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27 Feb 2014



RS90

Operating Manual

ENGLISH



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Preface

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All screens in this manual are simulated.

For free owner's manuals and the most current information on this product, its operation and accessories, visit our web site:
www.simrad-yachting.com

Navico Holding AS is not responsible for any changes or modifications to the radio not expressly approved by Navico AS as the responsible entity for its compliance. Modifications could void the user's authority to operate the radio.

Compliance statements

DISCLAIMER: It is the owner's sole responsibility to install and use the instrument and transducers in a manner that will not cause accidents, personal injury or property damage. The user of this product is solely responsible for observing safe boating practices.

NAVICO HOLDING AS. AND ITS SUBSIDIARIES, BRANCHES AND AFFILIATES DISCLAIM ALL LIABILITY FOR ANY USE OF THIS PRODUCT IN A WAY THAT MAY CAUSE ACCIDENTS, DAMAGE OR THAT MAY VIOLATE THE LAW.

Governing Language: This statement, any instruction manuals, user guides and other information relating to the product (Documentation) may be translated to, or has been translated from, another language (Translation). In the event of any conflict between any Translation of the Documentation, the English language version of the Documentation will be the official version of the Documentation.

This manual represents the RS90 as at the time of printing. Navico Holding AS. and its subsidiaries, branches and affiliates reserve the right to make changes to specifications without notice.

IMPORTANT

1. DSC functions will not operate on the RS90 until your MMSI has been entered.
2. The radio channels installed into this Simrad VHF radio may vary from country to country depending upon the model and government or national communications authority regulations.
3. Navico recommends that you check the radio operating licensing requirements of your country before using this Simrad VHF radio. The operator is solely responsible for observing proper radio installation and usage practices.
4. A DSC warning label is supplied with this Simrad VHF radio. To comply with FCC regulations, this label must be affixed in a location that is clearly visible from the operating controls of this radio. Make sure that the chosen location is clean and dry before applying this label.
5. This radio is designed to generate a digital maritime distress call to facilitate search and rescue. To be effective as a safety device, this radio must be used only within the geographic range of a shore-based VHF marine Channel 70 distress and safety watch system. The geographic range may vary but under normal conditions is approximately 20 nautical miles.

MMSI and license information

You must obtain a user MMSI (Maritime Mobile Service Identity) and enter it into your RS90 radio in order to use the DSC functions. Contact the appropriate authorities in your country. If you are unsure who to contact, consult your Simrad dealer.

The user MMSI is a unique nine digit number, similar to a personal telephone number. It is used on marine transceivers that are capable of using DSC (Digital Select Calling).

Depending upon your location, you may need a radio station license for the RS90. You may also need an individual operator's license.

Simrad recommends that you check the requirements of your national radio communications authorities before operating DSC functions.

RF emissions notice

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This device's antenna must be installed in accordance with provided instructions; and it must be operated with minimum 96 cm spacing between the antennas and all person's body (excluding extremities of hands, wrist and feet) during operation. Further, this transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

FCC statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

- **Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a normal installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
 - Increase the separation between the equipment and receiver.
 - Connect the equipment into an output on a circuit different from that to which the receiver is connected.
 - Consult the dealer or an experienced technician for help.
 - A shielded cable must be used when connecting a peripheral to the serial ports.

Industry Canada statement

This device complies with Industry Canada license-exempt RSS standard(s).

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'industrie Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Notice specific to the HS90 handset

This ISM device complies with Canadian ICES-001.

Maintain a minimum separation of 2.5 cm (1 inch) from the face.



Cet appareil ISM est conforme à la norme NMB-001 du Canada.

Maintenir une distance minimum de 2,5 cm (1 inch) de la surface.

CE compliance statement

This product complies with CE under R&TTE directive 1999/5/EC. The relevant Declaration of Conformity is available in the following website under the model documentation section:

<http://www.simrad-yachting.com>

	Important safety information Read carefully before installation and use
	Warning: Indicates a potentially hazardous situation that could result in death or serious injury.
	Caution: Indicates a potentially hazardous situation that could result in minor or moderate injury.

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About this manual

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This manual describes the operation of the Simrad RS90 marine VHF radio.

For instructions on installing the radio, please see the separate manual: *Simrad RS90 Marine VHF radio Installation Manual*.

This manual is organized as follows:

- System Overview
Describes the components and main features of the VHF radio.
 - Getting started
Explains how to use the equipment, including handsets and menus.
 - Operating procedures
Explains common radio operations, such as making a VHF call to a shore station or another vessel.
 - Waypoints
DSC
AIS
These sections explain how to use these more advanced features.
 - Setup
Tasks you need to do initially when setting up, and thereafter from time to time when you need to change a setting.
 - Appendices
Reference sections, including trouble shooting guide, VHF channel frequencies and technical data.
- **Note:** Different models of the RS90 marine VHF radio are provided for different countries, depending on the VHF radio regulations of each country.

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System Overview

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Introduction

The Simrad RS90 VHF radio is a comprehensive solution for marine VHF radio applications.

The radio comprises:

- RS90 VHF transceiver.
- One wired handset as standard, and optionally up to 3 more wired handsets. (Maximum of 4 wired handsets in total.)
- Up to 2 optional wireless handsets.
- Up to 4 optional external speakers.

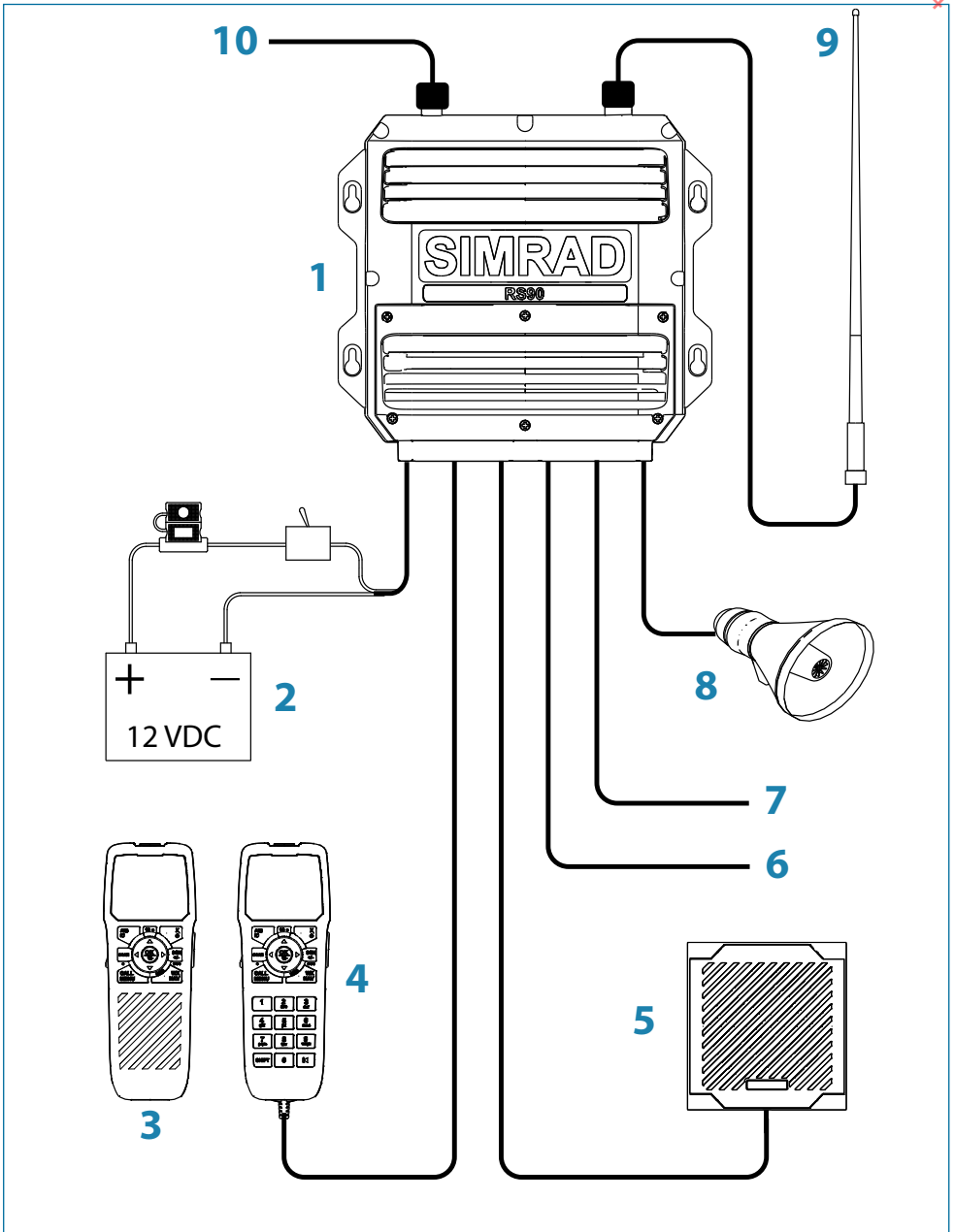
In addition to routine ship-to-ship or ship-to-shore VHF communications, the RS90 has many advanced features, including:

- NMEA 2000 and NMEA 0183 network connectivity, which allows the radio to share information with other onboard devices, such as a GPS, a chart plotter or a Navico multi-function display.
- Digital Selective Calling (DSC) for automated distress calls, and for calling individual vessels using their Maritime Mobile Service Identity (MMSI). Also includes a track buddy function.
- Automatic Identification System (AIS) for monitoring nearby vessels (receive only).
- Automatic Terminal Information Service (ATIS) function for controlled VHF communications in European inland waterways (EU models).
- Automatic weather alert using TONE and SAME systems (US models).
- Monitoring multiple VHF channels simultaneously (country specific).
- Intercom calls between handsets.
- Voice recording.
- Fog horn and loud-hailer modes.
- Horn button connection.
- Up to three instant favourite channel selections.

For detailed features and specifications, see “Appendix 10 - Technical specification” on page 107.

System overview diagram

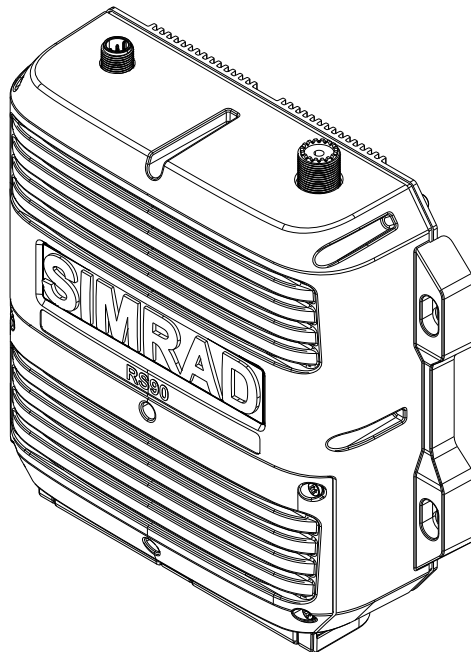
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System overview diagram - legend

Diagram label	Description
1	RS90 VHF radio transceiver
2	12 VDC power supply
3	Wireless handset
4	Wired handset
5	External loudspeaker
6	NMEA 0183 GPS and horn button
7	AIS data output
8	Loud hailer speaker
9	VHF antenna
10	NMEA 2000 network connection

RS90 Transceiver



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Getting started

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Caution: Under extreme operating conditions, the temperature of the rear heat-sink on this radio may exceed normal surface temperatures. Caution is advised to prevent possible skin burns.

Handsets

All the operating functions of the RS90 are carried out using the handsets. Each handset contains a microphone, a small internal loudspeaker and various buttons for controlling the radio.

Two types of handset are available:

- Up to four wired handsets can be connected. There must be at least one wired handset in the installation.
- Up to two wireless handsets can be installed. The wireless handsets communicate with the transceiver by 2.4 GHz radio communication. The wireless handsets are powered by internal rechargeable batteries, and are charged by inductive charging when on the cradle.

When there are multiple handsets in operation, they are synchronized so that there is no conflict of operation and they each display the same information on their screens.

Handset naming

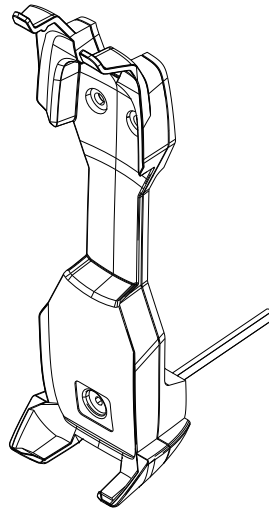
Handset names appear on screen at times—for example, when another handset has control of the radio.

Wired handsets HS1, HS2, HS3, HS4

The above handsets—1 standard and 3 optional—are connected to the transceiver. The volume controls on these handsets control the corresponding external speakers.

Charging a wireless handset

When a wireless handset is not in use, it should be placed on its cradle for charging.



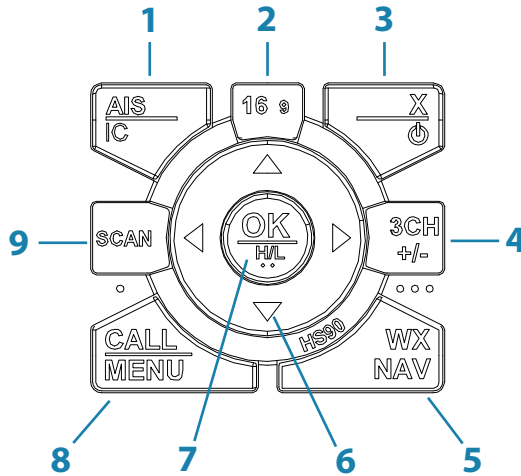
Handset operation priority

If you want to use HS1, but it displays “HS# IN USE,” it means that another handset is operating.

To shift control to HS1:

1. Press [X].
2. The display shows “GET PRIORITY?”
 - Press [OK] to take over control.
 - Or, [X] to leave the other handset in control.

Handset control buttons



Label	Description
1	Short press for AIS menu. Long press for intercom mode.
2	Press to select the priority channel.
3	Short press for Exit key. Long press for power off.
4	Three favourite channel key.
5	Short press for weather station (US models). Long press for Navigation mode.
6	Change channel, or scroll menu options
7	Short press for [OK] key. Long press to toggle high/low power.
8	Short press for DSC menu. Long press for menu.
9	Press to start scanning channels.

For more information on keys, see “Appendix 2 - Keys reference” on page 97.

Keys

Some keys on the handsets have more than one function, depending on what mode the radio is in. For example, [OK] for accepting input and [H/L] for selecting high or low transmission power are activated using the same key. To activate the lower function on the key label, press and hold the key until the radio responds.



A complete reference to keys is given in “Appendix 2 - Keys reference” on page 97.

Soft keys

A soft key is a name that appears at the bottom of the screen and provides additional functionality to the [SCAN] and/or [OK] and/or [3CH] buttons during DSC operations.

Dot symbols on the handset keys and just under the display screen indicate which keys correspond to the soft keys as follows:

•	••	•••
[SCAN] key	[OK] key	[3CH] key

The use of these keys is explained in the DSC section of this manual.

Switching on and off

Switching on the system

The VHF radio is switched on from a wired handset.

To switch on the radio:

1. Press and hold [X] on a wired handset until the startup screen showing version numbers appears.
2. When prompted, press [X] to exit the startup screen and display the main operating screen.

This switches on the transceiver and the wired handset.

- **Note:** A wireless handset can only switch itself on and off. See “Switching on a wireless handset” on page 19.

Switching off the system

The system is switched off by holding down the [X] key on a wired handset until the display shows “Release the key to power off.”

Just one handset

1. In standby mode, press [X] on the wired handset until the display shows “Release the key to power off.”
2. Release the [X] key.

More than one wired handset

HS1 (handset 1) has a power-off menu. All the other handsets simply power themselves off as above.

Handset 1 power-off menu:

- **SYSTEM**
Turns off all handsets and the transceiver.
- **HS1**
Turns off the handset itself.
Displays “SYSTEM IS WORKING” with no backlight.

- **Note:** You can ignore the power-off menu and keep holding down [X] until the display shows “Release the key to power off.”

Switching on a wireless handset

- Press and hold [X] until the display illuminates.

The display shows “Searching,” then “Connecting,” then the main operating screen.

→ Notes:

- This only switches on the individual wireless handset, not the transceiver.
- If the transceiver is off, the wireless handset continues to display “Searching.”

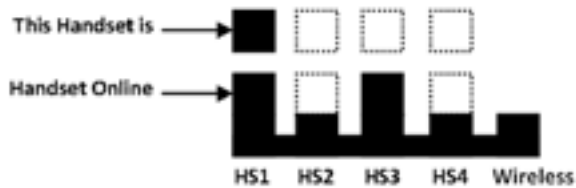
Switching off a wireless handset

→ **Note:** This procedure only switches off the wireless handset. It does not switch off any other handsets or the transceiver.

1. Press and hold [X] until the following message appears:
"Release power key to power off."
2. Release the [X] key.

Handset status display

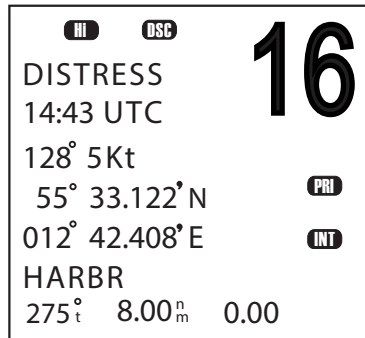
A small icon located on the lower right of the screen shows the status of all connected handsets.



The above example shows that handset 1 and handset 3 are online and this handset is handset 1.

The standby screen

The following illustration shows a typical operating screen in standby mode. The radio is in standby mode when it is waiting to send or receive calls.



The above screen shows:

- The radio is tuned to channel 16, which has been designated as the priority channel (PRI).
- In this unit, Channel 16 has been given the name “DISTRESS.”
- Transmitting power is set to high (Hi).
- DSC is enabled.
- The time is 14:43 UTC.
- The current course is 128° true and speed over land is 5.0 knots.
- The current latitude is 55°33.122'N and longitude 012°42.408'E.
- The channel bank selected is International (INT).
- The name of the destination waypoint is HARBR. It is 8 nautical miles away at a bearing of 275° true.

Modes

The RS90 has several different modes of operation. The main mode is standby mode, during which the radio is ready to send or receive VHF calls. Generally, pressing the [X] key will exit any special mode and return to standby mode.

Scanning mode

In scanning mode, the radio scans selected channels for radio activity.

Navigation mode

Navigation mode displays distance and bearing to a selected waypoint.

Hailer mode

Hailer mode allows you to use the radio to hail other vessels or deck crew through a connected loud-hailer speaker.

Fog horn mode

Fog horn mode allows you to use the radio to sound a fog horn tone through a connected loud-hailer speaker.

Intercom mode

Intercom mode allows you to use the handsets to communicate from one handset to another in your vessel.

Standby Mode

In standby mode, the RS90 displays the main operating screen on the handset(s) and is ready to send or receive calls on the selected channel.

Changing channel

Different jurisdictions in the world have allocated different sets of VHF radio channels for different purposes. These sets are known as channel banks. The available channel banks and their corresponding channels are given in "Appendix 11 - US and ROW VHF marine channel charts" on page 111.

You can switch the RS90 to any channel that is available in your geographic area. Normally the radio is left tuned to the priority channel (CH16 or CH09) in case an emergency call is broadcast on that channel. The RS90 can also be set to monitor several channels at the same time. In this case, the radio continuously scans the selected channels and, if activity is heard on a channel, it will switch to that channel while the activity continues. Then it will revert to scanning. See "Scanning channels" on page 31.

You can use one of the following methods to change channel:

- Press [16/9] to switch immediately to the priority channel (see "Priority channels" below).
- Press ▲ or ▼ until you reach the required channel number.

- Press and hold ▲ or ▼ to rapidly scroll through the channel numbers. When the number you require is displayed, release the key.
- Input the number on the keypad (wired handset only), and when the required channel number is flashing on screen, press [OK], or wait for 2 seconds for the number to be accepted automatically. When entering a single-digit channel number, prefix the channel number with 0.
- Repeat press [3CH] to scroll through your three favourite channels. See “Three favourite channels 3CH” on page 30.
- Press [WX] and then ▲ or ▼ to tune to a weather station (US model only). See “Receiving weather alerts (US model only)” on page 28.
- Press [WX] to go directly to a set favourite channel (EU models only).

Priority channels

Channel 16 is the international emergency priority channel. On Channel 16, operators must give priority to any emergency calls occurring on that frequency. In the US, Channel 9 is also an emergency priority channel.

To switch directly to Channel 16 (or Channel 9 if configured):

- Press the red 16/9 button.



→ Notes

- The default emergency channel is CH16. On US models of the radio, you can change the default emergency channel to CH9 by holding down 16/9 until the unit beeps and displays 09. Repeat the procedure to change back to CH16 as the default emergency channel.
- On US models, you can enable/disable access to CH9; see “Setting the priority channel” on page 76.

Special channel A/B

Certain USA channels have ‘A’ or ‘B’ suffixes.

Adjusting the volume

The volume control on the right hand side of the handset provides up and down control of the handset speaker volume and the external speaker volume.

Adjusting squelch

The squelch adjustment allows you to adjust the sensitivity of the radio so that background noise is minimized. In areas of high static noise, such as close to large cities, you can improve quality of reception by adjusting the squelch.

- Use the ◀ and ▶ keys to adjust the level up or down respectively.
 - Adjust the level until the background noise just disappears.
- **Note:** You can also adjust the sensitivity of the VHF receiver. See “Radio sensitivity” on page 94.

Setting transmission power

The RS90 has two transmission power settings:

High 25 W

Low 1 W

To change the power setting:

Press and hold [H/L] until the Hi or Lo icon on the display changes.

→ Notes

- Channel 16 always remains in high transmission power.
- Some channels allow only low-power transmissions. If you try to change to high power, the RS90 will sound an error beep.
- Some channels allow only low power transmissions initially, but can be changed to high power by holding down [H/L] and PTT at the same time.
- See “Appendix 11 - US and ROW VHF marine channel charts” on page 111 for a list of channel data.

PTT Key

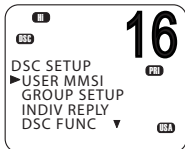
The Push to Talk (PTT) key activates the microphone and transmits your voice over the selected channel.

→ Notes

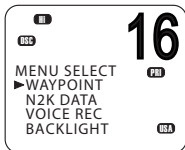
- If you press PTT while a menu is displayed, the radio will exit the menu without making any selection.
- DSC transmission has higher priority than PTT voice transmission.
- During PTT transmitting, the radio cannot receive a DSC call.
- If PTT gets stuck or accidentally held in the talk position, a built-in timer sounds an error beep and shuts down the transmission after 5 minutes.

Using the menus

The [CALL/MENU] button provides access to two different menus as follows:



- Short press to access the DSC menu.
- Long press (press and hold) to access the main menu.



To use the menus:

- Use ▼ or ▲ to scroll to the option you want.
- Press [OK] to select a menu option, or
- Press [X] to go back without selecting an option.

- **Note:** If the radio is left in menu mode, after a default time of 10 minutes, it beeps a warning and then automatically returns to standby mode.

Shortcut Keys

The RS90 wired handset keypad includes a SHIFT key that modifies the function of some keys.

- Press [SHIFT] to display the shift icon (S), and then press the number key to access the required function.

Some menu items can be accessed via shortcut keys.

For a list of shortcut keys, see “Appendix 3 - Shift keys” on page 100.

Entering data

Entering data with a wired handset

Enter data using the keypad. The first press of a key inputs the number corresponding to the key; subsequent presses input letters of the alphabet as indicated on the key. For example, 2, A, B, and C are typed using the same key, in a similar way to using a mobile phone keypad.

After a short pause, the cursor automatically jumps to the next space; or, you can press [OK] to move to the next space immediately.

→ **Note:** the keypad only types uppercase letters, although the labels on the keys are lower case.

To replace a character:

- Use the ◀ and ▶ keys to arrive at the character. You can then type over the character.

To finish entering data:

Press [OK] repeatedly to reach the end of the line. The cursor will then move to the next input required, or a save/cancel option will be displayed.

→ **Note:** You can press [X] at any time to go back one step.

Entering data with a wireless handset

Use the ▲ and ▼ keys to arrive at the character you want to enter, and then press [OK].

Warning messages

See "Appendix 6 - Warning Messages" on page 102.

Alert tones

See "Appendix 5 - Beep tones and call alerts" on page 102.

4

Operating procedures

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Making a routine radio call

Making a routine ship to ship or ship to shore call.

1. Select a calling channel.
See “Changing channel” on page 22.
 2. Listen to make sure that there is no traffic on the channel.
 3. Hold down [PTT] and announce the station you want to contact and your own vessel’s details. When you have finished speaking, say “Over” and then release [PTT].
 4. When you receive a reply on the calling channel, agree a working channel.
 5. Change to the working channel.
 6. Continue the conversation:
 - Hold down [PTT] while you are speaking.
 - Release [PTT] while you are listening.
 7. When finished, press [16/9] to return to the radio watch channel.
- **Note:** When you call a coast station, the coast station operator normally states a suitable working channel.

Calling a buddy

You can call a buddy using their MMSI on the DSC system. For further information, see “Introduction to DSC” on page 41.

Making a channel 16/9 distress call

1. If not already on the priority channel, press the red [16/9] key.



2. Listen to make sure there is no traffic on the channel.
3. Hold down [PTT] and announce your distress call.
4. Say your call sign, details of your vessel, its position and the nature of the distress.

5. Say “over” and then release [PTT] when you have finished speaking.
6. Allow a short time for a reply.
7. If you don’t hear a reply, repeat the distress call (steps 3 to 6 as above).
8. When you receive a reply, continue the conversation:
 - Hold down [PTT] while you are speaking.
 - Release [PTT] while you are listening.

You may be asked to change to a working channel.

→ **Notes**

- In the USA, you can toggle between Channel 16 and Channel 9 as the priority channel. Hold down [16/9] until a beep sounds and the required priority channel is displayed.
- This feature needs to be setup in the radio settings (“Setting the priority channel” on page 76).

Making a DSC distress call

Using the DSC system (where available) you can make a distress call by pressing a single Distress button. For further information, see “Introduction to DSC” on page 41.

Receiving weather alerts (US model only)

The National Oceanic and Atmospheric Administration (NOAA) provides several weather forecast channels on USA and Canadian channel banks. If severe weather is forecast, the NOAA broadcasts a weather alert on 1050 Hz.

To access weather alerts:

1. Short press [WX] to enter WX mode.
2. Press ▲ or ▼ to change WX channel.
3. If WX TONE ALERT setting is ON (see “Setting up weather tone alert” on page 77), the radio will monitor the WX channel you select. If an alert tone is broadcast from the NOAA weather station, the weather alert is picked up automatically and the RS90 alarm sounds. Press any key to cancel the alarm and to hear the weather alert message.
4. When finished, press [WX] again or [X] to exit WX mode.

→ **Note:** In WX mode, the Wx icon appears on screen.

Receiving SAME alerts (US model only)

The NOAA All Hazards Weather Radio Service (NWR) works in conjunction with the Emergency Alert System (EAS) to issue weather alerts for specific geographic areas or weather warnings. It uses a digital encoding system known as Specific Area Message Encoding (SAME) to broadcast these alerts.

Each transmitter in the NWR network is identified with a unique 6-digit SAME code.

If SAME is enabled and the 6-digit country IDs you want to monitor have been entered, the radio will sound the weather alarm when it detects a weather alert on the selected weather channel.

For SAME alert setup, see "Setting up SAME alert" on page 78.

Receiving a SAME ALERT

If SAME ALERT is ON and an NWR or EAS alert for your geographic area is broadcast, the RS90 detects the alert signal and sounds the alarm.

Press any key to cancel the alarm.

- If the alert is being sent by NOAA NWR, the radio automatically tunes to the designated frequency so that you can listen to the alert.
- If the alert is being sent by the EAS, the nature of the alert is shown on screen as WARNING, WATCH, ADVISORY, or TEST.

Press any key to show the nature of the alert.

→ **Note:** The list of alerts is shown in "Appendix 5 - Beep tones and call alerts" on page 102.

Receiving SAME TEST messages

In addition to the WARNING, WATCH and ADVISORY alerts, the EAS also send out TEST messages so that you can check that your WX ALERT setup is working correctly. The TEST message is usually transmitted between 1000 and 1200 (10.00AM and noon) every Wednesday.

If your WX ALERT setup is working correctly, the alert sounds and TEST is displayed on screen, followed by a broadcast message from the National Weather Service.

→ **Note:** If there is a threat of severe weather, the test will be postponed until the next fine weather day.

Favourite channel (non-US models)

In standby mode, press [WX] to access your favourite channel, press again or [X] to go back to the last working channel.

→ Notes

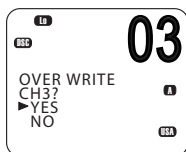
- To set up the favourite channel, see “Setting up a favourite channel” on page 77.
- You can store just one channel as the favourite channel. It can, for example, be a weather reporting station.

Three favourite channels 3CH

- Once set up, you can use the three favourite channels in two ways:
 - Repeat press [3CH] to toggle between your three favourite channels, or
 - Scan the three channels and the priority channel.

To add a favourite channel:

- To add a favourite channel for the first time, select that channel then hold 3CH to store it in the CH1 location.
- You can repeat the procedure to store two more favourite channels in the CH2 and CH3 locations respectively.
- Once the three locations are full, if you try to add another favourite channel, the radio will overwrite the CH3 location after prompting you to confirm.



To delete a favourite channel:

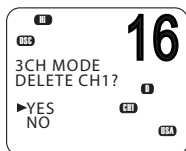
- Select that channel and then hold down [3CH]. The radio will remove that favourite channel after prompting you to confirm.

To toggle between your three favourite channels:

- Press [3CH] to enter 3CH mode.
- The radio displays “3CH MODE” and CH1, CH2, or CH3 to show which of your favourite channels is currently selected.
- Repeat press [3CH] to switch between the three channels.

To exit 3CH mode:

- Press [X].



Scanning channels

The RS90 can automatically monitor more than one channel at the same time. It scans a selected range of channels, and when a valid signal is received, the radio stops scanning and remains on that channel so that you can hear the communication. However, if the signal from the channel ceases for more than 5 seconds, the scan automatically restarts.

Four scan modes are provided:

- **All scan**
Scans all available channels in sequence, but also checks the priority channel every 2 seconds.
- **Dual watch scan**
Scans the selected channel and channel 16.
- **3CH scan**
Scans your three favourite channels and the priority channel.
- **Tri watch scan** (US models only)
Scans the current channel, channel 16 and channel 9.

ALL SCAN mode

Hold down [SCAN] for about 3 seconds to start ALL SCAN mode. The radio displays the SCAN icon and "ALL SCAN." You will see the channel numbers changing.

- If you hear a communication of interest, press [SCAN] or [PTT] to stop at the currently scanned channel.
 - Press [X] to quit scan mode and return to the previously selected channel.
- **Notes**
- Scan is not allowed in some EU countries.
 - If TONE ALERT or SAME is enabled (US models only), the weather channel is also scanned.
 - If you are in Navigation mode and want to scan the DSC channels while staying in that mode, just hold down SCAN. For information on Navigation mode, see "Navigating to a waypoint" on page 39.

Skipping busy channels

If one channel is always busy with traffic, you can set the radio to skip that channel during scanning.

To skip a channel:

- While the channel is displayed during scan, press [OK] to skip over it.

To resume scanning a skipped channel:

- With scanning OFF, as you scroll up and down through channels, the SKIP icon will be displayed when you are on a skipped channel. With the SKIP channel selected, press [OK] to cancel the SKIP function.

→ Notes

- You cannot skip the priority channel.
- The SKIP icon will disappear when the radio is powered OFF/ON.

3CH scan mode

- With any of your favourite channels selected (by pressing the 3CH key), hold down [SCAN] to start scanning your favourite channels and the priority channel.
- Press [SCAN] again to stop at the broadcast channel.
- During scanning, press [X] to cancel 3CH scanning and return to the previously selected channel.
- Press SCAN or PTT to stop at the currently scanned channel.
- To scan only one of your favourite channels, press 3CH then immediately press and release SCAN.

For further information on 3CH, see “Making a routine radio call” on page 27.

- **Note:** 3CH scan functionality is limited in some European countries and, if ATIS is enabled, the 3CH scan mode will be disabled.

Dual watch scan

Dual watch scan monitors the current working channel and the priority channel.

To enter dual watch scan:

- Short press [SCAN].
The DW icon will be displayed on screen.

To exit dual watch scan:

- Press [SCAN] or [X].

→ **Notes**

- For US models, you can select Channel 9 as the priority channel (see “Priority channels” on page 23).
- To scan both channel 16 and channel 9, see “Tri watch scan” below.

Tri watch scan

(US models only)

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

For tri watch, you need to enable both channel 16 and channel 9 as priority channels. See “Setting the priority channel” on page 76.

To enter tri watch scan:

- Short press [SCAN].
The TRI icon will be displayed on screen.

To exit tri watch scan:

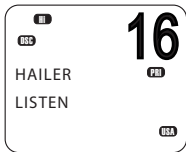
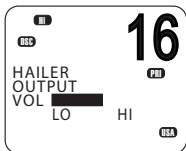
- Press [SCAN] or [X].

• **Using the hailer**

If the RS90 is connected to a suitable public address (PA) speaker, you can use the Hailer function to hail other vessels or deck crew. The Hailer function also features a listen-back mode, which uses the PA speaker as a microphone to listen for a response.

1. Press and hold [AIS/IC] until the HAILER menu appears.
2. Select HAILER.
3. Press [PTT] to talk.
4. Release [PTT] to listen for a response.
5. When finished, press [X] to exit Hailer mode.

→ **Note:** While pressing [PTT], you can change the volume of the PA speaker using the volume control on the side of the handset.



Using the fog horn

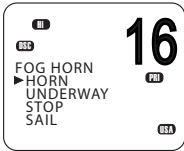
If the RS90 is connected to a suitable public address (PA) speaker, you can use the Fog Horn function to sound certain international standard fog horn tones through the PA speaker.



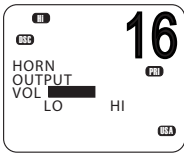
1. Press and hold [AIS/IC] until the HAILER menu appears.
2. Select FOG HORN.

There are 8 internationally recognized fog horn signals available:

HORN	Manual operation
UNDERWAY	One long tone
STOP	Two long tone
SAIL	One long, two short
ANCHOR	One long warble
TOW	One long, three short
AGROUND	Warble sequence
SIREN	Manual operation



3. Select the required signal, then press [OK] to start.
 - Press [OK] to sound the HORN or SIREN.
 - The other signals will sound automatically approximately every two minutes until you press [X] to cancel.



4. When finished, press [X] to exit horn mode.



→ Notes

- When the fog horn is not sounding, it is in Listen mode.
- While pressing [PTT], you can change the volume of the PA system using the volume control on the side of the handset.
- In Horn mode, you can press [PTT] to talk through the PA speaker.
- If a horn button has been installed, you can press the button for a momentary sounding of the horn.

Using the intercom

When two or more handsets (wired or wireless) are installed, you can use the radio to communicate between handsets.



1. Press and hold [AIS/IC].
2. Select INTERCOM from the menu.
3. Press [PTT] to talk.
4. When finished, press [X] to quit Intercom mode.



→ Notes

- Intercom mode only works when one or two wireless handsets are installed. While the intercom is being used, the VHF radio is disabled, except for incoming DSC calls.
- The intercom system is half duplex; you cannot receive and transmit at the same time; you must release the [PTT] key to listen.
- The receiving handset(s) can adjust their volume controls.

Using the announce function

You can use the handset to make announcements to the other handsets and any external speakers that are connected.



1. Press and hold [AIS/IC] until the HAILER menu appears.
2. Select ANNOUNCE.
3. Press [PTT] to talk.
4. When finished, press [X] to exit Announce mode.



→ Notes

- The Announce function does not listen for a response.
- During Announce mode, if a voice signal is received on a VHF channel, an Rx icon appears on screen.
- If an alert such as ATIS, AIS, DSC or WX is received, or the [DISTRESS] key is pressed or a DSC call received, the radio will exit Announce mode and handle the alert or DSC call.

Using the voice recorder

When activated, the voice recorder function records all received and transmitted voice communications.

If memory is full, it will overwrite previous recordings.

Recording

Long press the voice recorder key to access the recording menu. Select RECORDER and then ON' to enable the recording function.

Playback

Press the voice recorder key to play the recording. A playback icon will be displayed on lower right of the screen. During playback, select 'FWD 5S' from the menu to fast forward 5 seconds.

When finished playing back, the radio will return to standby mode.

Sharing NMEA 2000 data

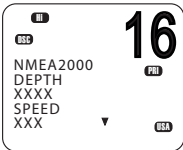
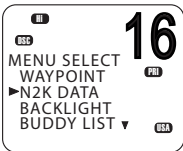
NMEA 2000 (N2K) is a communications network standard used for connecting marine electronic devices. It is the successor to NMEA 0183.

→ **Note:** The RS90 also supports NMEA 0183.

Various devices can be connected via a network cable and can share data on the network. This allows the devices to work together and, for example, one display unit can show information from different sources.

The RS90 uses N2K to share the following data:

- Waypoint data to a chart plotter. See "Sending waypoint data to a chart plotter" on page 40.
- AIS
- Display navigation data received from other devices: Depth, speed, course, heading and wind data.



5

Waypoint procedures

A waypoint refers to the latitude, longitude and name of a place that you have entered into the radio. A waypoint can be a destination, a point along a planned course, or any location useful for navigation, such as a fishing spot.

You can use waypoints as follows:

- Display the coordinates, bearing and distance to a waypoint on the standby screen. See “Navigating to a waypoint” on page 39.
- Output a waypoint’s coordinates and other details via NMEA 2000 for display on a chart plotter or other compatible device. See “Sending waypoint data to a chart plotter” on page 40.

→ **Note**

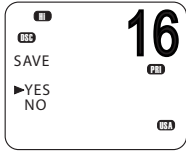
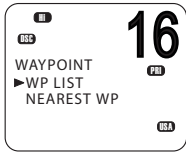
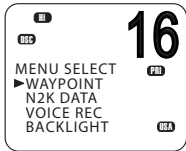
The RS90 can store up to 200 waypoints.

Adding a new waypoint

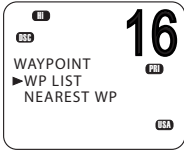
1. Select MENU → WAYPOINT → WP LIST.
Your waypoint list will be displayed.
2. Press [OK].
NEW WP starts to flash.
3. Press [OK] again to add a new waypoint.
4. Enter a waypoint name (maximum 6 characters).
5. Enter the latitude. Use ▲ or ▼ key to select N or S as required, and then press [OK] to move to the longitude setting.
6. Enter the longitude. Press [OK] once you have selected E or W.
7. When prompted, select YES or NO to save the new waypoint.

→ **Note**

When the waypoint list is full, you must delete an entry before you can create a new entry.



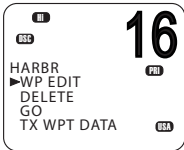
Editing a waypoint



1. Select MENU → WAYPOINT → WP LIST.
The display shows your list of waypoints.

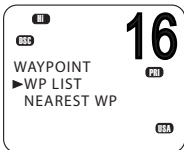


2. Press [OK].
NEW WP starts to flash.
3. Scroll down to the entry you want to edit.
4. While the required waypoint is flashing, press [OK].
5. To edit the waypoint, select WP EDIT.



6. Edit the waypoint name, latitude or longitude. You can press [OK] repeatedly until the cursor moves to the required place.
7. When finished, press [OK] repeatedly if necessary to reach the SAVE prompt.
8. Select YES or NO to save the data as required.

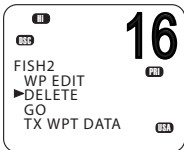
Deleting a waypoint



1. Select MENU → WAYPOINT → WP LIST.
The display shows your list of waypoints.



2. Press [OK].
NEW WP starts to flash.
3. Scroll down to the entry you want to delete.
4. While the required waypoint is flashing, press [OK].
5. Select DELETE.



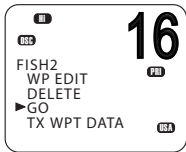
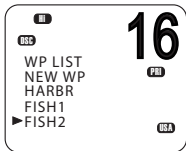
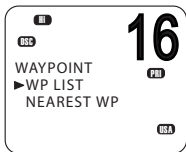
6. If you select YES at the prompt, the waypoint will be deleted immediately.

Navigating to a waypoint

Navigating to a waypoint requires two steps:

- Selecting which waypoint you want to navigate to.
- Pressing [NAV] to go to Navigation mode.

These steps are explained below.



Selecting a waypoint from your list

1. Select MENU → WAYPOINT → WP LIST.
2. Press [OK] and then scroll to the required waypoint and press [OK] again.
3. Select GO.
4. When prompted, select YES.

When in Navigation mode (see below), the distance and bearing from your current position to the selected waypoint will be displayed on the bottom line of the standby screen.

Selecting the nearest waypoint

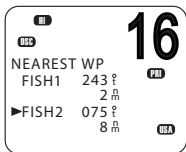
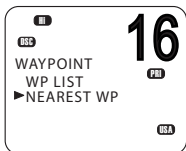
→ **Note:** This option is only available when a valid signal from a GPS device is present.

1. Select MENU → WAYPOINT → NEAREST WP.

The display shows your list of waypoints with the nearest at the top.

2. Scroll to the required waypoint and press [OK].

When in Navigation mode, the distance and bearing to it from your current position will be shown on the bottom line of the standby screen.



Entering navigation mode

- Long press [NAV] to enter navigation mode.

In navigation mode, the following details about the destination waypoint will be displayed on the standby screen:

Name of waypoint

B: Bearing in degrees; 't' for true

D: Distance

X: Cross track error

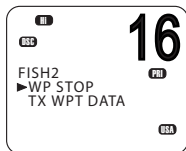
Cross track error is the distance the vessel is to one side of the straight line between two waypoints.

Exiting navigation mode

- Long press [NAV] or press [X].

Stop navigating to a waypoint

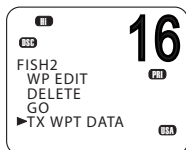
1. Select MENU → WAYPOINT → WP LIST.
2. Press [OK] then scroll to the required waypoint and press [OK] again.
3. Select WP STOP.
4. When prompted, select YES.



Sending waypoint data to a chart plotter

You can send waypoint data via NMEA 2000 to a compatible chart plotter.

1. Select MENU → WAYPOINT → WP LIST.
The display shows your list of waypoints.
2. Press [OK].
3. Scroll to the required waypoint, and then press [OK].
4. Select TX WPT DATA to send the data to the chart plotter.



6

DSC Procedures

Draft v5.0
27 Feb 2014

Introduction to DSC

DSC (Digital Selective Calling) is part of the Global Maritime Distress and Safety System. It allows radio stations to contact each other on a dedicated digital channel (channel 70). The radios automatically exchange the digital contact and acknowledgement messages on channel 70, freeing up the other VHF channels for voice communications.

Once they have established contact, both radios automatically switch to a VHF working channel for the operators to carry out normal voice communication.

Each DSC radio has a unique 9-digit number, known as a Maritime Mobile Service Identity (MMSI), which is used to contact that individual radio.

DSC radios continuously monitor channel 70 irrespective of what other channels they are working on. If someone calls your vessel via DSC, your radio will sound an alert tone for you to respond to the call.

If the RS90 radio is connected to a GPS system, it will automatically send your location when calling other stations. This is especially useful for distress calls.

DSC process

The calling and acknowledging process on channel 70 operates as follows:

1. The calling radio transmits a DSC signal on channel 70.
2. Receiving radio(s) sound alert tones for their operators.
3. For individual, LL request and DSC test calls, the receiving radio sends a DSC acknowledge signal on channel 70.
4. Both the calling and receiving radios switch to a working VHF channel (except for LL request and DSC test calls).
5. Calling and receiving operators commence normal VHF voice communications on the working channel.
6. Press [X] to return to standby mode.

DSC Distress calls

Initiating an UNDEFINED distress call immediately



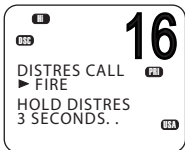
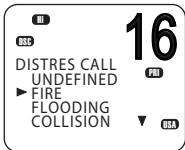
1. Flip open the red cover on top of the handset.
2. Press and hold the red [DISTRESS] key for about 3 seconds.

The radio counts down the 3 seconds, and then:

- Beeps loudly,
- Displays “DISTRESS CALL SENDING” on screen, and
- Sends out the UNDEFINED distress call to all stations on channel 70.

3. Release the [DISTRESS] key.
4. If you have time, observe any acknowledgement of your call and follow up by sending a MAYDAY distress call on Channel 16. See “Continuing a distress call” on page 44.

Initiating a distress call of specific nature



1. Flip open the red cover on top of the handset.
2. Press the red [DISTRESS] key briefly.
3. The radio will display a list for you to select the nature of the distress:

UNDEFINED
FIRE
FLOODING
COLLISION
GROUNDING
LISTING
SINKING
ADRIFT
ABANDONING
PIRACY
OVER BOARD

4. USE the ▲ and ▼ keys to reach the required nature of distress, and then press and hold the [DISTRESS] key for about 3 seconds.

The radio counts down the 3 seconds, and then:

- Beeps loudly,
- Displays “DISTRESS CALL SENDING” on screen, and
- Sends out the specified distress call to all stations on channel 70.

5. Release the [DISTRESS] key.

Continuing a distress call

1. After you have initiated a distress call as above, the radio goes into call repeat mode—it automatically repeats the distress call approximately every 4 minutes, until the call is acknowledged by an official search and rescue station.

The display shows the time remaining to the next resend.

You can press ▼ or ▲ to scroll through the transmitted Distress call information.

2. You now have the following soft-key options:
 - **RESEND**
Displays “HOLD DISTRESS 3 SECONDS TO SEND.” You can then:
 - Hold down the red [DISTRESS] key for 3 seconds to resend the call, or
 - Press the [EXIT] soft key to return to waiting for an acknowledgement.
 - **PAUSE**
Pauses the call repeat mode. You can then:
 - Press the [EXIT] soft key to resume the same call.
 - **CANCEL**
Displays “DISTRESS CALL SEND CANCEL.” You can then:
 - Press the [NO] soft key to return to waiting for an acknowledgement.
 - Press the [YES] soft key to send the DISTRESS CANCEL signal.
 - Press [PTT] and report your situation using the handset.
 - When finished talking, press [X] to return to standby mode.
3. After receiving an acknowledgment, press the [SILENC] soft key.
4. Press [X] to quit the current distress acknowledgment.

→ Notes

- Prior to receiving an acknowledgement, you cannot terminate the distress alert call. It can only be cancelled by completing the distress call cancel process as described above.
-
- Call information is stored in the Distress Call Log. See “Calling using the distress log” on page 53.

Receiving a distress call

When the radio receives a DSC distress call, it:

- Sounds a two-tone alarm through the handset(s) and speaker(s) and
- Automatically switches to channel 16 after 10 seconds if there is no user intervention.

If the two-tone distress alarm sounds on your radio:

1. Press the [SILENC] soft key to silence the alert.

You do not need to send a DSC acknowledgement; this will be done by an official search and rescue station.

2. Maintain a listening watch on Channel 16 for voice communications from ship and coast stations about the distress.
3. You can then:
 - Press ▼ or ▲ to scroll through details of the distress call,
 - Press [PTT] to talk, or
 - Press [X] to exit the DSC session.

Distress acknowledgement: (DISTRESS ACK)
or distress relay all ships: (DISTRESS REL)

Only official Search and Rescue stations are permitted to send these signals.

When your radio receives a Distress Acknowledgement signal it does the following:

- Cancels any Distress Mode transmissions,
 - Sounds a two-tone alert, and
 - Automatically switches to channel 16 after 10 seconds if there is no user intervention.
1. Press the [SILENC] soft key to silence the alert.
 2. Press the [ACCEPT] soft key to switch to CH16 immediately.
 3. Maintain a listening watch on CH16, and standby to give assistance.
 4. You can:
 - Press ▼ or ▲ to scroll through details of the call,
 - Press PTT to talk to the coast station or other ship, or
 - Press [X] to exit the DSC session.

Distress relay individual (INDIV DISTR RELAY)

When the radio receives an Individual Distress Relay call, it sounds the alert tone and displays INDIV DISTR RELAY.

1. Press the [SILENC] soft key to silence the alarm.
2. You can then:
 - Press ▼ or ▲ to scroll through details of the call.
 - All models
Press the [ACCEPT] soft key to immediately accept the change to CH16. Note: The radio automatically changes to CH16 after 10 seconds.
 - US models
Press [ACK] soft key to ACK the call.
 - Press [X] to quit the current DSC session.

Sending routine DSC calls

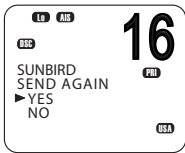
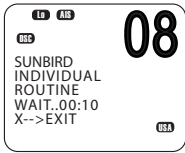
Briefly press [CALL / MENU] to access the DSC menu options:

Call type	Page
INDIVIDUAL	page 48
LAST CALL	page 49
GROUP	page 50
ALL SHIPS	page 51
CALL LOG	page 52
DISTR LOG	page 53
SENT CALL	page 54
LL REQUEST	page 54
TRACK BUDDY	page 55
DSC TEST	page 58

The above functions are explained in the sections below.

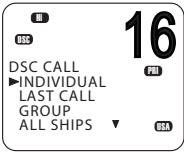
To make a DSC Distress call, see “DSC Distress calls” on page 43.

General usage

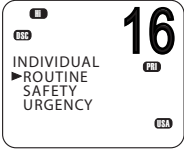


- When an alert sounds, press the [SILENC] soft key to stop the beeping sound.
- When choosing a working channel, select INTER-SHIP; the radio will automatically list suitable ship-to-ship (Simplex) channels that you can use for a particular function. Duplex channels cannot usually be called, however, if you wish to use a Duplex channel, select MANUAL, and then select your channel of choice. If the call is to a Coast Station the radio will recognize this and specify the correct working channel.
- After sending an LL request, the radio waits for 30 seconds for an acknowledgement before prompting you to send again.

Sending an individual DSC Call

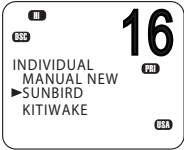


1. Select DSC MENU → INDIVIDUAL.
2. Select the priority level: ROUTINE, SAFETY or URGENCY.

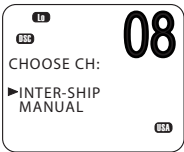


3. Select the buddy you want to call from the list, or
 - Select MANUAL NEW and enter the MMSI you want to call.
4. On the “CHOOSE CH” screen, select INTER-SHIP. (Or, select MANUAL to use a duplex channel—see point 2 of “General usage” on page 47.)

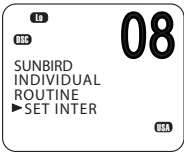
The display shows “SET INTER”



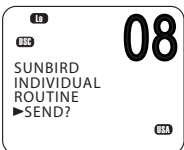
5. Use ▲ or ▼ to reach the working channel you want to specify and press [OK].



6. When the SEND prompt appears.
 - Press [OK] to send the call request on CH70, or
 - Press [X] to exit without sending.



7. When you hear the acknowledgement alert tone,
 - Press the [SILENC] soft key to silence the alert.
 - Press [PTT] to commence voice communication.



8. If there is no reply within 30 seconds, the display shows: “SEND AGAIN?”

You can then select:

- [YES] to send again, or
- [NO] to quit and return to standby mode.

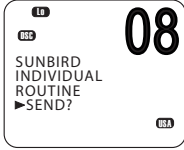
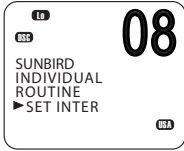
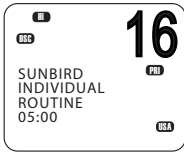
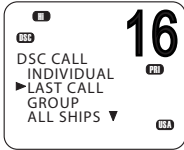
→ **Note:** For information on receiving an individual DSC call, see “Receiving a DSC individual call” on page 61.

Calling a nearby ship from AIS

See “Making a DSC call to an AIS target” on page 69.

Calling the MMSI of the last call received

(This will send a ROUTINE, INDIVIDUAL call.)



1. Select DSC MENU → LAST CALL.
2. The display shows the details of the most recent incoming call.
3. Press [OK] to display the “CHOOSE CH” screen.
4. On the “CHOOSE CH” screen, select INTER-SHIP. (Or, select MANUAL to use a duplex channel—see point 2 of “General usage” on page 47.)

The display shows “SET INTER”

5. Use ▲ or ▼ to reach the working channel you want to specify and press [OK].
6. When the SEND prompt appears.
 - Press [OK] to send the call request on CH70, or
 - Press [X] to exit without sending.
7. When you hear the acknowledgement alert tone
 - Press the [SILENC] soft key to silence the alert.
 - Press [PTT] to commence voice communication.
8. If there is no reply within 30 seconds, the display shows: “SEND AGAIN?”

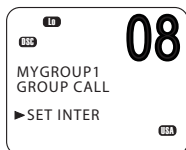
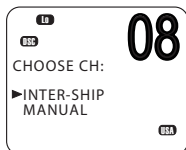
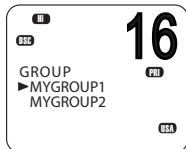
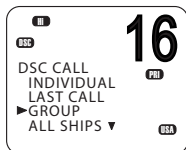
You can then select:

- [YES] to send again, or
- [NO] to quit and return to standby mode.

Sending a group call

A group MMSI is a shared MMSI. When a DSC call is transmitted by one of the vessels in the group, all the radios that have the same MMSI entered will receive the message, and can reply on the chosen channel if necessary.

To enter a group MMSI, see “Creating a group MMSI” on page 82.



→ **Notes:**

- Group calls are always sent with ROUTINE priority.
- No DSC acknowledgement is required for a group call.

1. Select DSC MENU → GROUP.
2. The display shows the names of your pre-programmed groups.
3. Select the group that you want to call.
4. On the “CHOOSE CH” screen, select INTER-SHIP. (Or, select MANUAL to use a duplex channel—see point 2 of “General usage” on page 47.)

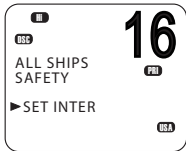
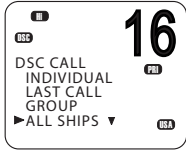
The display shows “SET INTER”

5. Use ▲ or ▼ to reach the working channel you want to specify and press [OK].
6. When the SEND prompt appears.
 - Press [OK] to send the call request on CH70, or
 - Press [X] to exit without sending.

→ **Note**

For information on receiving a group call, see “Receiving a DSC group call” on page 62.

Sending an all ships call



1. Select DSC MENU → ALL SHIPS.
2. Select one of the two call priorities:
 - SAFETY
Use to send safety information to all ships within range.
 - URGENCY
Use when a serious situation or problem arises that could lead to a distress situation.
3. On the “CHOOSE CH” screen, select INTER-SHIP. (Or, select MANUAL to use a duplex channel—see point 2 of “General usage” on page 47.)
The display shows “SET INTER”
4. Use ▲ or ▼ to reach the working channel you want to specify and press [OK].
5. When the SEND prompt appears,
 - Press [OK] to send the call request on CH70, or
 - Press [X] to exit without sending.

→ Note

For information on receiving an all-ships call, see “Receiving a DSC all-ships call” on page 62.

Call Logs

The call logs store details of the DSC calls as follows:

Call type	Description
Last call	Details of the last incoming call
Call Log	Details of the last 20 incoming calls (does not include distress calls)
Distress log	Details of the last 20 distress calls received
Sent calls log	Details of the last 20 sent calls

You can use the call logs to call back a vessel that sent a call.

Calling using the call log

The call log contains the contact details for the 20 most recent incoming calls, so that you can call one of them back quickly.

1. Select DSC MENU → CALL LOG.

The display shows the details of the most recent call.

2. Use ▲ and ▼ to find the caller you want to call back and press [OK].

3. Choose the option:
 - CALL BACK — to send a DSC call request, or
 - DELETE — to delete the call from the call log.

4. On the “CHOOSE CH” screen, select INTER-SHIP. (Or, select MANUAL to use a duplex channel—see point 2 of “General usage” on page 47.)

The display shows “SET INTER”

5. Use ▲ or ▼ to reach the working channel you want to specify and press [OK].

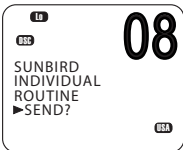
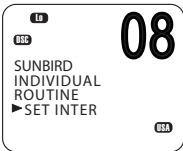
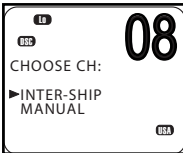
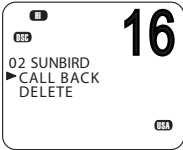
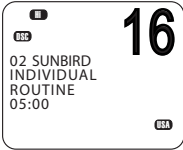
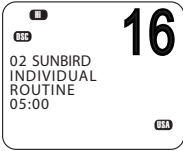
6. When the SEND prompt appears,
 - Press [OK] to send the call request on CH70, or
 - Press [X] to exit without sending.

7. When you hear the acknowledgement alert tone,
 - Press the [SILENC] soft key to silence the alert.
 - Press [PTT] to commence voice communication.

8. If there is no reply within 30 seconds, the display shows: “SEND AGAIN?”

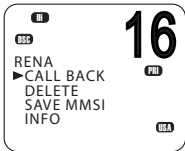
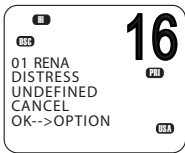
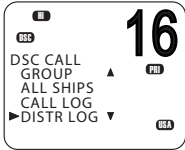
You can then select:

- [YES] to send again, or
- [NO] to quit and return to standby mode.



Calling using the distress log

The Distress Log contains the Distress Log data for the 20 most recently received distress calls, so that you can call any of them quickly. Always try to make voice contact on CH16 first, as follows:

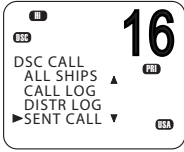


1. Select DSC MENU → DIST LOG.
The display shows the details of the most recent call.
2. Use ▲ and ▼ to find the caller you want to call back and press [OK].
3. Choose CALL BACK — to send a call request.
Other options are:
 - DELETE — to delete the call from the distress log.
 - SAVE MMSI — to save the caller's MMSI.
 - INFO — to view more information about the distress call.
4. On the "CHOOSE CH" screen, select INTER-SHIP. (Or, select MANUAL to use a duplex channel—see point 2 of "General usage" on page 47)
The display shows "SET INTER"
5. Use ▲ or ▼ to reach the working channel you want to specify and press [OK].
6. When the SEND prompt appears,
 - Press [OK] to send the call request on CH70, or
 - Press [X] to exit without sending.
7. When you hear the acknowledgement alert tone,
 - Press the [SILENC] soft key to silence the alert.
 - Press [PTT] to commence voice communication.
8. If there is no reply within 30 seconds, the display shows: "SEND AGAIN?"
You can then select:
 - [YES] to send again, or
 - [NO] to quit and return to standby mode.

Viewing the sent call log

The Sent Call log contains details for the 20 most recent calls sent from your radio.

You can review details of each call, and delete calls from the list as required.



1. Select DSC MENU → SENT CALL.

The first entry in the call log is the most recent sent call.

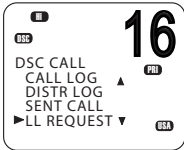


2. Press ▲ or ▼ to scroll through the sent calls.
3. With a particular call displayed, press [OK] to display the DELETE prompt.
 - Press DELETE to delete the entry from the sent call log, or
 - Press [X] to exit without deleting.

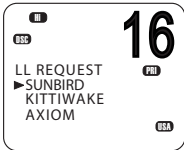
Sending an LL request for the position of a buddy

The latitude and longitude request (LL request) function allows you to send a DSC request to an MMSI on your buddy list and the response will contain the current latitude and longitude position of the other vessel. In this way, you can check the location of your buddy. This is also known as a “polled position request.”

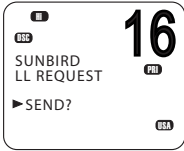
Note: You must first set up details of your buddy in the buddy list (see “Buddy list setup” on page 72).



1. Press DSC MENU → LL REQUEST.
2. Select the buddy whose LL position you want to request.
3. When the “SEND?” prompt appears, press [OK] to send the LL request.



4. If the buddy radio responds with a position, the RS90 beeps.
 - Press the [SILENC] soft key to silence the alert.
 - Press ▲ or ▼ to view the LL information received.
5. If there is no reply within 30 seconds, the display shows: “SEND AGAIN?”



You can then select:

- [YES] to send again, or
- [NO] to quit and return to standby mode.

→ **Note:** You can also send an automated LL request to selected buddies at regular intervals. See “Tracking a buddy - introduction” on page 55.

Tracking a buddy - introduction

You can select a buddy or list of buddies continuously track their positions.

You can also start and stop tracking your buddy and add or remove buddies from your buddy track list.

The radio sends an LL Request to each buddy in turn at a set time interval and, if a response is received from a buddy, it displays the buddy's LL position on screen.

To set up buddy tracking, you need to:

1. Setup your buddies list. See “Buddy list setup” on page 72.
2. Create a tracking list.
3. Set the tracking interval.
4. Select a buddy to track.
5. Start/stop tracking the buddy.

Steps 2 to 5 are explained below.

→ **Note:**

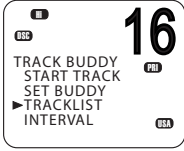
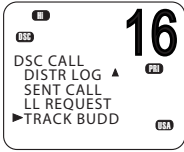
You can also send an individual DSC latitude and longitude request to a buddy. See “Sending an LL request for the position of a buddy” on page 54.

Creating your tracking list

1. Select DSC MENU → TRACK BUDDY.
2. Select TRACKLIST. Any buddies already on the tracking list will be listed.
3. To add a buddy to the tracking list, select ADD NEW to show your list of buddies.
4. Select a buddy then press [OK] to add that buddy to the tracking list.

To delete a buddy from the tracking list, select that buddy then press [OK].

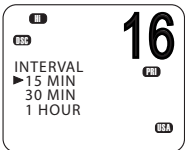
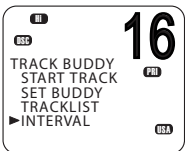
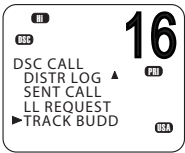
- Select YES to delete, or
- NO to keep the buddy in the list.



Setting the track buddy update interval

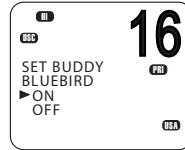
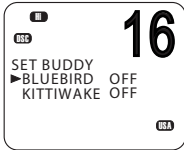
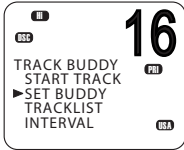
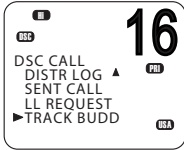
You can set the interval at which the position requests are sent out.

1. Select DSC MENU → TRACK BUDDY.
2. Select INTERVAL.
3. Select the required interval: 15, 30 or 60 minutes.
4. Press [OK].



Selecting a buddy to track

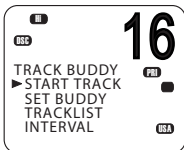
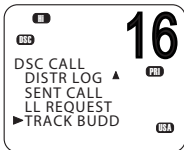
1. Select DSC MENU → TRACK BUDDY.
2. Select SET BUDDY to show the tracking status of each buddy on your tracking list.
3. Select the buddy whose status you want to change.
4. Select ON or OFF as required to change the tracking status and press [OK] to confirm.



Start or stop tracking a Buddy

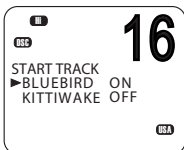
Note: START TRACK will only track buddies on your TRACKLIST whose status is ON.

1. Select DSC MENU → TRACK BUDDY.
2. Select START TRACK.



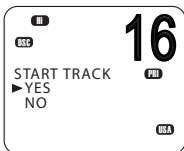
The display shows the status of each buddy on your tracking list (ON or OFF).

3. Check that the status of the buddies that you want to track is ON, and then press [OK].



4. When prompted:
 - Select YES to start tracking, or
 - NO to STOP tracking.

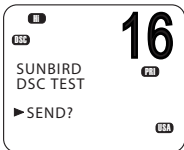
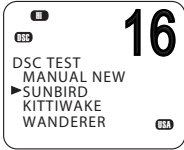
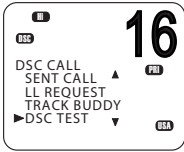
The radio sends an LL Request to each buddy in turn at the interval time and displays the buddy's LL position on screen.



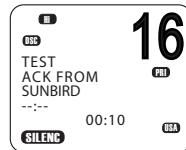
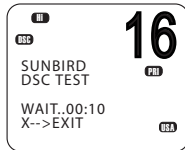
For information on receiving a response to an LL request, see "Receiving a response to a DSC LL request" on page 63.

Sending a DSC test call

To make sure DSC is working correctly, you can send a test call to a buddy or any other station equipped with a DSC radio.



1. Select DSC MENU → DSC TEST.
2. Select a buddy from your buddy list, or select MANUAL NEW to enter the MMSI you want to call.
3. When the SEND prompt appears,
 - Press [OK] to send the request on CH70, or
 - Press [X] to exit without sending.
4. When you hear the acknowledgement alert tone,
 - Press the [SILENC] soft key to silence the alert.



5. If there is no reply within 30 seconds, the display shows: "SEND AGAIN?"

You can then select:

- [YES] to send again, or
- [NO] to quit and return to standby mode.

→ Note

For information on receiving a DSC test call, see "Receiving a DSC test call" on page 64.




Receiving DSC calls

Several types of DSC calls can be received from vessels or coast stations within range:

Call type	Page
Distress	page 61
Individual	page 61
All ships	page 61
Group	page 62
Geographic	page 63
DSC test call	page 64

General process

When the radio receives a DSC call, it does several things as follows:

- Sounds the alert tone to notify you of the call.
- Displays a flashing  icon on screen, which indicates that a call has been received and stored in the call log. When all call in the call log and distress log have been viewed, the icon stops flashing. For information on call logs, see “Calling using the call log” on page 52.
- Displays the MMSI (or name) of the calling station. You can press  and  to view more details of the call, including the requested working channel.
- For individual calls, displays “AUTO SWITCH” or “NO AUTO SW,” depending on the INDIV REPLY setting. It will automatically or manually send an acknowledgement to the calling radio and switch to the requested channel.
- For Group or All-Ships calls, displays “AUTO SWITCH” or “NO AUTO SW,” depending on the Auto Switch setting.

With Auto Switch set to ON, when receiving a Group or All-Ships call, the radio will automatically switch to the requested channel if not cancelled within 10 seconds. This might disrupt important communications that are already in progress on the current working channel. To avoid this, you can prevent the radio from automatically switching channel by setting the AUTO SWITCH option to OFF.

For information on setting the auto switch option, see “Automatic channel switch options” on page 85.

The procedures for receiving calls with Auto Switch either on or off are described below.

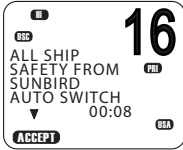
AUTO SWITCH

(For Group or All-ships calls with AUTO SWITCH set to ON)

When the radio sounds the incoming DSC call alert:



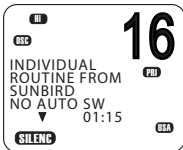
1. Press the [SILENC] soft key to silence the alert.
2. To see more details about the call, including the requested channel, press ▲ or ▼.
3. You now have the following three options:
 - Press [ACCEPT] to switch to the requested channel immediately, or
 - Do nothing to allow the radio to automatically switch after 10 seconds, or
 - Press [X] to cancel the automatic switch and remain on the current channel.
4. When needed, press [PTT] to talk on the selected working channel.



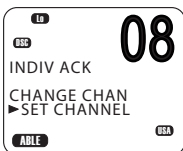
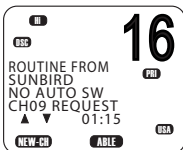
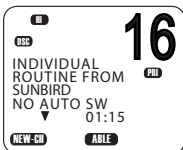
AUTO ACK

(For Individual calls with INDIV REPLY set to Auto)

When the radio sounds the incoming DSC call alert:



1. Press the [SILENC] soft key to silence the alert.
2. To see more details about the call, including the requested channel, press ▲ or ▼.
3. You can then use one of the following three soft keys:
 - [ABLE]
 - Acknowledge the call on the requested channel.
 - The radio will send the acknowledge signal and change to the designated channel.
 - [NEW-CH]
 - Acknowledge the call, but request a different channel:
 - Press ▲ or ▼ to reach the channel you want to use, and then press the [ABLE] soft key.
 - The radio will send a request for your preferred channel.



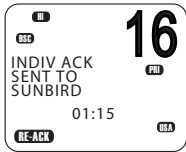
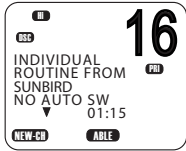
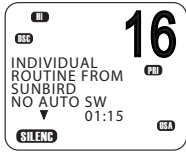
- [UNABLE]
Acknowledges the call, but signals that you are unable to use the requested channel. Note: this option is not available for ROUTINE calls. If INDIV REPLY is set to AUTO, the radio will automatically send an acknowledgement to the caller if there is no user intervention within 10 seconds.
- When needed, press [PTT] to talk on the selected working channel.

Receiving a DSC distress call

See “DSC Distress calls” on page 43.

Receiving a DSC individual call

When the radio receives a DSC call, it sounds the alert tone for 2 minutes and displays the priority level and the calling MMSI (or buddy name).



1. Press the [SILENC] soft key to silence the alert.
2. Press ▲ or ▼ to view further information about the call, including the channel requested, or
 - Press [X] to exit without acknowledging.
3. Use the procedures described in “AUTO ACK” on page 60 to acknowledge the call, depending on your radio’s INDIV REPLY settings.
4. The radio will send an acknowledge signal to the calling station.
The radio displays the elapsed time since the incoming call (prior to acknowledgment); or the elapsed time since acknowledgement (after acknowledgment).
5. Press the RE-ACK soft key to send the acknowledgement at any time.
6. The caller should respond to your acknowledgement by making voice contact on the designated channel. If not, you can press PTT to initiate voice contact yourself.

→ Notes

- The call data is stored in your Call Log (see “Calling using the call log” on page 52).
- For information on sending a DSC individual call, see “Sending an individual DSC Call” on page 48.

Receiving a DSC all-ships call

When the radio receives a DSC call, it sounds the alert tone for 2 minutes and displays the priority level and the calling MMSI (or buddy name).



1. Press the [SILENC] soft key to silence the alert.
2. Press ▲ or ▼ to view further information about the call, including the channel requested, or
 - Press [X] to exit without acknowledging.
3. Use the procedures described in “AUTO SWITCH” on page 60 to acknowledge the call, depending on your radio’s auto switch settings.
4. If appropriate, press PTT to talk on the currently displayed channel.

→ Note

The call data will be stored in your Call Log (see “Calling using the call log” on page 52).

For information on sending a DSC all-ships call, see “Sending an all ships call” on page 51.

Receiving a DSC group call

When a DSC call is transmitted by one of the vessels in a group, all the radios that have the same MMSI entered will receive the message.

When the radio receives a DSC group call, it sounds the alert tone for 2 minutes and displays the priority level (ROUTINE for a group call) and the calling MMSI (or group name).

The radio may change to the requested channel depending on the AUTO SWITCH setting.

1. Press the [SILENC] soft key to silence the alert.
2. Press ▲ or ▼ to view further information about the call.
3. You do not need to send an acknowledgement.
4. If appropriate, press PTT to talk on the designated channel.

→ **Notes**

- The call data is stored in your Call Log (see “Call Logs” on page 51).
- For information on setting up your group MMSIs see “Creating a group MMSI” on page 82.
- For further information, see “Sending a group call” on page 50.

Receiving a DSC geographic area call

A geographic call is received by vessels within a specific geographic boundary area. The display shows the calling MMSI (or buddy name).

When you receive notification of a GEOGRAPHIC call:

1. Press the [SILENC] soft key to silence the alert.
2. Press ▲ or ▼ to view further information about the call, including the channel requested.
3. Listen to the working channel for an announcement from the calling station.

Receiving a response to a DSC LL request

When you receive GPS data from a buddy in response to your LL request you should make a written note of the position.

1. Press [SILENC] soft key to silence the alert.
2. Press ▲ or ▼ view further information about the call.
3. When finished, press [X].

→ **Notes**

- To send an LL request, see “Sending an LL request for the position of a buddy” on page 54.
- LL request data is not stored on the RS90.

Receiving a DSC test call

You can set up the radio to respond to incoming DSC TEST calls with an automatic response or manual response. To change the option, see “Setting up DSC test reply” on page 86.

Manual response

1. On receiving a DSC test request, the radio sounds a two-tone alert.
2. Press the [SILENC] soft key to silence the alert.
3. Press the [ACK] soft key to acknowledge the DSC Test Call.

Auto response

- On receiving a DSC test request, the radio automatically replies after a 10 second delay with an ACK signal.