SIMRAD
A KONGSBERG Company

MAXIMIZING YOUR PERFORMANCE AT SEA

M A N U A L

Simrad RD68

Fixed DSC VHF Radio

5 APPENDIX

1 GENERAL

1.1 Introduction

The RD68 is a combined VHF radio and Class D Digital Selective Calling (DSC) unit. It supports the latest GMDSS requirements for non-SOLAS vessels from the International Maritime Organization (IMO). This will enable you to make digitally selected calls, which are quicker and simpler to make than traditional voice calls using channel 16. Should a distress situation occur, with the RD68 you can quickly raise an alert, indicating your identity, your position, and automatically establish distress communication on the emergency voice channel.

The RD68 is robustly constructed using a pressure die-cast aluminum case for effective heat dissipation, ensuring maximum transmission performance even after many hours' constant use.

Thank you for choosing Simrad!

If you are pleased with your VHF, we hope you will be interested in our range of marine electronic equipment, which is manufactured to the same high standards as the RD68. Please contact your nearest Simrad Agent for a catalog showing our increasing range of high tech navigational instruments, GPS, Autopilots, Radar, Fishfinders and VHF radio sets.

Simrad operates a policy of continual development and reserves the right to alter and improve the specification of their products without notice.

Fig 1.1 - RD68 combined VHF & DSC

1.2 Licensing

Note — *Prior to use please check the national licensing requirements for operators.*

In the UK license applications and queries should be made to the following authority:

Ship Radio Licencing
Radio Licencing Centre
The Post Office
PO Box 1495
Bristol BS99 3QS
Website: www.radiolicencecentre.co.uk/rlc

A set may only be operated by or under the supervision of the holder of a Marine Radio Operator's Certificate of Competence and Authority to Operate. This is awarded on completion of the Marine Short Range Certificate course administered by the Royal Yachting Association:

Royal Yachting Association
RYA House
Ensign Way
Hamble
Southampton SO31 4YA
Website: www.rya.org.uk
Tel. 0845 345 0400

Holders of the Restricted Certificate of Competence in Radiotelephony (which covers MF/HF SSB, etc.) do not need a separate VHF certificate.

In all other countries, please contact your regional authority for information.

Note — ***North American Users*** *– To meet FCC (Federal Communications Commission) rules on Radio Frequency Exposure, it is recommended that the VHF antenna is mounted at least 3 m (10 ft) away from any area accessible to any personnel on board. If this distance is achieved by vertical separation, the antenna must be at least 5 m (16.5 ft) above deck. This guideline applies only to antennas not exceeding 9dBi gain.*

WARNING — ***Failure to observe these recommendations may expose those within the MPE (maximum permitted exposure) radius of 3 m (10 ft) to RF absorption levels that exceed the FCC safe limits.***

1.3 Entering MMSI numbers

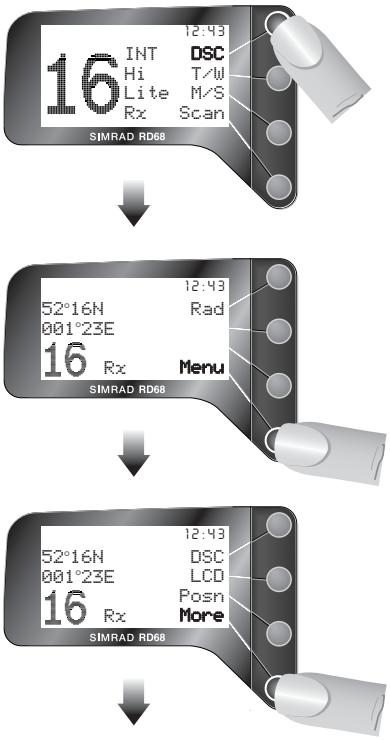
At the time of issue of your vessel's radio license, an MMSI (*Maritime Mobile Service Identifier*) must be requested. This is a nine-digit number which must be permanently entered into the RD68 when the radio is first set up, otherwise the DSC functions cannot be accessed.

Note

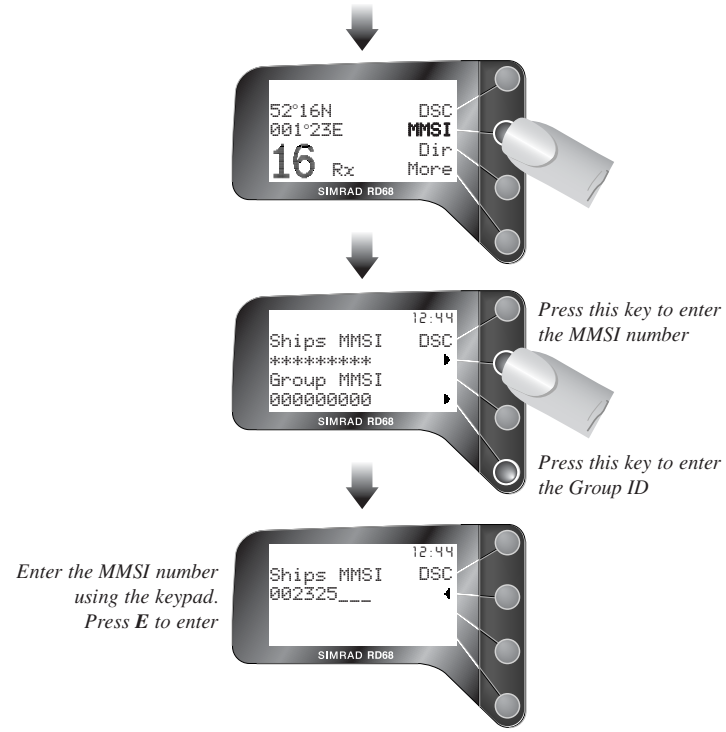
If the boat or the RD68 are subsequently sold, the radio must be returned to an authorized Simrad agent for the MMSI number to be erased and the new owner's MMSI number entered.

→ *For licensing details, please refer to section 1.2.*

To enter the vessel's MMSI number:



/*continued*



Note

If an error is made, press ◂ to move back and edit the number.

You will be asked to confirm the number. Re-enter the MMSI and press **E**.

CAUTION

It is important that the MMSI entered is checked carefully, as it can only be entered once. To change the MMSI number after it has been programmed, the unit must be returned to an authorized Simrad Dealer to erase the existing number.

1.4 Group ID MMSI

For boats that are part of a flotilla, racing fleet, or other group, a Group ID MMSI number can also be entered while in the MMSI entry screen by pressing softkey **4**. Follow the procedure described above to enter the Group MMSI. Unlike the vessel MMSI number, this can be changed later by the user.

2 OPERATION

2.1 General

The RD68 VHF is very simple to operate, with the controls falling into five groups:

1. The rotary **Volume** (On/Off) & **Squelch** controls.
2. The **alphanumeric keypad** used to select the channel, MMSI number, etc.
3. The **dedicated controls**, for commonly used functions such as output power, Dual Watch, and channel 16 select, etc.
4. The four **softkeys** to the right of the display are multi-function keys whose function changes depending on which menu is displayed. The label showing the current function for each softkey appears on the right side of the display *(see left)*.
5. There is also a **Distress button** under a sliding cover. **This must only be used in an emergency** *(see section 5.1)***.**

Softkeys & labels

The radio functions are split into two main modes:

- **Radio mode** allows access to the standard VHF radio functions, such as Tri-Watch, scanning, etc.
- **DSC mode** covers the digital selective calling functions.

These modes are toggled by pressing softkey **1** (labeled **DSC** or **RAD**).

At any stage of the DSC mode menu structure, pressing the **DSC** softkey will return to the DSC mode main menu. At any stage of the DSC mode menu structure, pressing the **C** key will cancel any unconfirmed action, or step back one level in the menu structure.

Note

Some menu options will only be displayed if the relevant information is available.

If the radio is receiving NMEA GPS data, the current Lat/Long will be displayed when in DSC mode, and the time will be displayed in both Radio and DSC modes in 24-hour UTC (GMT) format (the local time can also be entered).

2.2 Rotary controls

Switch the radio on by turning the **VOLUME** knob clockwise. To increase the volume, turn the knob further clockwise. Turn the knob fully counterclockwise to switch off.

The **SQUELCH** knob is used to adjust the receiver muting threshold (squelch) level. To cut out weaker signals, increase the squelch until the background interference noise disappears. To receive weaker signals, decrease the squelch.

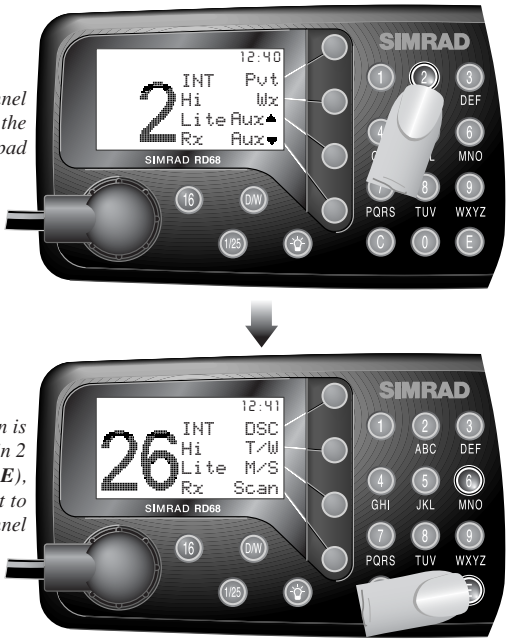
2.3 Backlighting (☼)

There are five levels of brightness – press and hold the ☼ key to step through and release when the required level is shown.

2.4 Changing channels

2.4.1 Standard International channels

Enter the channel number using the numeric keypad



*If channel selection is not confirmed within 2 seconds (by pressing **E**), the radio will revert to the original channel*

Note

*To select channels, the RD68 will need to be in Radio mode. If in DSC mode, press the **RAD** softkey before entering the channel number.*

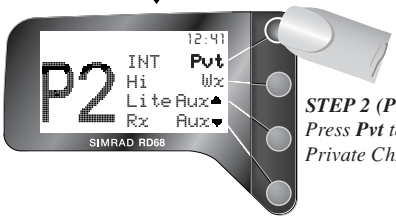
2.4.2 Auxiliary & Private channels

This function is used to select channels which are not part of the standard International channel set, for example, channels M and M2 in the UK, or the US Wx Weather channels.

Note

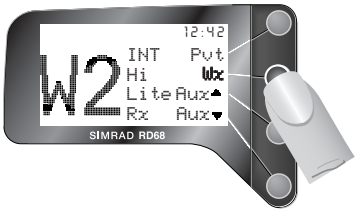
Standard availability of channels includes M & M2 in the UK, or one or more of L1–L3 or F1–F3 in Scandinavia (cf. section 5.3).

STEP 1
To select an Auxiliary channel press any numeric key –
*To select a Weather or Private channel, press the relevant number key (e.g. **2** for Private Ch2 or Weather Ch2 –*

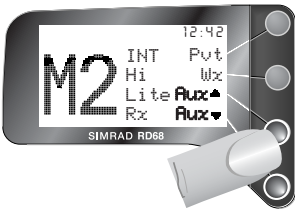


STEP 2 (Private)
*Press **Pvt** to select Private Ch2*

STEP 2 (Weather)
*Press **Wx** to select Weather Ch2*



STEP 2 (Auxiliary)
*Press **Aux▲** or **Aux▼** to scroll through the available Auxiliary channels & press **E** to select*



2.5 Transmit power

This function allows toggling of the transmit power between 25W (**Hi**) and 1W (**Lo**) for short range transmissions, for example, when in a marina. This preserves battery power.

Note

Regulations restrict some channels, such as 15 and 17, to low power only, in which case this key will have no effect.

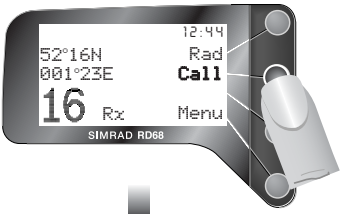
2.6 Making a DSC call

Press the **DSC** softkey to enter DSC mode:

/continued

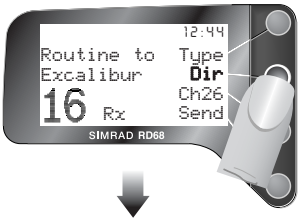

12:43
52°16N
001°23E
Rad
Call
16 Rx
Menu
SIMRAD RD68
SELECTING CALL TYPE
Press Type to scroll through the different types of calls (see also p.16):
MANUAL ENTRY
To manually enter an MMSI number (Routine call):
Routine to
Excalibur
Type
Dir
Ch26
16 Rx
Send
All Ships
Safety
Ch16
All Ships
Urgency
Group call
009999999
Ch26
Use ◂ key to correct any mistakes
Routine to
_
Use keypad to type in MMSI number and press E, then Send
Routine to
002325567
On Ch26
Press E to send
Waiting for
acknowledge
26 Rx
Stop
Press Stop to cancel call
Only displayed if a Group MMSI number has been entered (see section 1.3)
Select call type and press Send to transmit

/continued

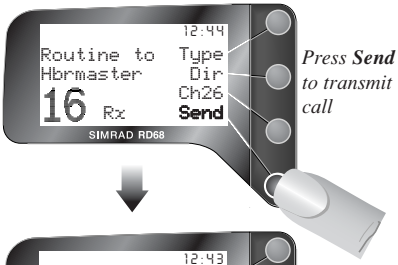


MMSI DIRECTORY

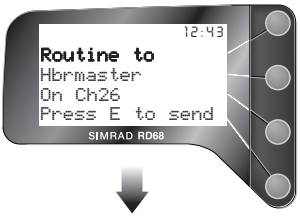
Use the directory (see section 3.4) to select a commonly used MMSI:

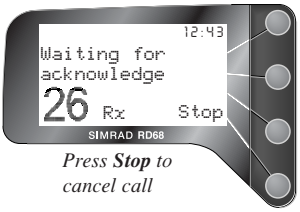


*Press **Dir** to scroll through directory entries*



*Press **Send** to transmit call*



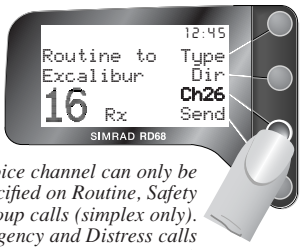


*Press **Stop** to cancel call*

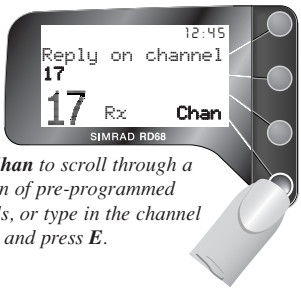
VOICE CHANNEL SELECTION

To specify which channel is to be used in voice communication

*Press softkey 3 (**ChXX**) to specify voice channel.*



Voice channel can only be specified on Routine, Safety and Group calls (simplex only). Urgency and Distress calls are set to Ch16. When making a Routine call to a coast station (MMSI begins with "00"), the option to select a voice channel is not available.

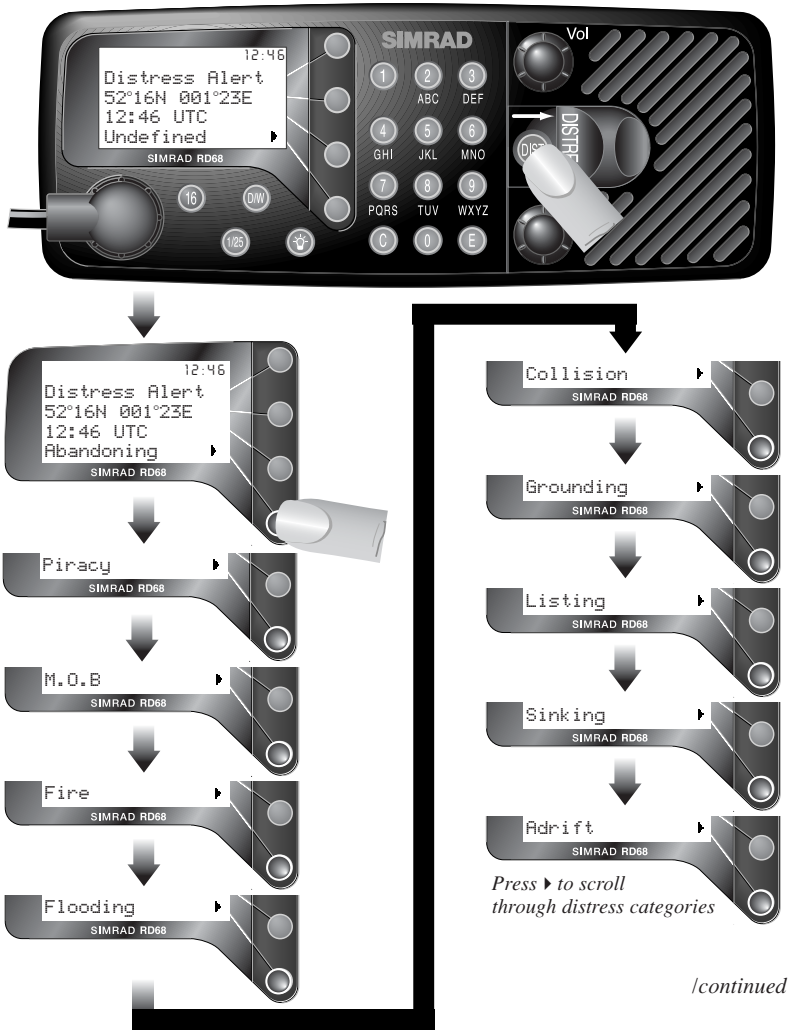


*Press **Chan** to scroll through a selection of pre-programmed channels, or type in the channel number and press **E**.*

2.7 Making a Distress Alert call

WARNING ***This call should only be made if the vessel is in a genuine distress situation. It is an offense to send a Distress Alert call if the vessel or crew are not in grave and imminent danger (see section 5.1).***

The **DISTRESS** button is located under a protective cover that must be slid back before the button can be pressed. Press the **DISTRESS** button to access the Distress Alert screen:



/continued

To send the call, **press and hold** the **DISTRESS** key for five seconds. A countdown to the transmission will be displayed. Release the key at any time during this countdown to abort the transmission and press **C** to return to the main menu.

The Distress Alert transmission contains the following data:

- The vessel's MMSI
- The vessel's position (either from the NMEA 0183 input, or manually entered)
- The time (from NMEA or manual)
- The nature of the distress

Note

If the boat's position and time are not being received via the NMEA interface, then the display will allow this data to be entered manually (refer to section 3.2 for more details).

After the Distress Alert has been sent, the RD68 will tune to channel 16 and will automatically repeat the alert approximately every four minutes, until either an acknowledgment is received or **C** is pressed *(it is not recommended that the Distress Alert is cancelled manually by pressing **C**, unless you are requested to do so by the rescue authorities).*

While the Distress Alert remains active, an intermittent alarm will continue to sound.

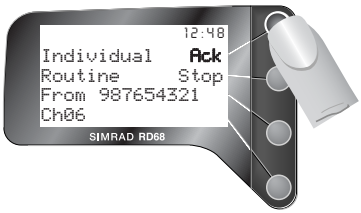
When an acknowledgment is received from the Rescue Co-ordination Center, this will automatically cancel the Distress Alert transmission. The subsequent rescue co-ordination will be performed using the voice working channel.

2.8 Receiving a DSC call

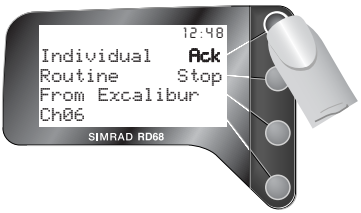
When a call is received, the RD68 will ring and the display will show the call information.

Press **Ack** (for individual calls requesting acknowledgment only) or **OK** to cancel and switch to the working channel. Press **Stop** to cancel ring only.

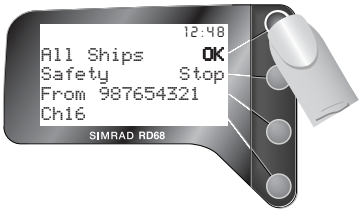
Individual Routine call



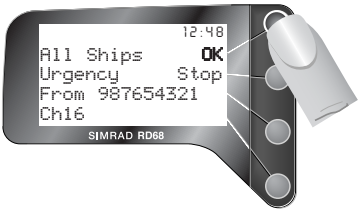
Individual Routine call from MMSI stored in directory



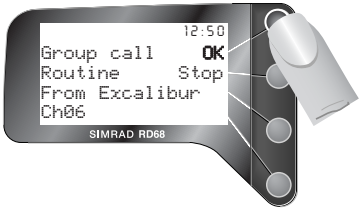
All Ships Safety call



All Ships Urgency call

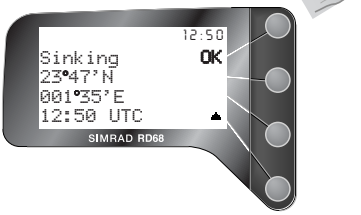


Group call



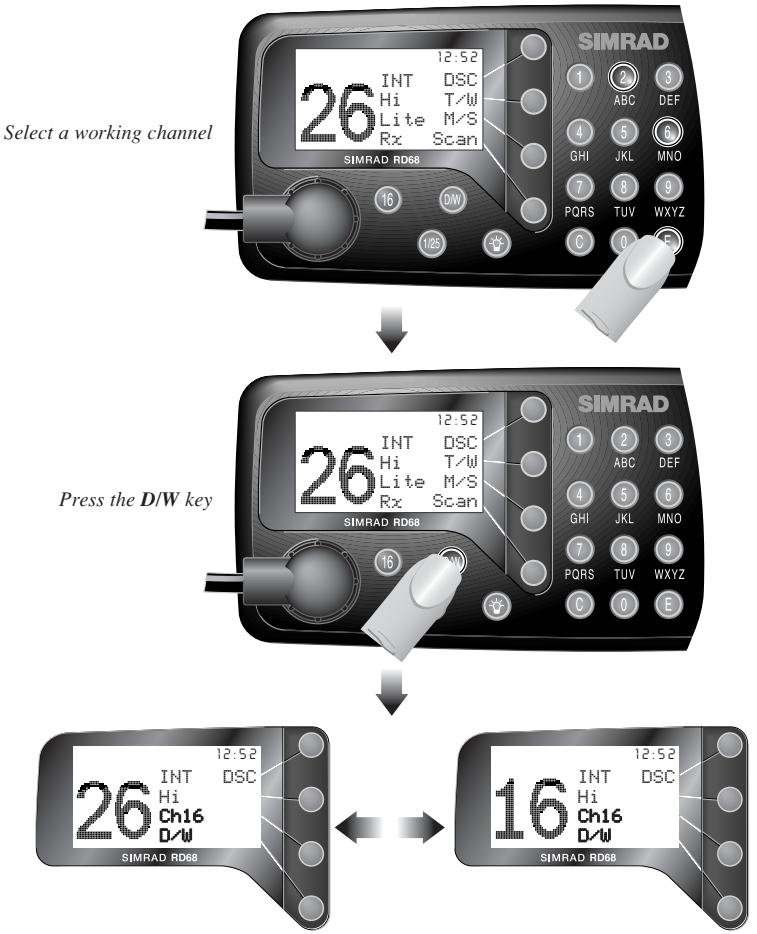
Distress Alert call

Press ▼ key for more information



2.9 Dual Watch

Dual Watch allows the radio to scan between a selected working channel and the priority channel (normally Ch16).



The RD68 will monitor the working channel and the priority channel sequentially

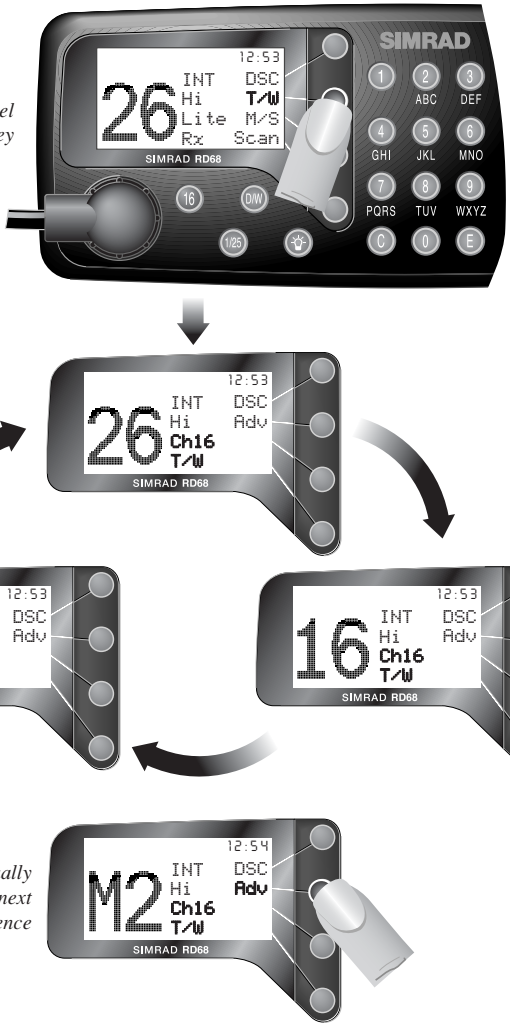
Note

*Normal VHF functions will not be available when in Dual Watch mode. To change channel or transmit, press **16**, **D/W**, or **C** to exit Dual Watch. DSC functions can still be accessed by pressing **DSC**; however, sending a DSC call will automatically cancel Dual Watch.*

2.10 Tri-Watch

Tri-Watch operates on the same principle as Dual Watch, but this function scans between the working channel, priority channel, and the User channel. *For more information on the User channel and how it is specified, please refer to section 2.13.*

*Select a working channel and press the **T**/**W** key*



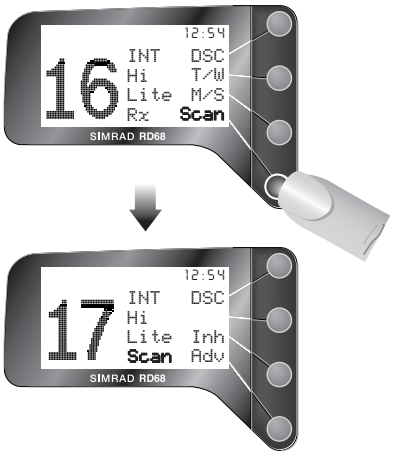
*Pressing **Adv** will manually advance the scan onto the next channel in the sequence*

Note

*As with Dual Watch, normal VHF functions will not be available when in Tri-Watch mode. Exit Tri-Watch by pressing **16** or **C**.*

2.11 Scan mode

The Scan function cycles the RD68 sequentially through each enabled channel, pausing when a signal is detected.



*Press **Adv** to manually advance to the next channel in the scan sequence*

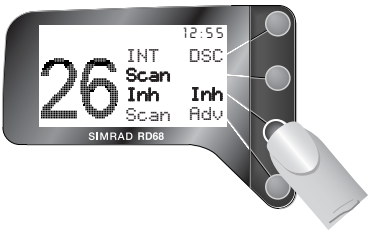
Note

*While in Scan mode, normal VHF functions are not available. To exit Scan mode, press **C** or **16**.*

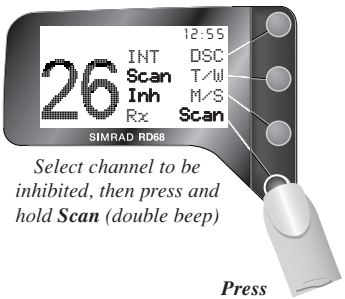
2.11.1 Inhibiting channels from scan

In some areas the Scan function may repeatedly lock on a channel at each cycle, for example, if it is transmitting a carrier signal. Rather than pressing **Adv** each cycle, selected channels may be inhibited from the scan cycle.

1. While in Scan mode



2. In VHF mode

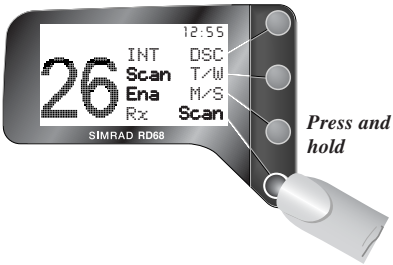


*Select channel to be inhibited, then press and hold **Scan** (double beep)*

Press and hold

To re-enable an inhibited channel into the scan cycle, repeat sequence 2:

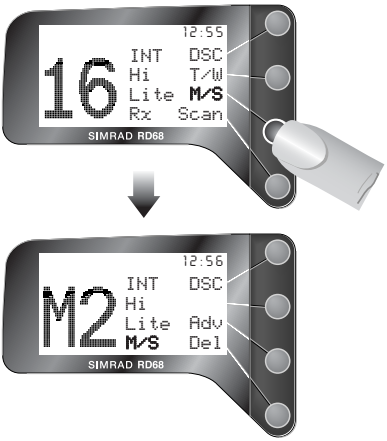
*Select channel to be enabled then press and hold **Scan** (double beep)*



2.12 Memory Scan

Like the Scan function, Memory Scan will cycle sequentially through the channels, but only those which have been pre-selected.

→ *Refer to the next subsection 2.12.1 for more information on preselecting Memory Scan channels.*



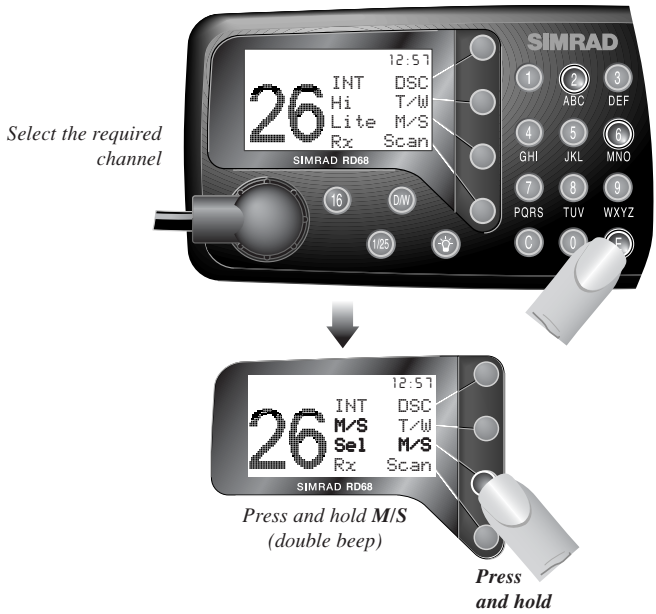
*Press **Adv** to manually advance to the next channel in the Memory Scan sequence*

Note

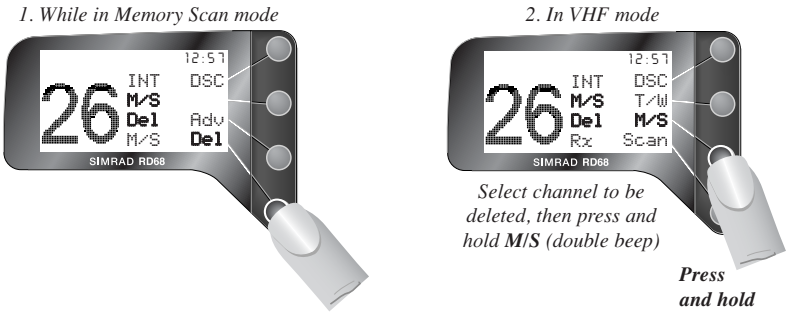
*While in Memory Scan mode, normal VHF functions are not available. To exit Memory Scan mode, press **C** or **16**.*

2.12.1 Add/remove channels from Memory Scan

To add a channel to the Memory Scan cycle:



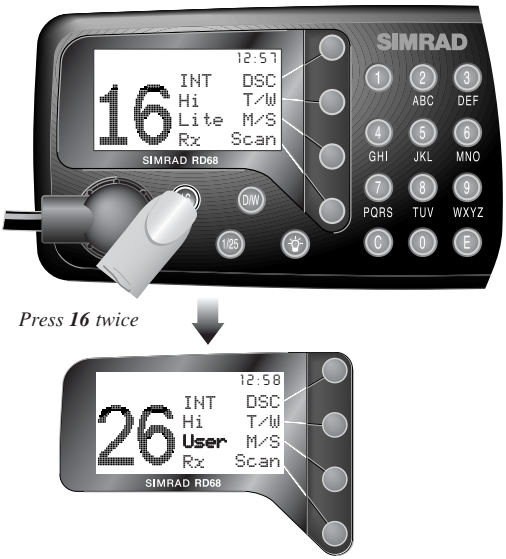
To delete a pre-selected channel from the Memory Scan cycle:



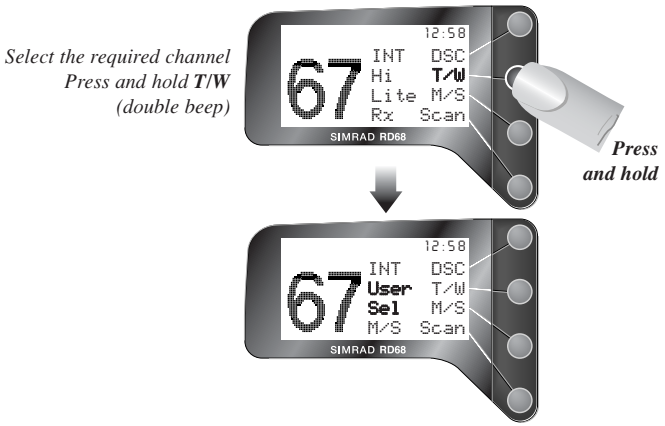
2.13 Priority & User channel select

The priority channel (usually Ch16, depending on the configuration of the RD68) can be accessed immediately by pressing **16**. This will cancel any function currently in operation.

The User channel is a programmable priority channel which is accessed by pressing **16** twice:

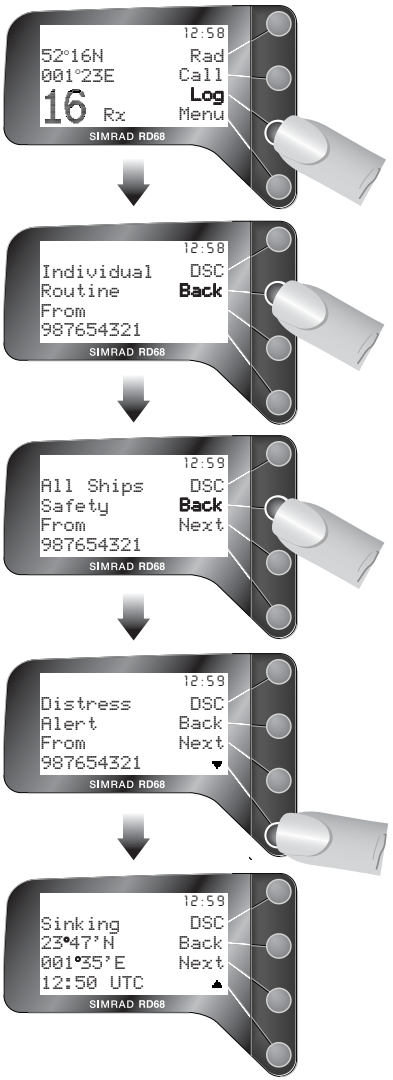


2.13.1 Programming the User channel



2.14 Viewing the call log

The last 16 incoming DSC calls are logged by the RD68 and can be viewed later (this function will not be displayed if no calls have been received).

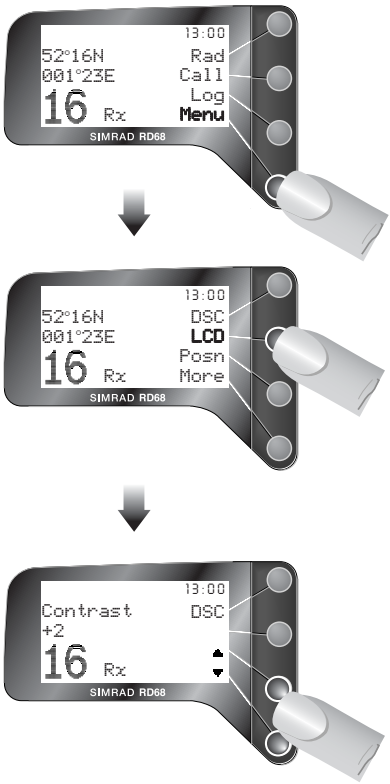


The most recent call is shown first

Press ▼ to view any extra information

3 MISCELLANEOUS FUNCTIONS

3.1 Adjusting the LCD contrast



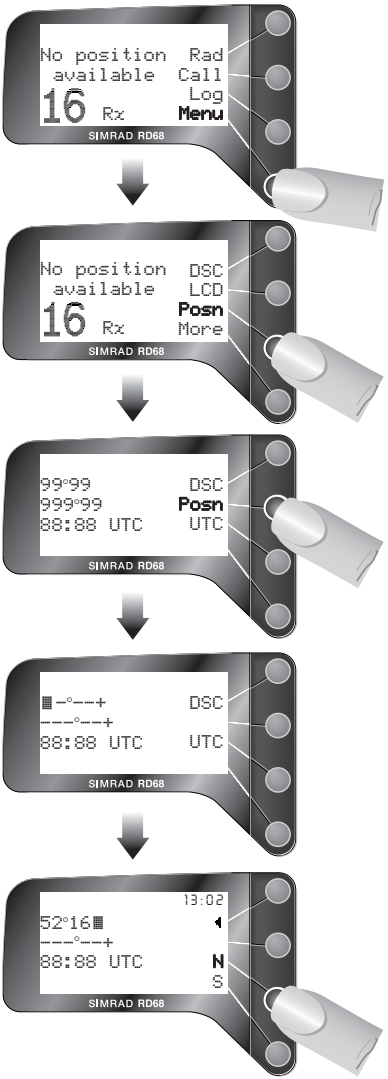
Press ▲ and ▼ keys to adjust contrast:
max = +7
min = –8

*Press **DSC** to return to main menu or **C** to cancel*

3.2 Entering position and time manually

The boat's position and the time (transmitted as part of a Distress Alert call) would normally be given by an interfaced GPS. If this is not available, the information can be manually entered:

If no GPS information is being received, the clock is not shown and the display shows "No position available"

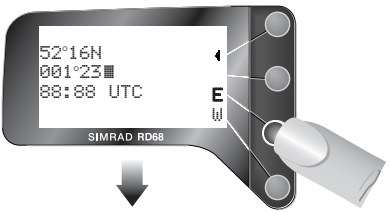


Enter Lat and Long using the keypad

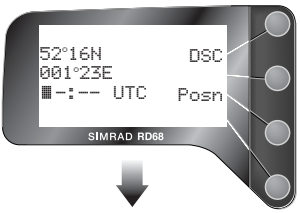
*Press **N** or **S** for Latitude*

/continued

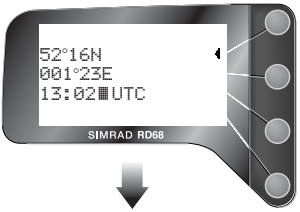
*Press **E** or **W** for Longitude reference from meridian*

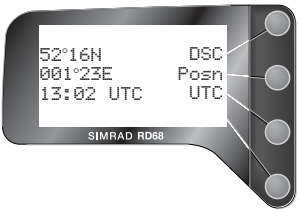


*Press **E** (Enter) key to confirm position and select time*



*Enter UTC time (24-hour format) using keypad and press **E** to confirm*

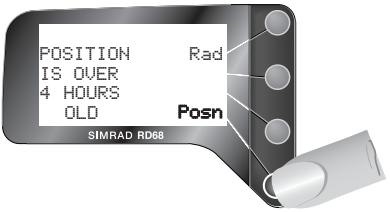




Note — *The display will now show the manual Lat and Long when in DSC mode, but the clock display will not be shown (this is only available if NMEA position and time data is being received).*

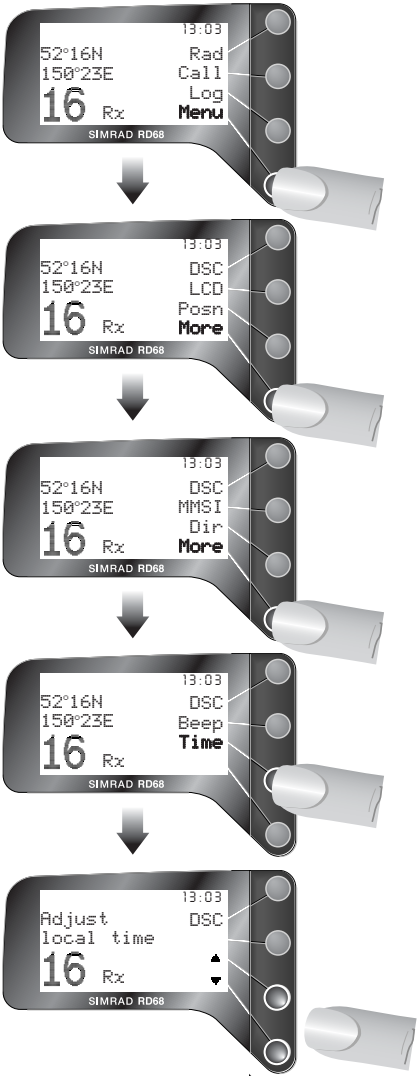
Note — *This option will not be available if position and time data is being received via the NMEA input.*

If this option is used, the RD68 will request that the position and time be updated regularly



3.3 Entering local time

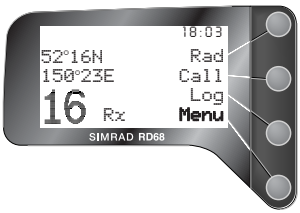
When a GPS is connected to the RD68 via the NMEA interface, the display will show the UTC (GMT) time in the top right-hand corner. This can be changed to the local time if required:



*Use arrow keys to adjust to local time and press **DSC** to return to main menu*

/continued

The display will now show local time

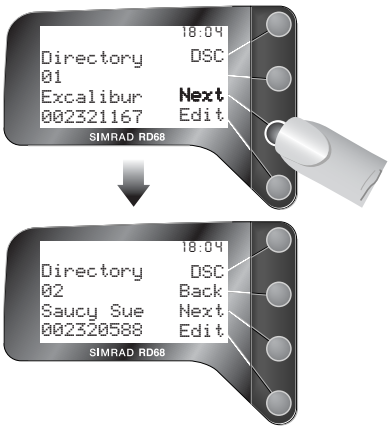


3.4 Viewing the directory

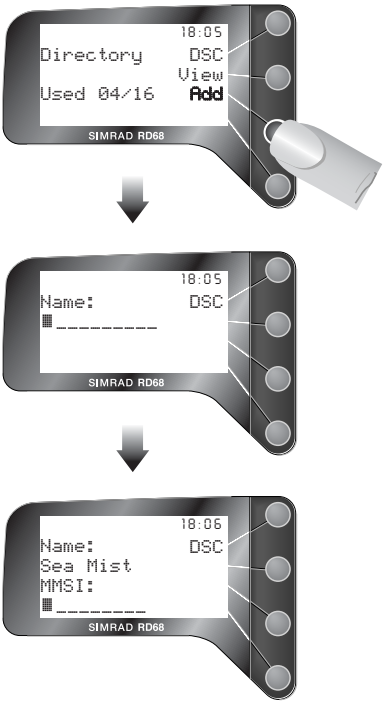
The directory allows up to 16 MMSI numbers to be stored in the RD68's memory. These can then be recalled when making an Individual Routine call:

The main directory screen shows the number of directory entries

/continued



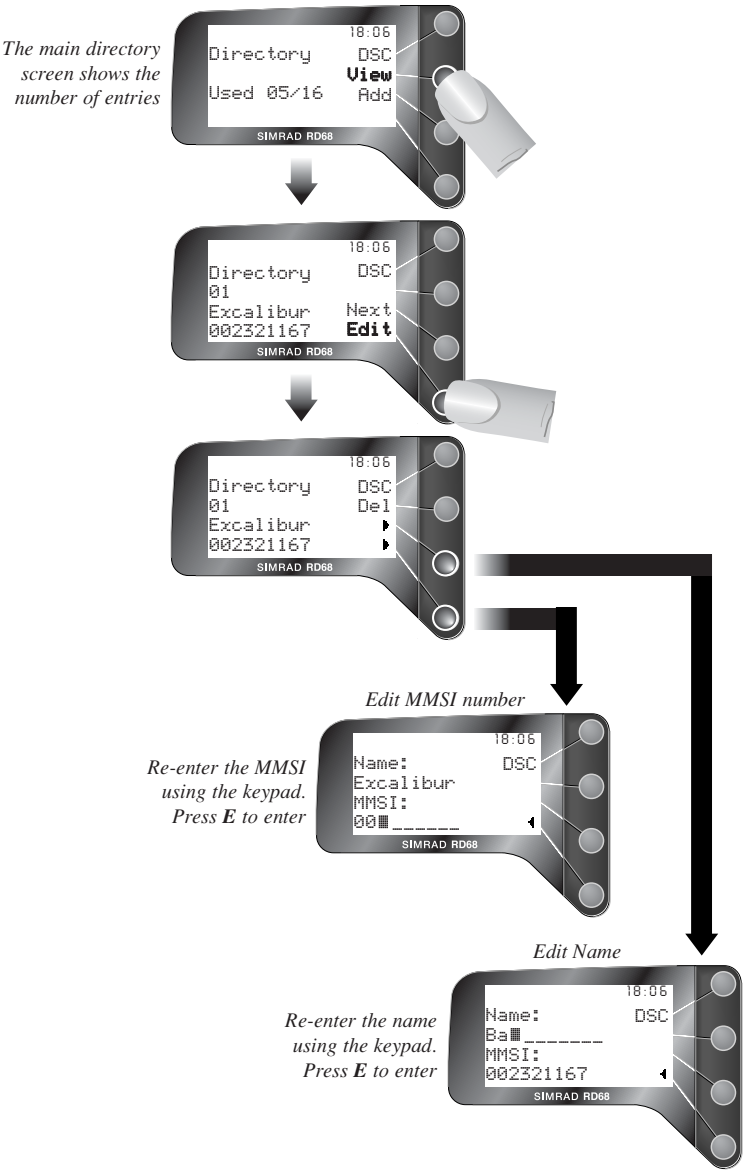
3.4.1 Adding an entry to the directory



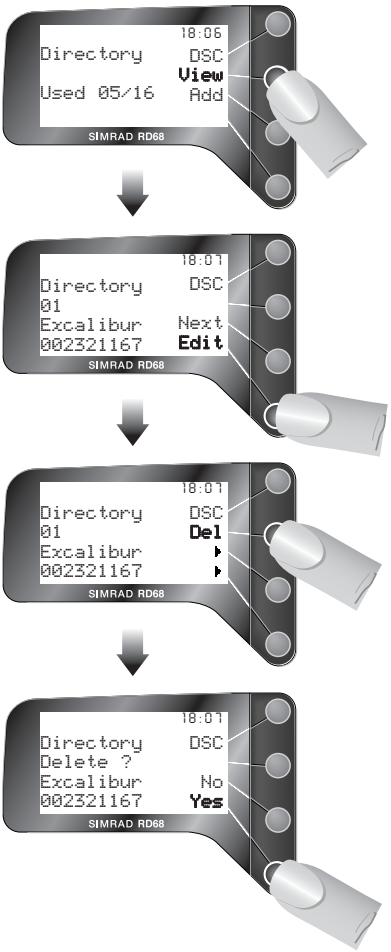
1 Press	0	sp	A	D	G	J	M	P	T	W
2 Presses		1	B	E	H	K	N	Q	U	X
3 Presses			C	F	I	L	O	R	V	Y
4 Presses			2	3	4	5	6	S	8	Z
5 Presses								7		9

3.4.2 Editing/deleting an entry

To edit an existing entry:



To delete an entry from the directory:



3.5 Disabling the key beep

All key presses on the RD68 are normally confirmed by a "beep" – this feature can be disabled:

To re-enable the key beep, repeat the above key sequence.

Note

The key beep will be disabled on all first level functions. Second level functions which are accessed by pressing and holding a key (e.g. setting the User channel or adding a channel to the Memory Scan cycle) will still be audibly confirmed by a double beep – this cannot be disabled.

3.6 Second country mode

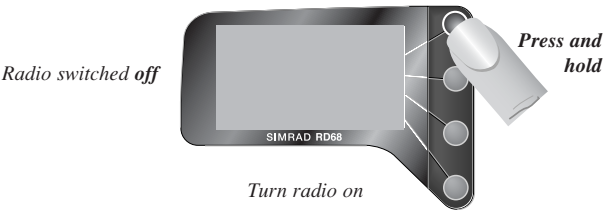
In countries where it is permitted, the RD68 can operate on a secondary set of channels, such as the USA channels:

Note — *Channel sets available will depend on programming. Please enquire with your national licensing authority for details of permitted channel sets in your country (see also section 5.4).*

Note — *The radio will revert to the International channel set when it is switched off.*

3.7 Speaker mute (handset models only)

On radios fitted with a handset, lifting the handset from the cradle will normally mute the loudspeaker. However, this can be disabled, so that the loudspeaker will remain on when the handset is lifted, and incoming transmissions will be heard both in the handset earpiece and the loudspeaker.



To restore speaker muting, repeat the above procedure.

4 INSTALLATION

4.1 VHF installation

The radio should be sited so that engine noise and vibration or other background noise do not make it difficult for the operator to hear.

Although the RD68 radio is waterproof when flush mounted, it is recommended that it is not installed where it will be exposed to continuous direct sunlight, as this will eventually damage the LCD display.

As microphones and loudspeakers contain powerful magnets, the radio should not be installed within 1 m (3 ft 3 in) of any compasses, whether magnetic or electronic.

The fins on the back of the case act as a heatsink to dissipate heat generated by the set when in use, which maintains the high efficiency of the radio. The free circulation of air is essential – when mounting the radio in an enclosed space, ensure that the space is vented.

Desktop mounting *Overhead mounting*

Fig 4.1 - Standard mounting options

The VHF is supplied with a reversible mounting bracket. This can be used to mount the VHF on the chart table or on an overhead bulkhead (Fig 4.1). The bracket is fixed in place using four No. 10 x 3/4 in screws (supplied). Before installing, ensure that there is at least 88 mm (3.5 in) vertical clearance and 100 mm (3.9 in) horizontal clearance behind the bracket to allow the radio to fit (Fig 4.2).

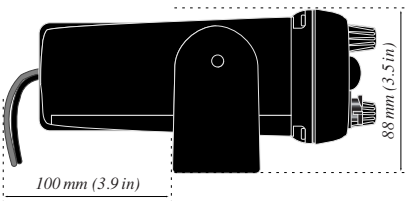
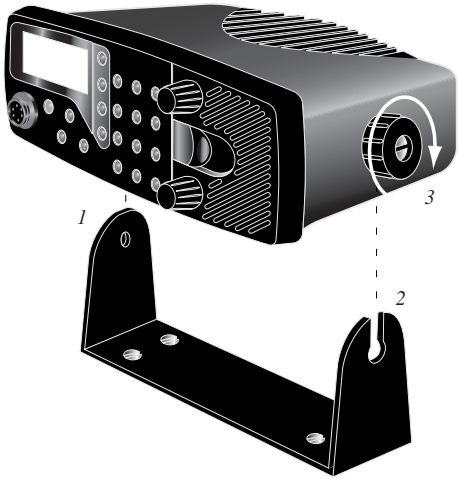


Fig 4.2 - Minimum clearance required

The radio is fixed to the bracket using a simple clamp arrangement. The peg on the left side of the radio is slotted into the hole in the bracket. The clamp on the right side of the radio can then be slid into the slotted aperture on the bracket and tightened to hold the radio firmly in place (Fig 4.3). The rake angle of the radio can be adjusted by slackening the clamp.



1. *Fit locating peg (left side) into hole in bracket*
2. *Slide locking clamp (right) into slot in bracket*
3. *Tighten clamp*

Fig 4.3 - Fixing the VHF to the bracket

An alternative mounting method is to use the flush mounting kit (**FMB1000:BK**, supplied separately). This allows the radio to be neatly installed inside a bulkhead, so that only the fascia of the radio is visible.

→ *For more details of this and other accessories available, please refer to section 5.6.*

The RD68 has five electrical connections – the handset/fistmike socket is on the front panel below the LCD display (Fig 4.4A). The other four are situated on the back of the case: the antenna socket is on the left (Fig 4.4B); DC power is supplied to the set via a two-core flying lead (Fig 4.4C); the NMEA input connections (Fig 4.4D) allow a GPS to be interfaced, below which is a 3.5 mm jack socket for an optional extension speaker (Fig 4.4E) – this is covered by a weather plug when not in use.

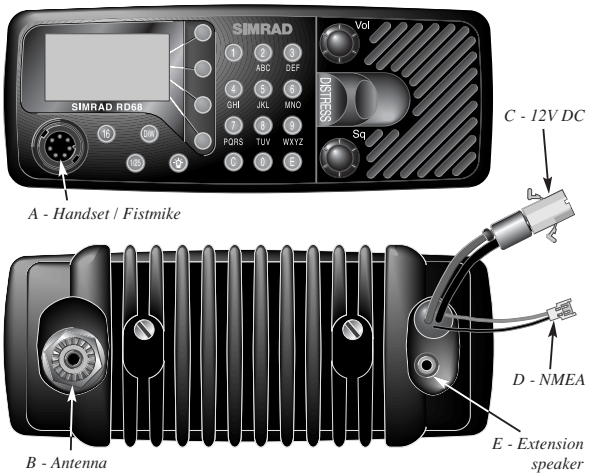


Fig 4.4 - External connections

The VHF requires a 12 V DC supply to operate and is supplied with a power lead which incorporates an in-line 7.5 Amp fuse. This lead should be connected to the vessel's power supply, keeping the cable runs as short as possible. Although the radio draws very little current when receiving, a heavier current is drawn when transmitting, which may result in a voltage drop if long cable runs of inadequate core diameter are used. If the supplied power lead is not long enough, an extension of up to 3 m (10 ft) can be made using at least 2.5 mm^2 (13 AWG) wire.

The red wire is positive and black is negative. If polarity is accidentally reversed, the set is protected, but the fuse will blow. Ensure that it is replaced with a fuse of the correct 7.5 Amp rating. The radio is designed to be easily removable for storage or security, so leave an adequate length of cable to ease disconnection. The flying lead from the rear of the radio can then be plugged into the power supply lead. Note, that the configuration of the plug prevents incorrect connection.

The antenna is connected to the radio using a standard PL259-type connector as fitted to most marine antennas. If fitting to an existing antenna, check that the contacts are not corroded before connecting, as this will affect the quality of the signal. Ensure that the retaining collar of the antenna plug is securely tightened to prevent accidental disconnection.

For NMEA interfacing to an external navigation source (e.g. a GPS, Loran or chartplotter) the RD68 is supplied with a 1 m cable assembly which plugs into the lead at the back of the radio. The other end is connected to the navigator as follows:

Wire color	**Navigator connections:**
Red	NMEA OUT Data (+)
Blue	NMEA OUT Common (-)

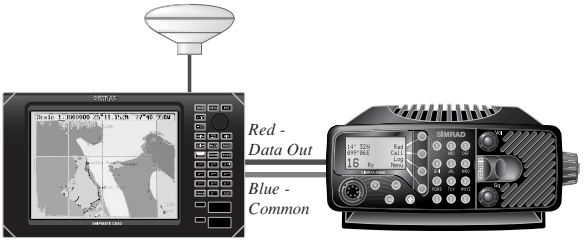


Fig 4.5 - Linking to navigation source

Note

If the navigator does not have a dedicated NMEA common terminal, the blue wire should be connected to the 0 V terminal of the navigator.

The extension speaker socket takes a standard 3.5 mm jack plug. The speaker used must have a minimum impedance of 8 Ω.

4.2 Antenna installation

The most important factor in the performance of the radio will be the quality and positioning of the antenna. Most recorded problems with VHF radios are related to poor antenna siting, faulty cabling, poor quality cable joints, and low voltage supply. Even a VHF as highly advanced as the RD68 cannot compensate for these factors. Therefore, when replacing an existing VHF installation, it is important that the antenna is thoroughly checked for any faults or damage before use.

As the range of VHF signals are governed by line of sight (see section 5.3), the antenna should be placed as high as possible, while remaining clear of any metallic objects that could influence the resonance of the antenna.

The most popular antennas for marine use are 1 m (3 ft 3 in) long. On sailboats these are usually mounted on the masthead, where the length of the antenna keeps it clear from the navigation lights and windvanes, etc. This type of antenna can also be mounted on the cockpit roof or garage of power boats.

Longer whip antennas are recommended for larger boats – these radiate the same total power as smaller antennas, but concentrate it into a narrower beam, which is advantageous on a tall mast at extreme range where concentrating the available power into a narrow horizontal beam becomes more important. However, if the antenna is not vertical when transmitting, the beam will be angled either too high or too low (Fig 4.6).

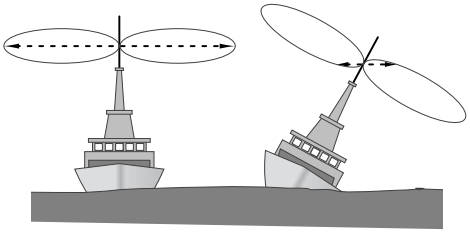


Fig 4.6 - Effect of heel on range of longer whip antennas

Here the wider beam of the shorter antenna will be more universally effective, although the signal will be weaker (Fig 4.7).

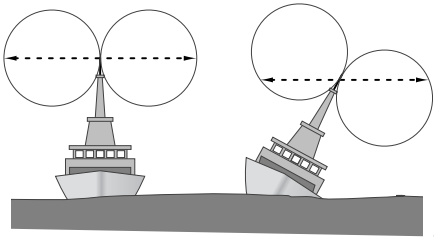


Fig 4.7 - Effect of heel on range of 1 m marine antennas

Therefore, for vessels with a large heel angle (small sailboats) a short masthead antenna would be a better choice. Your local agent should be able to provide specific advice on antenna choice for the vessel it is to be fitted to.

WARNING ***The antenna coaxial cable and any connectors used must be rated at 50Ω. Under no circumstances should standard domestic TV cable and connectors be used. Incorrectly rated cabling and connectors could result in power not reaching the antenna, but power could also be reflected back into the radio, damaging it in the process.***

The quality of any connections and integrity of the cable (without breaks in the sheathing) will directly affect the performance of the radio. Poor soldering or corrosion of the terminals can impair performance. We recommend that screw or crimp terminal-type connectors are **not** used for any through-deck fittings – a good quality waterproof solder terminal connector will be less susceptible to poor connection due to corrosion of the contacts.

Note

*If the RD68 detects a problem with the antenna or antenna connections, the display will show **ANT** when the **PTT** key is pressed. To avoid possible damage to the radio the antenna should be checked immediately for any damage or poor connection.*

4.3 Electrical interference suppression

Interference generated by the alternator of the engine may occasionally cause problems. The RD68 has been designed to minimize the effects of outside interference. However, precautions should still be taken – route the power supply and antenna cables away from the engine compartment. The cable run should not be down the same trunking as other cables carrying high current. The antenna cable should also be kept separate from the radio's power cable.

Engines with spark ignition—and also some refrigerators—should be fitted with suppressors. Your local agent should be able to give advice on this, and also supply suppression kits where necessary.

5 APPENDIX

5.1 Operating procedures

The following operating procedure summary has been proposed by the UK Maritime and Coastguard Agency. It is not exhaustive and should not be regarded as a replacement for information provided by the proper two-day VHF/DSC training course required for all UK VHF license holders.

5.1.1 Sending a Distress Alert

1. Send a Distress Alert call (see section 2.7).

2. Wait approx. 15 seconds for a DSC acknowledgment from the Coastguard or a ship station.

3. On receipt of a DSC acknowledgment, or after about 15 seconds, transmit the following distress call on channel 16:

"Mayday, Mayday, Mayday"
"This is ***(name of vessel, repeat three times)"***
"Mayday (*MMSI number and name of vessel or callsign – Position – Nature of distress – No. of persons on board)"***
"I require immediate assistance"
"Over."

If the vessel is not in grave and imminent danger, an All Ships Urgency call followed by a spoken "Pan Pan" or a routine call to the nearest Coastguard station may be more appropriate.

WARNING ***It is a prosecutable offense to initiate a Distress Alert call for any other reason than that the vessel and/or crew is in grave and imminent danger.***

5.1.2 Acknowledging and relaying a Distress Alert

When a DSC Distress Alert is received, an audible alarm will sound. Immediately cease any transmission that may interfere with distress traffic and continue a watch on channel 16.

If there is no DSC acknowledgment from a coast station or ship, after a short interval acknowledge by voice on channel 16:

"Mayday ***(MMSI of vessel in distress, repeat three times)"***
"This is ***(name of own vessel, repeat three times)"***
"Received Mayday ***(state the assistance you can give)"***
"Over."

A similar response should be given to a distress relay, using the words "Mayday Relay" instead of "Mayday".

5.1.3 Cancelling a Distress Alert

If a DSC Distress Alert is sent accidentally, cancel it immediately on the RD68 by pressing the **C** button to prevent repeats, then make the following announcement on channel 16:

"This is *(name of vessel, callsign, MMSI)*"
"Cancel DSC Alert sent *(date & time UTC)*"
"Over."

DO NOT simply cancel the DSC alert without verbally canceling it as well, otherwise the rescue authorities will not be aware that this is a false alarm.

5.1.4 Alerting all vessels within range

If the vessel is outside of coast radio range and needs to issue a safety warning to all vessels within radio range, transmit an All Ships Safety call by DSC. After about 15 seconds transmit on channel 16 the safety call and message as follows:

"Securité, Securité, Securité"
"All stations (or called station – *repeat three times)*"
"This is *(MMSI and name or callsign of own vessel – repeat text of safety message)* – Over."

5.1.5 Calling a coast radio station

Enter the MMSI of the station into the RD68, either manually, or from the directory. When the call is acknowledged, the working channel for voice communication will be indicated and the RD68 will automatically switch to that channel. Make a voice call as normal.

5.1.6 Making an intership call

Enter the vessel's MMSI into the RD68, either manually, or from the directory. Before sending the call, enter the intership channel to be used for subsequent communication. When the alarm sounds on the called vessel, its operator should acknowledge by DSC, then respond by voice on the selected channel.

If the MMSI number of the vessel is not known, call as now on channel **16**. If no response is received, call on channel **13** (this is the GMDSS bridge-to-bridge communication channel).

5.2 NMEA sentences received

The following NMEA0183 sentences are processed by the RD68 in order to transmit the boat's position when a Distress Alert is initiated:

NMEA version 2.0 – *GGA, GLL, RMC*.

5.3 Transmission range

Because VHF signals travel in a straight line and are not reflected back off the ionosphere as lower frequency signals are, the range of VHF signals is limited to 'line of sight', beyond which other vessels pass behind the curve of the Earth.
Therefore, the range will increase greatly the higher above sea level the antenna is positioned, as Fig 5.1 illustrates (assuming maximum transmission power is used):

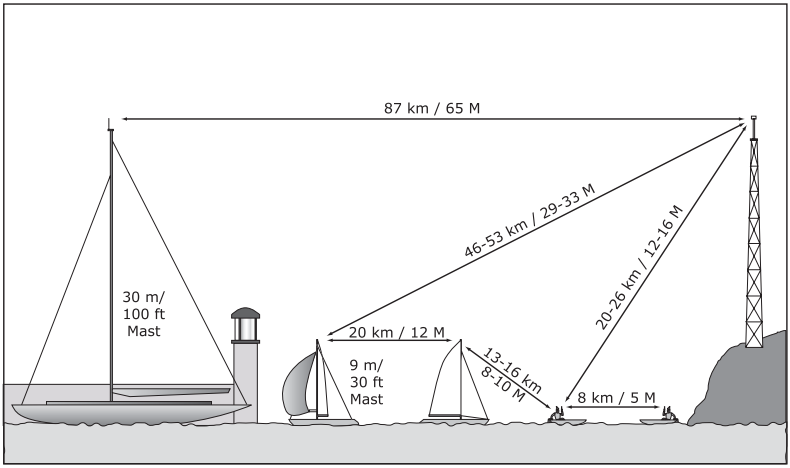


Fig 5.1 - VHF transmission range

The typical ship-to-ship range of a fixed VHF radio, such as the RD68, with a masthead antenna will be approximately 20 km (12 miles). This will increase as height above sea level increases, or if the other radio user's antenna is at a greater height – note, that the range between the yacht with the antenna mounted on a 9 m (30 ft) mast and the shore station increases to 46–53 km (29–33 miles).

5.4 Channel frequencies

Channel Designators	Tx	INT Rx	USA Rx
0	156.000	156.000	156.000
60	156.025	160.625	156.025
01	156.050	160.650	156.050
61	156.075	160.675	156.075
02	156.100	160.700	156.100
62	156.125	160.725	156.125
03	156.150	160.750	156.150
63	156.175	160.775	156.175
04	156.200	160.800	156.200
64	156.225	160.825	156.225
05	156.250	160.850	156.250
65	156.275	160.875	156.275
06	156.300	156.300	156.300
66	156.325	160.925	156.325
07	156.350	160.950	156.350
67	156.375	156.375	156.375
08	156.400	156.400	156.400
68	156.425	156.425	156.425
09	156.450	156.450	156.450
69	156.475	156.475	156.475
10	156.500	156.500	156.500
70	156.525	156.525	156.525
11	156.550	156.550	156.550
71	156.575	156.575	156.575
12	156.600	156.600	156.600
72	156.625	156.625	156.625
13	156.650	156.650	156.650
73	156.675	156.675	156.675
14	156.700	156.700	156.700
74	156.725	156.725	156.725
15	156.750	156.750	156.750
75	156.775	156.775	156.775
16	156.800	156.800	156.800
76	156.825	156.825	156.825
17	156.850	156.850	156.850
77	156.875	156.875	156.875

Channel Designators	Tx	INT Rx	USA Rx
18	156.900	161.500	156.900
78	156.925	161.525	156.925
19	156.950	161.550	156.950
79	156.975	161.575	156.975
20	157.000	161.600	161.600
80	157.025	161.625	157.025
21	157.050	161.650	157.050
81	157.075	161.675	157.075
22	157.100	161.700	157.100
82	157.125	161.725	157.125
23	157.150	161.750	157.150
83	157.175	161.775	157.175
24	157.200	161.800	161.800
84	157.225	161.825	161.825
25	157.250	161.850	161.850
85	157.275	161.875	161.875
26	157.300	161.900	161.900
86	157.325	161.925	161.925
27	157.350	161.950	161.950
87	157.375	157.375	157.375
28	157.400	162.000	162.000
88	157.425	157.425	157.425
29	–	–	157.450
89	–	–	157.475
WX01	–	–	162.550
WX02	–	–	162.400
WX03	–	–	162.475
WX04	–	–	162.425
WX05	–	–	162.450
WX06	–	–	162.500
WX07	–	–	162.525
WX08	–	–	161.650
WX09	–	–	161.775
WX10	–	–	163.275

Note: Duplex channels are marked in grey.

Designation	Tx	Rx	Country
M	157.850	157.850	UK
M2	161.425	161.425	UK
31	157.550	161.150	Holland / Belgium
96	162.425	162.425	Belgium
L1/1L	155.500	155.500	Scandinavia
L2/2L	155.525	155.525	Scandinavia
L3/3L	155.650	155.650	Scandinavia (not Denmark)
F1/1F	155.625	155.625	Scandinavia
F2/2F	155.775	155.775	Scandinavia
F3/3F	155.825	155.825	Scandinavia

The supplementary table (see left) lists further channels, which may be fitted to your radio. These are only licensed for use in the countries indicated. No attempt should be made to use them in any other country.

Note

Ch 0 will only be made available in the UK to Coastguard users with written authorization.

Channel 70 is the designated Digital Selective Calling (DSC) channel and may not be used for voice transmissions.

5.5 Troubleshooting

Symptom	Possible Cause	Remedy
Unit will not switch on	* Faulty connection to power * Fuse has blown	* Check power connection * Replace fuse and check power supply current
Scan or Memory Scan is locking on a channel without a signal	* Noise on the channel is holding the scan	* Increase squelch level * Inhibit channel from scan (see section 2.11.1)
Dual Watch not being entered	* Priority channel selected * Handset off cradle	* Select a working channel * Replace handset
Cannot change channel	* Dual Watch (D/W) engaged	* Exit Dual Watch
Certain channels are not obtainable	* Some channels are restricted and not programmed depending on country of purchase	* Consult your national authority for permitted channels in your region
Will not transmit	* Scanning or D/W function active	* Exit D/W or Scan
Will not transmit on 25W but OK on 1W	* Low voltage when full transmitting current is drawn * Some channels are restricted to low power transmission only	* Check power supply * Consult your national authority
Transmissions persistently weak /display flashes **ANT**	* Damaged antenna * Antenna cable broken * Poor contact	* Replace antenna * Replace cable * Check antenna sockets & through-deck connector

These simple checks should be carried out before seeking technical assistance and may save time and expense. Before contacting your servicing agent, please obtain the radio's serial number. The software iteration should also be quoted – this is shown in the large digits on the display for 2 seconds after the radio is turned on and should be written in the box below for future reference.

RADIO SERIAL No.		SOFTWARE ITERATION	

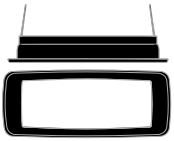
5.6 Accessories

The following accessories are available from your Simrad Technical Dealer. Please quote the relevant part number when ordering.

THS5
Spare telephone handset

FTM5
Spare fistmike

LS60
Waterproof loudspeaker



FMB1000:BK
Flush Mount Kit

5.7 Technical specifications

Power supply . . . . . 12 V DC (10.8 V–15.5 V DC)
Channel capability . . . . . 55 international channels
. . . . . 1–28, 60–88 simplex & semi-duplex
. . . . . UK: includes M (previously 37) and M2
. . . . . USA: includes 0, 29, 89, 75, 76, Wx1–10 receive only.
. . . . . Scandinavia: leisure or fishing channels as appropriate.
. . . . . Canada: Canadian and USA channels.
Private channels . . . . . Up to 16 private channels*
External speaker impedance 8Ω

**Contact your local Simrad Technical Dealer for further details.*

Transmit

Frequency range . . . . . 155–163 MHz
Power output . . . . . 1 Watt or 25 Watts
Current consumption . . . . . 5.5A (25 Watts), 1.3A (1 Watt)
Harmonic and spurious emissions . . . . . < 0.25 µW
Hum/noise . . . . . < -40 dB
Modulation . . . . . ±5 kHz

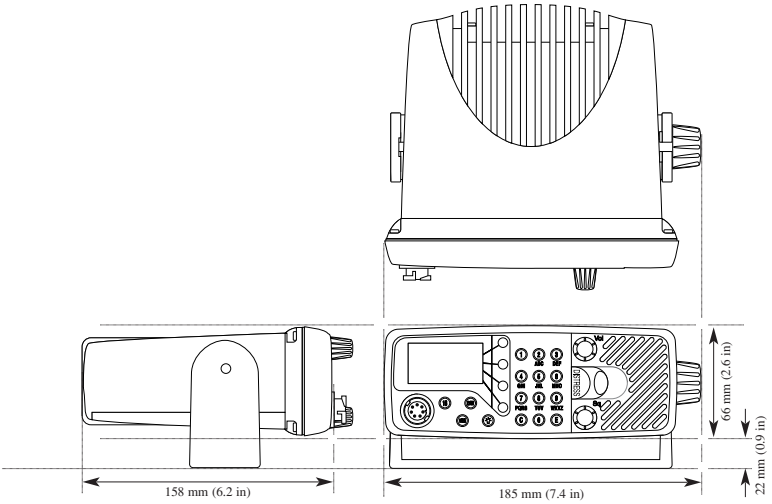
Receive

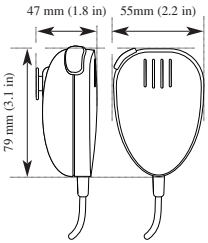
Audio output power . . . . . 2 Watts
Current consumption . . . . . 600 mA (Full volume, illumination on)
. . . . . 220 mA (Fully squelched, illumination off)
Sensitivity . . . . . < 0.5 µV emf for 20 dB SINAD
Harmonic and spurious emissions . . . . . < -2 nW
Hum/noise . . . . . < -40 dB
Adjacent channel selectivity . . . . . 70 dB
Intermodulation rejection . . . . . 70 dB

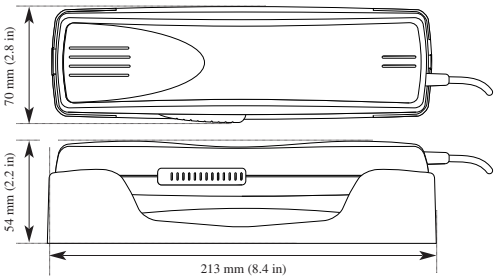
Environmental

VHF Radio . . . . . Waterproof to IP66 when flush mounted
Fistmike/telephone handset . . . . . Waterproof to IP67

5.8 Dimensions







5.9 Declaration of Conformity

English Hereby, **Simrad Limited (Margate)** declares that this **RD68 VHF Radio** is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

Finnish **Simrad Limited (Margate)** vakuuttaa täten että **RD68 VHF Radio** tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivinmuiden ehtojen mukainen.

Dutch Hierbij verklaart **Simrad Limited (Margate)** dat het toestel **RD68 VHF Radio** in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.

French Par la présente, **Simrad Limited (Margate)** déclare que ce **RD68 VHF Radio** est conforme aux exigences essentielles et aux autres dispositions de la directive 1999/5/CE qui lui sont applicables.

Swedish Härmed intygar **Simrad Limited (Margate)** att denna **RD68 VHF Radio** står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.

Danish Undertegnede **Simrad Limited (Margate)** erklærer herved, at følgende udstyr **RD68 VHF Radio** overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.

German Hiermit erklärt **Simrad Limited (Margate)**, dass sich dieses **RD68 VHF Radio** in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet. (BMWi)

Greek Με την παρουσα **Simrad Limited (Margate)** δηλωνει οτι **RD68 VHF Radio** συμμορφωνεται προς τις ουσιωδεις απαιτησεις και τις λοιπες σχετικες διαταξεις της οδηγιας 1999/5/ΕΚ.

Italian Con la presente **Simrad Limited (Margate)** dichiara che questo **RD68 VHF Radio** è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.

Spanish Por medio de la presente **Simrad Limited (Margate)** declara que el **RD68 VHF Radio** cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.

Portuguese **Simrad Limited (Margate)** declara que este **RD68 VHF Radio** está conforme com os requisitos essenciais e outras provisões da Directiva 1999/5/CE.

Website – www.simrad.com

CE 0191

5.10 Service & Warranty

Your radio should seldom need servicing, although it will benefit from an application of silicone or Teflon grease to the antenna and mike sockets each season. The equipment should be regularly checked by making routine calls to other stations. On an annual basis, test the **DISTRESS** button by pressing it ONCE. This will display the Distress Alert screen and ensure that the button is functioning. Press **C** to return to the main screen – **DO NOT HOLD DOWN THE DISTRESS BUTTON**.

The unit is guaranteed for 2 years from date of retail sale. If it is necessary to have the unit repaired, return it carriage prepaid to the agent in the country of purchase with a copy of the receipted invoice showing the date of purchase. Where possible, return all the components, unless you are certain that you have located the source of the fault. If the original box is not available, ensure that it is well cushioned in packing – the rigors of freight handling can be very different from the loads encountered in the marine environment for which the unit is designed.

For worldwide Warranty details, please refer to the Warranty Card supplied with this unit.

www.simrad.com

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