the requirement of JIS level 7, and should give good reliability when used in a marine enviroment.

The equipment is designed to be maintenance free. To keep your radio in good working condition:

- Never open the equipment, either the base station or handset case, as waterproof performance will be impaired
- If the radio becomes soiled or dusty, wipe it clean with a moist cloth.
- Never use solvents based on benzene or alcohol, as they will damage the radio surfaces.
- If your equipment becomes defective, never allow an unqualified person to tamper with internal adjustments. Please contact the local dealer for help.

TROUBLE SHOOTING

Item	Symptom	Cause/Remedy
1	Unit cannot be switched on.	• Check the connection to the base station. • Check the on/off switch.
2	No sound comes from the speaker	• Set [VOL] to a suitable level. • Set squelch to the threshold point.
3	Transmitting is impossible, or high power cannot be selected.	• Check to see if the PTT switch is defective. • Check to see if the microphone or MIC jack is defective. • Some channels are for low power or receive only, change to another channel. • Push ***H/L*** to select high power.
4	Low receiver sensitivity.	• Check the antenna for poor connection. • Check the connection between coaxial cable and base station.

Specification

TX Frequency	156.050 ~ 157.425 MHz
RX Frequency	156.025 ~162.025 MHz
Channels	55 INT Channels 10 Memory Channels 2 Special Channels
Modulation type	FM
Antenna impedance	50 Ohm
Microphone	condenser type
Power supply	10.8 to 15.6 v DC
Sensitivity at 12dB Sinad	0.5μV
Adjacent Channel Rejection	70dB
Audio output power	2W @ 8 Ohm
Audio Distortion	10%
RF Output Power	High: 25W/Low: 1W
Harmonic Emissions	High: 80dB/Low: 60dB
Dimensions (HWT)	71×161×147mm
Weight	1290g