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M A N U A L

Simrad RS8 I/RS82

VHF Radio System

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PART I

INTRODUCTION

1 GENERAL

1.1 Introduction

The RS81 and RS82 offer an extremely flexible approach to single and dual station VHF radios. The RS81 consists of an RS80B transceiver "black box" with an AHS81 voice-only active handset with built-in loudspeaker. The RS82 utilises the same transceiver, but is supplied with an AHS82 DSC-enabled active handset and separate external speaker. Both the AHS81 and AHS82 are completely interchangeable and offer full intercom facility between stations (Fig 1.1).

In any system combination that has an AHS82 handset the radio will accept geographical position input via the proprietary SimNet data network, or via NMEA0183. Such a combination will also support iDSC interface with Simrad Chartplotters, enabling any DSC alerts to be displayed and acknowledged from the plotter itself.

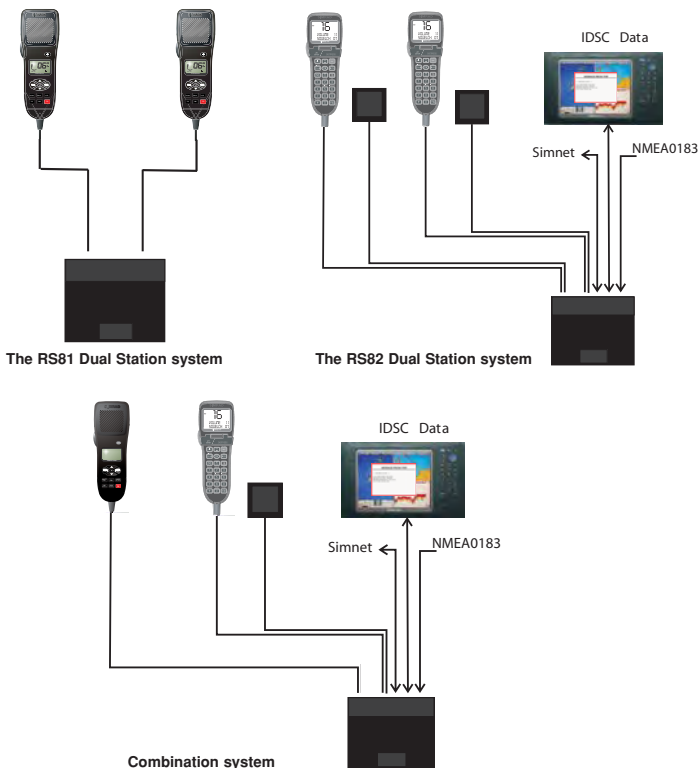


Fig 1.1 - System options

The AHS81 and AHS82 have been designed with simple operation in mind for ease of use, even in installations that have one station of each type. The handsets are fully waterproof and designed for all environments from the navigation station to the open cockpit.

1.1.1 About this manual

This manual combines operating and installation information on both the RS81 and RS82 and is divided into four main parts. As the handsets have differing layouts and functions are accessed in different ways, we recommend that you familiarise yourself with the information pertaining to the product that you have purchased prior to installation or use. This will facilitate full understanding of the many operating features and ensure straightforward installation.

Thank you for choosing Simrad.

If you are pleased with your VHF radio, we hope you will be interested in our range of marine electronic equipment, which is manufactured to the same high standards as the RS81/RS82. Please contact your nearest Simrad agent for a catalogue showing our increasing range of high-tech navigational instruments, GPS, Autopilots, Radar, Echosounders, Chartplotters and VHF radio sets.

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

1.2 Licensing

NOTE

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

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

**Ship Radio Licensing
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 Radio-telephony (which covers MF/HF SSB, etc.) do not need a separate VHF certificate.

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

1.3 MMSI number

At the time of issue of your vessel's radio licence, an MMSI (*Maritime Mobile Service Identity*) number must be requested to enable the operation of DSC functions. This is a nine-digit number, which must be permanently entered into the RS82, or RS81 with the DSC-capable AHS82 handset fitted.

NOTE

If the boat, or the RS81 or RS82, is subsequently sold, the radio must be returned to an authorised Simrad agent for the MMSI number to be erased and the new owner's MMSI number entered.

An MMSI number will only be issued to licensed and certified users. Please enquire with your local licensing authority for full details.

Please refer to section 4.2.1 (RS81) or section 8.2.1 (RS82) for information on how to enter the vessel's MMSI 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, which will allow DSC communication within the group, if DSC is available.

NOTE

Contact your local authority for rules regarding Group MMSI number allocation.

Please refer to section 8.2.2 for information on how to enter a Group MMSI number. *Please note, that the Group MMSI number function is not available on the AHS81 handset.*

1.5 ATIS number

Some countries require an ATIS number (e.g. Benelux and the Rhine/Danube waterways); however, this option will only appear on ATIS-equipped radios.

Please refer to section 4.2.2 (RS81) or section 8.2.3 (RS82) for information on how to enter the ATIS number.

PART II

**THE
RS8I VHF RADIO SYSTEM**

2 INTRODUCTION



AHS81 handset

The RS81 is a modular VHF radio system with a user friendly, remote-style handset to access and control all functions. The RS81 transceiver “black box” is robustly constructed using a pressure die-cast aluminium case for effective heat dissipation, ensuring maximum transmission performance even after many hours constant use.

The dual station RS81 radio system has been designed for countries in which DSC capability is not a requirement. It is ideal for leisure and light commercial use and can support up to two handsets. Additional stations can either be another AHS81-type handset, or a DSC-capable, fully-featured AHS82 radio-telephone handset. The RS81 offers full intercom facility and allows optional geographical position input via NMEA (if the second handset is an AHS82).

The operation of the AHS81 handset, which has an inbuilt loudspeaker, is designed to be simple and intuitive. Large buttons and a rubber-profiled handle-back ensure safe and comfortable handling, whilst the large, backlit LCD allows easy reading, even in difficult conditions.

The handset is tough and waterproof, and is designed to withstand the rigours of the marine environment.

3 MAIN FUNCTIONS

3.1 General notes

Packed with many advanced features, the Dual Station RS81 is compact and has a contemporary look and feel.

The **SHIFT** key is used to access secondary functions printed in small letters below the main function on the key – simply press **SHIFT**, then select the appropriate key. Secondary functions are shown in this manual in brackets, e.g. (SCAN M).



NOTE

The **SHIFT** key will time out of Shift mode after 2 seconds, if another key is not pressed.

The handset plugged into Station 1 is the master controller. Operations initiated on this handset will override all other stations. When a handset is lifted off its cradle, the other handset will display “OCCUPIED”. If a press and hold operation is initiated on a handset, the other will display “IN USE” and functions will not be accessible.

When entering or editing text in any of the displays, the cursor position is indicated by a flashing dash.

3.2 Switching the radio on & off



To switch the radio on, press and hold the **ON/C** key. For 2 seconds the display will show the handset's software issue number, then for 2 seconds the station number followed by the last channel used (see section 4.3.2).

When turning on the radio for the first time, all settings will display at default values, including the channel setting, which is set to the priority channel (normally 16). When turned on, the radio will revert to previously stored volume and squelch settings.



To switch the radio off, press and hold the **ON/C** key for 2 seconds. The display screen will go blank and any audio will be muted to indicate that the unit has been turned off.

3.3 Second country modes

In countries where it is permitted, the RS81 can operate on a secondary set of channels, such as the USA channels.



To enter the Second country mode press **SHIFT** followed by **OK**. The display will show the second country for 2 seconds, then reset. The current mode is displayed in the top left-hand corner (cf. Fig 3.1).

NOTE

Second country modes are linked to specific primary country modes:

Primary	Secondary
International, "INT"	USA, "USA"
USA, "USA"	International, "INT"
River (Rhine), "RIVER"	International, "INT"
Canadian, "CAN"	USA, "USA"

NOTE

If the primary country mode is Canadian, an optional tertiary country mode from "CAN" to either "USA", or "INT" becomes available.

3.4 Changing channels



To select a channel, use the ▼ and ▲ keys to scroll through the available channels and view their associated functions (Fig 3.1). The priority channel (normally 16) can be selected by pressing **16**, which will always set the radio to high 25W transmit power.

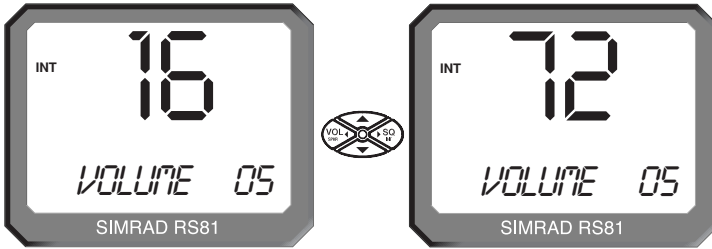


Fig 3.1 - Selecting a channel



The User channel is preset and can be directly accessed by pressing the **USER** key. A "U" next to the channel number will indicate that it has been set as the User channel (Fig 3.2).



Fig 3.2 - User channel selected

NOTE

The default for the User channel is 16.

NOTE



Selecting **16** at any point will revert the unit to channel 16, which is the default mode, and high power. This is a safety feature.

If a channel is selected using a press and hold operation, other handsets will not update, until the key has been released (cf. section 3.1).

3.4.1 Channel sets

In addition to the standard international channel, the RS81 can be programmed with a range of auxiliary channels, such as the Marina channel in the UK, the USA Weather channels and the Scandinavian Fishing and Leisure channels.



Use the ▲ and ▼ keys to choose a channel from the preset range (Fig 3.3).



Fig 3.3 - Selecting auxiliary channel sets
(sets must be available to be displayed)

3.5 Volume



Press the VOL◀ key to enter the volume adjustment mode, then use the ▲ and ▼ keys to adjust the volume from 1 to 24 (loud).

The volume adjustment mode will time out after 2 seconds if no key is pressed. If either the ▲ or ▼ key is held pressed, the mode will cycle through the settings until released.

3.6 Squelch

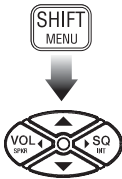


Press the ►SQ key to enter squelch mode, then use the ▲ and ▼ keys to determine the setting between 1 and 10. If either the ▲ or ▼ key is pressed continuously, the mode will cycle through the levels.



To cancel press the OK or ON/C key, otherwise the mode will time out after 2 seconds.

3.7 Speaker mute



To mute/unmute the handset's integral speaker and earpiece whilst the handset is on the cradle, press the **SHIFT** followed by **VOL ◀ (SPKR)** to toggle between mute (the display will show "SPKR MUTED") and unmute (the display will show "VOL-UME XX").

Pressing and holding **SHIFT**, as well as pressing **VOL ◀ (SPKR)** – when the handset is on the cradle – will control whether the speaker is muted when the handset is removed from the cradle. The display will show "CRD MUTE Y" (for "Yes") to confirm the setting, repeat the above procedure to unmute the speaker.

3.8 Dual Watch mode

Dual Watch allows the radio to scan between the selected working channel and the watch channel (the priority channel, usually 16).



To enter Dual Watch mode press **D/W** – the display will show the working channel in large digits with the watch channel displayed beneath (Fig 3.4).

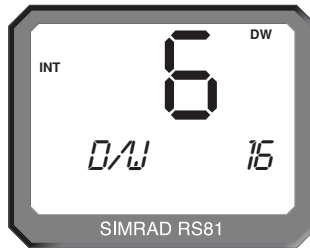


Fig 3.4 - Dual Watch mode

If the handset is not on the cradle, it will display "CRADLE" and the Dual Watch mode will terminate after 10 seconds, unless the handset is replaced.

When the radio detects a signal on the Watch channel, it will lock onto this and the large digits will change to show the Watch channel number.



To cancel Dual Watch lift the handset from the cradle, or press **ON/C** or **16**.

NOTE

Dual Watch cannot be initiated if the radio is on channel 16.

3.9 Triple Watch or Tri-Watch mode

The Triple or Tri-Watch function allows the radio to scan between the selected working channel, the User channel and the Watch channel (the priority channel, usually 16).



To enter Triple Watch mode, press and hold the **D/W** key for 2 seconds – the display will show the working channel in large digits with the Watch and User channels displayed in smaller digits below (Fig 3.5).

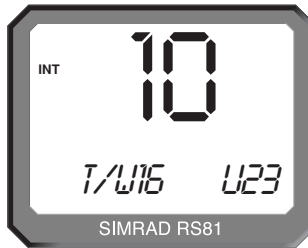


Fig 3.5 - Tri-Watch mode

If the handset is not on the cradle, it will display “CRADLE” and the Tri-Watch mode will terminate after 10 seconds, unless the handset is replaced.

When the radio detects a signal on the Watch or the User channel, it will lock onto this and the large digits will change to show the respective channel number.



To cancel Tri-Watch, lift the handset from the cradle, or press **ON/C** or **16**.

NOTE

Tri-Watch cannot be initiated, if the radio is on channel 16 or the User channel, or if channel 16 has been programmed to be the User channel.

3.10 All scan mode



In the scan function the RS81 will cycle sequentially through each enabled channel, pausing every time a signal is detected. To enter All scan mode, press **SHIFT** followed by **1W** (**SCAN ALL**). Two LCD segments will circle the screen to indicate that scanning is in progress (Fig 3.6, p. 23).



If the radio locks onto a channel, press **OK** to continue the scan, or wait until the signal becomes clear. If scanning is initiated and the handset is not on the cradle, it will display “CRADLE”. Scanning will time out after 10 seconds and not start, until the handset has been replaced.

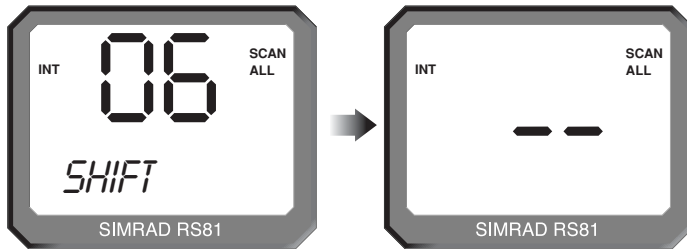


Fig 3.6 - All scan mode



To cancel lift the handset, alternatively press **ON/C** or **16**. The display will show the last channel scanned.

3.10.1 Dynamic All scan inhibit

If the radio repeatedly locks onto the same busy channel, this can be excluded from the scan by pressing **SHIFT** then **1W** (**SCAN ALL**) while locked on that channel.



“INHIBITED” will be displayed for 2 seconds, after which the scan will resume whilst excluding the inhibited channel. To reset inhibited channels, please refer to sections 4.1.1 and 4.1.2.

3.11 Memory scan mode

Memory scan allows scanning of a pre-programmed set of channels specified by the user (see also sections 4.1.4 and 4.1.5).



To enter Memory scan mode, press **SHIFT** followed by **D/W** (**SCAN M**). Two LCD segments will now circle the screen to indicate that scanning is in progress (Fig 3.7). If the radio locks onto a channel, press **OK** to continue the scan, or wait until the signal becomes clear.

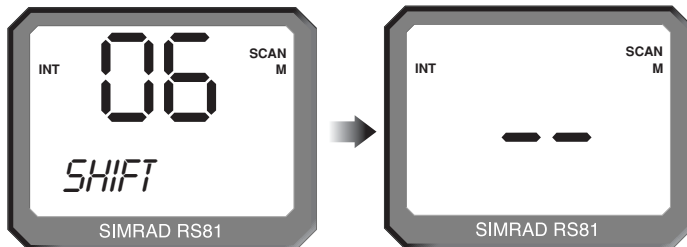


Fig 3.7 - Memory scan mode

If scanning is initiated and the handset is not on the cradle, it will display “CRADLE”. Scanning will not start until the handset has been replaced and time out after 10 seconds.



To cancel the scanning function lift the handset, alternatively press **ON/C** or **16**. The display will show the last channel scanned.

3.11.1 Dynamic Memory scan delete

If the radio repeatedly locks onto the same busy channel, this can be removed from the Memory scan process by pressing **SHIFT** and **D/W (SCAN M)** while locked on that channel.



“INHIBITED” will be displayed for two seconds (Fig 3.8), after which the scan will resume bypassing the inhibited channel. To reset inhibited channels, please refer to section 4.1.4.

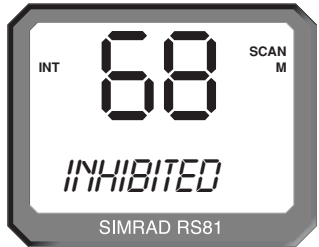


Fig 3.8 - Memory scan delete

3.12 Adjusting backlighting



The display and keypad are backlit – to set the backlighting level, press **SHIFT** followed by **ON/C**.



There are six levels of lighting: “OFF”, and 1 (bright) to 5 – use the **▲** and **▼** keys to adjust the brightness. The mode will time out after 2 seconds, but can also be cancelled by pressing either the **ON/C** or **OK** key.

3.13 Handset off cradle

The RS81 can support up to two handsets. If either is lifted of the cradle, the other will display “OCCUPIED”, unless a response to a station-to-station intercom call is required.

NOTE

If the master controller displays “OCCUPIED”, it will automatically become active when lifted, as its operation overrides all other handsets. The other handset will be locked out and will now display “OCCUPIED” instead.

4 MENU MODE

Menu mode is used to adjust the various radio settings, such as channels inhibited from scan modes, ID number programming and User channel selection.



To enter menu mode, press **SHIFT** twice. Use the **▲** and **▼** keys to scroll through the options listed below:

- **Scanning** (section 4.1) covers options related to the various scanning functions such as channel inhibit, memory scan select and scan dwell time.
- **Numbers** (section 4.2) explains how to enter ID numbers such as the Ship's MMSI and ATIS number.
- **VHF Items** (section 4.3) describes miscellaneous options such as selection of a User channel, last used channel, interrupt intercom and speaker settings.



To select an option press **OK**, to return to normal radio operation press **ON/C**.

NOTE

Entering menu mode will inhibit the operation of the radio. Exit menu mode before returning the handset to the cradle to permit normal operation.

4.1 Scanning



In the Menu mode select Scanning by pressing **OK**, using the **▲** and **▼** keys to scroll through the following options:

- All scan inhibit (section 4.1.1)
- All scan reset (section 4.1.2)
- All scan show (section 4.1.3)
- Memory scan select (section 4.1.4)
- Memory scan clear (section 4.1.5)
- Memory scan show (section 4.1.6)
- Scan dwell time (section 4.1.7)



To select an option press **OK**, to return to the main menu press **ON/C**.

4.1.1 All scan inhibit

If the radio is repeatedly locking onto a busy channel when scanning, this channel can be excluded from the scan cycle. Each option will be displayed for 2 seconds.



In Scanning mode press **OK**, then use the **▲** and **▼** keys to scroll and select the "ALL INH" option, which will be displayed for 2 seconds. Press **OK** again, then use the **▲** and **▼** keys to select the channel to be excluded, or, if the channel has been inhibited



(the display will show “INHIBITED”), the channel to be re-enabled (Fig 4.1). Press **OK** to confirm each setting.

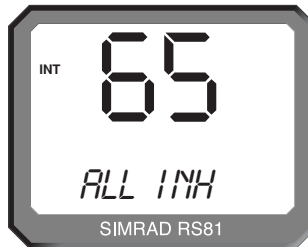


Fig 4.1 - Selected channel inhibited from scan



Press **ON/C** to return to the Scanning menu.



4.1.2 All scan reset

In the Scanning menu press the **OK** key to enter the submenu, then use the **▲** and **▼** keys to select “ALL RESET”. Now press **OK** to reset all inhibited channels. The display will show “RESETTING” for 2 seconds, then “ALL RESET” (Fig 4.2).

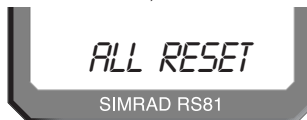


Fig 4.2 - All inhibited channels reset



Press **ON/C** to return to the main mode, or use the **▲** and **▼** keys to select another option.

4.1.3 All scan show

This Scanning mode function will display all inhibited channels. In Scanning mode press **OK** and use the **▲** and **▼** keys to select “ALL SHOW”. Press **OK** again and the display will change, “SHOWING” all inhibited channels in sequence.



Press **ON/C** to return to the main menu, or use the **▲** and **▼** keys to select another option.

NOTE

If private or auxiliary channels have been omitted from scanning, the “SHOWING” function will display them after the normal channels that have been excluded from scanning.

4.1.4 Memory scan select

This function selects the channels to be used in the Memory scan cycle (see section 3.10).



In Scanning mode press **OK** to enter the submenu and use the **▲** and **▼** keys to select “MEM SEL”, which will be displayed



for 2 seconds. Press **OK**, then use the **▲** and **▼** keys to choose the desired channel and press **OK** to add the channel to the memory scan, or to delete a previously selected channel (the display will show “ENABLED” for each selected channel).



Use the above procedure to select/deselect further channels, or press the **ON/C** key to return to the main scanning mode.

NOTE

North American users: only one Weather channel can be added to the Memory scan, if another one is selected, it will override the existing channel. The Weather channel will not be scanned as part of the Memory scan sequence, but used by the Weather Watch function instead (cf. section 5.1).

4.1.5 Memory scan clear

Memory scan clear will remove all channels previously included in the Memory scan.



Press **OK** to access the scanning submenu and use the **▲** and **▼** keys to select “MEM CLEAR” (Fig 4.3). Press **OK** to reset all the inhibited channels. The display will show “CLEARING” for 2 seconds.



Fig 4.3 - Selecting channel for memory scan



Use the **▲** and **▼** keys to choose another option, or press **ON/C** to return to the main menu.

4.1.6 Memory scan show

This function displays all channels selected for Memory scan.



Press **OK** to access the Scanning submenu and use the **▲** and **▼** keys to select “MEM SHOW”. The display will sequentially show all channels selected for memory scan.



To exit this submenu press **OK**, or use the **▲** and **▼** keys to choose another option.

4.1.7 Scan dwell time

This function is used to select the length of time the RS81 remains on a channel after it has locked onto it during either the All scan, or Memory scan function.



From the Scanning menu press **OK** to access the submenus and use the **▲** and **▼** keys to select “DWELL”. There are 11 levels of dwell time from 0–10 (seconds).



To adjust the dwell time setting, press **OK** to enter the edit mode and use the **▲** and **▼** keys to select the desired scan dwell time. The display will show “XX SECONDS” (with “XX” denoting the new dwell time) for 2 seconds, then return to “DWELL” showing the new level (Fig 4.4).



Fig 4.4 - Scan dwell time



Press **OK** to exit the submenus, or the **▲** and **▼** keys to choose a further option.

4.2 Numbers

The Numbers menu is used to enter ID numbers such as the MMSI (*Maritime Mobile Service Identity*) or ATIS numbers (the latter is applicable only in certain countries), please refer also to sections 1.3 and 1.5 of the introduction.

Once the Numbers menu option has been selected (see introduction to section 4), use the **▲** and **▼** keys to scroll through the following menu options:

- Ship's MMSI (section 4.2.1)
- ATIS number (section 4.2.2)

NOTE

The ATIS number option will only be shown if the radio is ATIS enabled. This feature is only available for sets used in the Benelux and Rhine/Danube waterways.



To select an option, press **OK**. To return to the main menu, press **ON/C**.

4.2.1 Ship's MMSI

NOTE

This option is only available in systems with an AHS82 connected (please refer also to section 1.3).

The Ship's MMSI function will display the boat's MMSI number once it has been entered, or will allow the MMSI number to be entered when the radio is being used for the first time.



From the Numbers menu (section 4.2) press **OK** to enter the submenu and select “SHIPS MMSI”. After 2 seconds the number will be displayed – if it has not been entered yet, the display will show dashes only (“- - -”), with a flashing dash indicating the cursor position (Fig 4.5, p. 29).

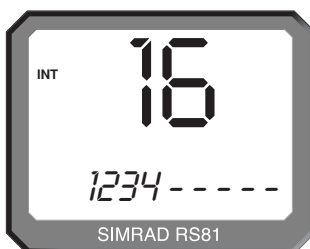


Fig 4.5 - Entering the MMSI number



To enter the nine-digit MMSI number, use the ▲ and ▼ keys to scroll and select the number required. Use the VOL ◀ and ▶ SQ keys to correct any errors and press **Ok** when entry is completed. The radio will now display "CONFIRM" and the MMSI number must be re-entered. If the two numbers do not match, the above procedure must be repeated.

NOTE

The MMSI number will not be accepted, unless all nine digits have been entered; the suffix "0" is automatically inserted by the radio.

CAUTION

The MMSI number can only be entered once and cannot be edited by the user. Should it become necessary to change the MMSI number (e.g. if the radio is being moved to another boat), the radio must be sent to an authorised Simrad service agent for reprogramming.



Press **ON/C** to return to the Numbers menu.

4.2.2 ATIS number

NOTE

This section applies only to radios used in countries where the ATIS system is in operation (Benelux and the Rhine/Danube waterways). This option will only appear on ATIS-equipped radios (see also section 1.5).

From the Numbers menu select "ATIS NO" – the display will show the ATIS number, unless the number has not been entered yet, in which case the display will show dashes only, with a flashing dash indicating the cursor position (" - - -").



Enter the nine-digit ATIS number using the ▲ and ▼ keys and the VOL ◀ and ▶ SQ keys to correct any errors.

Press **Ok** when entry is completed and re-enter the number when prompted by the radio ("CONFIRM", Fig 4.6, p. 30). If the two numbers do not match, the procedure must be repeated.



Fig 4.6 - Entering the ATIS number

NOTE

The ATIS number will not be accepted, unless all nine digits have been entered – the prefix “9” is automatically inserted by the radio.

CAUTION

The ATIS number can only be entered once and cannot be edited by the user. Should it become necessary to change the ATIS number, the radio must be sent to an authorised Simrad service agent for reprogramming.



Press **ON/C** to return to the Numbers menu.

4.3 VHF Items

The VHF Items menu contains the settings for miscellaneous items such as User channel, voice scrambling, lighting and speaker settings.

Once the VHF Items menu option has been selected (section 4), use the ▲ and ▼ keys to scroll through the menu options below:

- User channel (section 4.3.1)
- Last used channel (section 4.3.2)
- Interrupt intercom (section 4.3.3)
- Speaker settings (section 4.3.4)
- Lighting modes (section 4.3.5)
- SimNet (section 4.3.6)
- Serial number (section 4.3.7)



To select an option press **OK**, or press **ON/C** to return to the main menu.

4.3.1 User channel

This is a user-programmable priority channel, which is used in the Tri-Watch function and is selected by pressing the **USER** key.



In the VHF Items menu press **OK** to enter the submenus and use the ▲ and ▼ keys to select “USER CH”. Press the **OK** key again to edit the User channel and use the ▲ and ▼ keys to scroll to the desired channel. Press **OK** again to confirm, the display will show “SETTING” for 2 seconds (Fig 4.7).

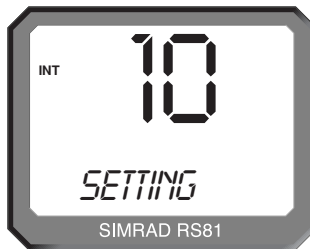


Fig 4.7 - Setting the User channel



Press **ON/C** to return to the VHF Items menu.

4.3.2 Last used channel

Normally, the RS81 will power up on the pre-programmed start-up channel (usually the priority channel). The Last used channel function enables the radio to power up on the last used channel (the default setting is "OFF").



Press **OK** to enter the VHF Items submenu and use the ▲ and ▼ keys to select "LST CH", which will show either "Y[es]", or "N[o]". Use the **OK** key to toggle between "Y" and "N".



Press **ON/C** to exit the submenu, or use the ▲ and ▼ keys to select another option.

4.3.3 Interrupt intercom

This function is used to specify whether intercom functions should be interrupted when an incoming VHF transmission is received.



Press **OK** to enter the VHF Items submenu and use the ▲ and ▼ keys to select "INT ICM Y" – note that the default setting is "Y[es]". Use the **OK** key to toggle between "Y" and "N".



Press **ON/C** to exit the submenu, or use the ▲ and ▼ keys to select another option.

4.3.4 Speaker settings

The speaker settings option is used to set the individual default volume levels for each station and/or intercom in the system.



Press **OK** to enter the VHF Items submenu and use the ▲ and ▼ keys to select "SET SPKRS", then press **OK** again to enter the speaker settings menu, the display will show "DEFAULTS" (Fig 4.8). Use the ▲ and ▼ keys to choose "STATION 1" or "STATION 2", then press **OK** to confirm.

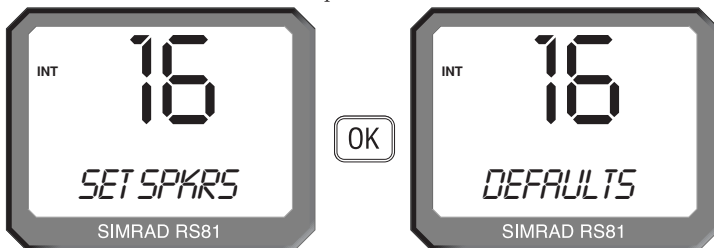


Fig 4.8 - Resetting speaker settings to defaults

NOTE

This menu has a wrap-around function.



Press **ON/C** to exit, or use the ▲ and ▼ keys to select another option.

4.3.4.1 Setting up speakers



Speaker levels can be reset by pressing **OK** to select “SET SPKRS” in the VHF Items submenu. Press **OK** to access the speaker settings submenu and use the **▲** and **▼** keys to select “DEFAULTS” (see Fig 4.8 above).



Press **OK** to reset all speaker settings to default. The display will show “RESETTING” for 2 seconds.



Press **ON/C** to exit this menu level, or use the **▲** and **▼** keys to select another option.

4.3.4.2 Adjusting independent volumes



To set speakers’ volume levels independently, select “SET SPKRS” in the VHF Items submenu. Press **OK** to enter the speaker settings submenu and use the **▲** and **▼** keys to select a station (e.g. “STATION 1”).



Press **OK** to initiate independent volume adjustment (see section 3.5 for available settings). The radio will now emit a continuous 500Hz tone via the selected speaker. Adjust the volume level using the **▲** and **▼** keys and press **OK** to confirm the new setting, which will be displayed and end the tone.



Press **ON/C** to exit this menu level, or use the **▲** and **▼** keys to select another option.

4.3.5 Lighting modes

The lighting mode allows adjustment of the level of lighting for the station, the radio or the whole of the network. The chosen mode can also be stored in separate banks for each individual station connected to the radio.



In the VHF Items menu select **OK** to enter the submenu and use the **▲** and **▼** keys to select “LIGHTING”, press **OK** again.



Use the **▲** and **▼** keys to select either “STATION”, “RADIO” or “NETWORK” and press **OK**. The display will show “SEL STN”, “SEL RADIO” and “SEL NET”, respectively, to confirm the choice. These displays will be shown for 2 seconds.

The selected lighting mode will be stored and available when the radio is turned on next time.

4.3.6 SimNet

SimNet is Simrad's proprietary network bus system. Note, that the SimNet functions detailed below are handset specific.



From the VHF Items menu press **OK** to enter the submenus and select "SIMNET" pressing **OK** again. Use the **▲** and **▼** keys to select one of the following menu options: "BANK SEL" (section 4.3.6.1), "DEVICE INS" (section 4.3.6.2) or "SYSTEM INS" (section 4.3.6.3).



Press **ON/C** to exit return to the upper menu level.

4.3.6.1 Banks select



To edit the light banks select "BANKS" from the SimNet mode, then press **OK**. Use the **▲** and **▼** keys to select a station and press **OK** to edit the required bank.



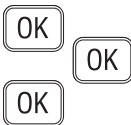
Then using the **▲** and **▼** keys scroll through to the required bank and press **OK** to select it. The display will show "SELECTED" for 2 seconds, then return to show the station number.



Press **ON/C** to return to the upper menu levels.

4.3.6.2 Device instance

For multiple systems, this function allocates a number to a radio when there are more than one of the same products on the network.



From the SimNet menu press **OK** to enter the submenus and use the **▲** and **▼** keys to select "DEVICE INS". Press **OK** to enter the editing mode (the default number is "000"), then use the **▲** and **▼** keys to allocate a number and press **OK** to confirm. "SELECT XXX" (where "XXX" is the chosen number) will be shown for 2 seconds (Fig 4.9).

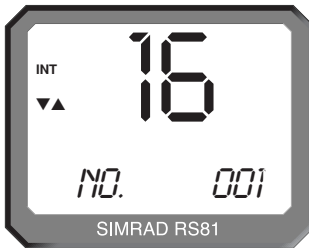
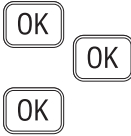


Fig 4.9 - Allocating a device number to one of several identical devices on the same network

4.3.6.3 System instance

For large boats, this function allocates a number to the radio on a network when there is more than one network.



From the SimNet menu press **OK** to enter the submenus and use the **▲** and **▼** keys to select "SYSTEM INS". Press **OK** to enter the editing mode (the default number is "00"), then use the **▲** and **▼** keys to allocate a network number (Fig 4.10) and press **OK** to confirm. The radio will show "SELECT XX" (where "XX" is the chosen number) for 2 seconds.

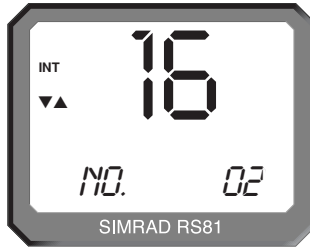


Fig 4.10 - Allocating a number to a device where there are several networks

4.3.7 Serial number

The radio's serial number can be found under the VHF Items menu. From within the VHF Items menu press **OK** and use the **▲** and **▼** keys to select "SERIAL NO", which will display the number for 2 seconds.



Press **ON/C** to return to the upper menu level, or use the **▲** and **▼** keys to select another option.

5 MISCELLANEOUS FUNCTIONS

5.1 Selecting Weather Watch

The Weather Watch function enables the radio to monitor a single Weather channel specified in the memory scan select function (see section 4.1.4). A transmission on a Weather channel is preceded by a tone – if it is detected by the radio, it will trigger an alert to allow the user to switch to the Weather channel.



To enable Weather Watch, press the **SHIFT** key followed by the **USER (Wx WATCH)** key to display the Weather channel (Fig 5.1).



Fig 5.1 - Selecting Weather Watch mode

If a weather channel has not been selected for inclusion in a memory scan, the display will show “NO WX CHAN”, before returning to the upper menu level. Likewise, if Weather Watch is not enabled the display will show “NO WX MODE” for 2 seconds before returning to the upper menu level.

For instructions on how to select a Weather channel refer to section 4.1.4.



To cancel Weather Watch, repeat pressing the **SHIFT** key followed by the **USER (Wx WATCH)** key. The display will show “CANCEL WX” for 2 seconds before returning to the upper menu level.

5.1.1 Weather Watch alert

If the radio detects a weather alert tone on the specified Weather channel, it will sound a 10-second alarm and the display will show “WX ALERT”.



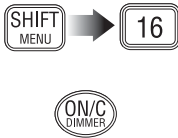
Press **OK** to cancel the alarm and switch to the selected Weather channel. To ignore the weather alert, press **ON/C** or wait until the alarm times out.



To return to the working channel press **ON/C**. Note, that this will not cancel the Weather Watch mode (cf. section 5.1 above).

5.2 Security mode (voice scrambler)

For additional security, a voice scrambler function is available as an optional accessory. The scrambler uses frequency inversion to encrypt the transmission and will allow secure transmission between compatible radios. (See also section 4.3.6.)



To enter security mode, press **SHIFT** followed by **16**. The display will show “NO SCRM”, if the scrambler function is not enabled in the system. If security mode is enabled, the display will show “SEC” in the top left-hand corner of the LCD.

To exit press **SHIFT** followed by **16** again, or **ON/C**.

5.3 Losing NMEA data

NMEA data may be processed by the Dual Station RS81, in order to transmit the boat’s position if a Distress Alert is initiated. *Note, that this is only possible if the second handset installed is an AHS82.*

One minute after NMEA data is lost, the station speakers will sound an alarm and the display will show “NMEA LOST”, until the operator confirms the warning by pressing either the **ON/C** or the **OK** key.



5.4 Intercom

If the system has two handsets connected, it is possible to make an intercom call from one handset to the other.

5.4.1 Making an intercom call

Press **SHIFT** followed by the **►SQ** key to enter intercom mode. The display will show “SHIFT”, then “INTERCOM” (Fig 5.2).



Fig 5.2 - Making an intercom call

Press **OK**, or use the **PTT** key to initiate intercom mode. This will trigger the intercom alarm.

NOTE Once initiated the **OK** key can be used to re-sound the alarm if required. Further pressing of the **PTT** key will open the audio path to the receiving station to allow voice calling.

NOTE If a call is not answered within 15 seconds, the call will time out.

NOTE If interrupt intercom is enabled and radio traffic is received, the intercom will be suspended and the received audio transmission will be routed to the station speakers (PTT must be disabled at this point). Once radio traffic has ceased, the intercom call will continue.

If interrupt intercom is disabled and the squelch is open, the display will show “RX SIGNAL”, until the squelch is closed (Fig 5.3).



Fig 5.3 - Interrupt intercom disabled



To end an intercom call, press **ON/C**, or replace the handset.

5.4.2 Receiving an intercom call

When an intercom call is received from another station, the handset display will show “INTERCOM”.

5.5 Received DSC call displays

Please note that DSC call displays will only be shown, if the second handset connected to the radio is an AHS82. These displays are warnings only, calls cannot be acknowledged or cancelled from the AHS81.

5.5.1 Individual call

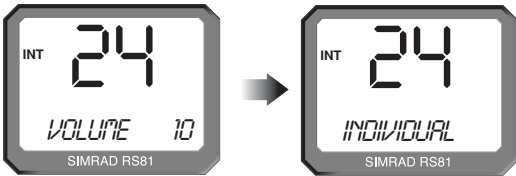


Fig 5.4 - Receiving an individual call

5.5.2 Public correspondence call

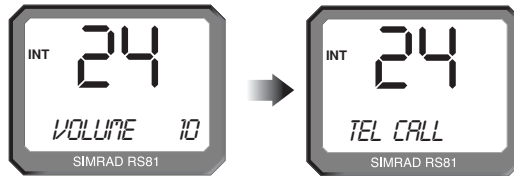


Fig 5.5 - Receiving a public correspondence call

5.5.3 Group call

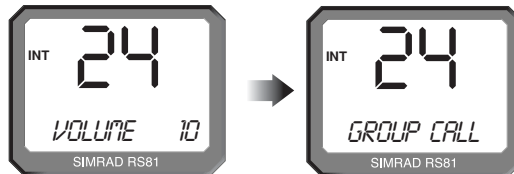


Fig 5.6 - Receiving a group call

5.5.4 All Ships Safety call

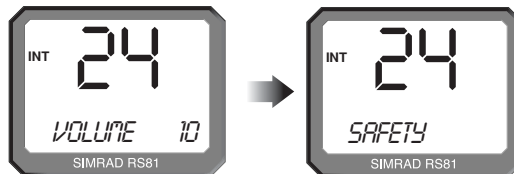


Fig 5.7 - Receiving an All Ships Safety call

5.5.5 All Ships Urgency call

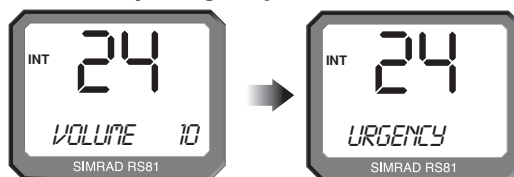


Fig 5.8 - Receiving an All Ships Urgency call

5.5.6 Distress Alert call

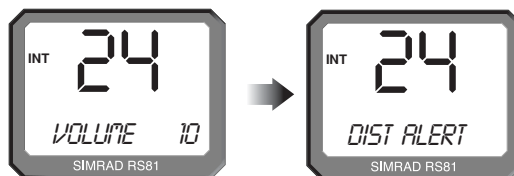


Fig 5.9 - Receiving a Distress Alert call

5.5.7 Distress relay call

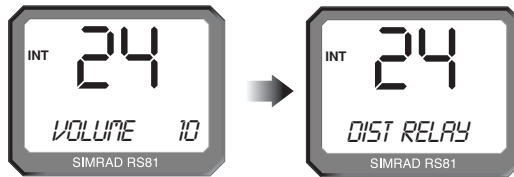


Fig 5.10 - Receiving a distress relay call

5.5.8 Distress acknowledgement

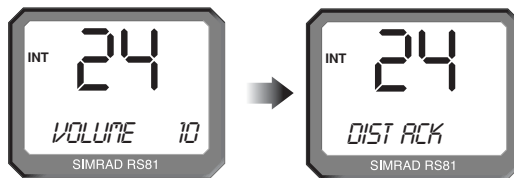


Fig 5.11 - Receiving a distress acknowledgement

NOTE

To cancel or acknowledge a call, the **ON/C** or **OK** key on the AHS82 handset must be used.

5.6 Position over 4 hours old

Normally current position data is supplied to the radio either automatically via an interfaced navigational receiver, or by manually entering a position. *Note, the displays are only available if one handset connected to the radio is an AHS82.*

The display will show “POS 4 HRS” and there will be an audible alarm beep –

- 30 minutes after switch on, if no NMEA position data has been received, or none has been manually entered, and every hour thereafter; or
- 4 hours after NMEA has been lost, or the manual position was entered for the last time, and every hour thereafter.



Press the **ON/C** key to clear the display.

PART III

**THE
RS82 dVHF RADIO SYSTEM**

6 INTRODUCTION



AHS82 handset

The RS82 is a modular, dual station VHF radio and Class D DSC (*Digital Selective Calling*) radio-telephone system using a fully-featured telephone-style handset to access and control all functions. It supports the latest GMDSS requirements for non-SOLAS vessels from the International Maritime Organisation (IMO) and 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 AHS82 you can quickly raise an alert, indicating your identity, your position and automatically establish distress communication on the emergency voice channel.

The transceiver “black box” is robustly constructed using a pressure die-cast aluminium case for effective heat dissipation, ensuring maximum transmission performance even after many hours constant use.

The operation of the AHS82 handset, which has a separate external loudspeaker, is designed to be simple and intuitive. Large buttons and a rubber-profiled handle-back ensure safe and comfortable handling, whilst the over-sized, backlit LCD and numeric keypad allow easy reading, even in difficult conditions.

The handset is tough and waterproof, designed to withstand the rigours of the marine environment.

7 MAIN FUNCTIONS

7.1 General notes

Although it has many advanced features, the AHS82 has been designed to be as simple and intuitive to operate as possible.



The **SHIFT** key is used to access the secondary functions printed above each key – press **SHIFT**, then press the appropriate key. These secondary functions are shown in this manual in brackets, e.g. (**GROUP**).

NOTE



Shift mode will automatically time out after 2 seconds, unless another key is pressed. At any time, pressing **ON/C** will cancel the current operation.

The lowest occupied port is the master controller, any operations initiated on this handset will override all other stations.

7.2 Switching on/off & Second country mode



To turn the radio on (or off), press and hold the **ON/C** key. On start-up the display will show the handset software issue number for 2 seconds, then the station number and software issue number for the transceiver unit for 2 seconds.

As default, the radio is tuned to the priority channel (normally 16). If last used channel mode has been set (see section 8.3.3), the radio will switch on tuned to the previously used channel. The radio also stores volume and squelch settings automatically and will revert to these on start-up.

In countries where it is permitted, the RS82 can operate on a secondary set of channels, such as the USA channels.



To select the secondary channel mode, press **SHIFT** followed by **OK**. The display will show the channel set selected for 2 seconds, before reverting to the default display.

NOTE

Channels available will depend on programming. Please enquire with your national licensing authority for details of permitted channel sets in your own country.

7.3 Changing channels

To select a channel, enter the channel number using the numeric keypad (Fig 7.1). If the channel is invalid, the display will show "INVALID CHANNEL", before reverting to the previous channel.

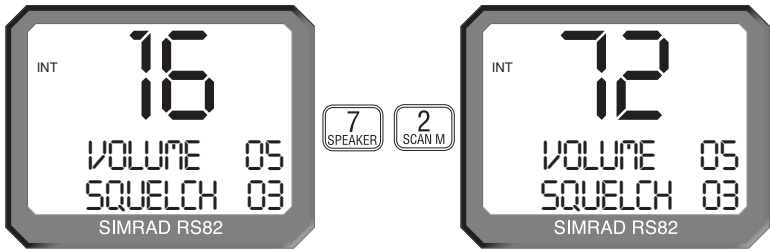


Fig 7.1 - Selecting a channel



The priority channel (normally 16) can be selected by pressing **16**, which will also set the radio to 25W (high) transmit power.



The pre-selected User channel can be directly selected by pressing the **USER** key. The display will show “U” next to the channel number to indicate that it is the User channel (Fig 7.2).

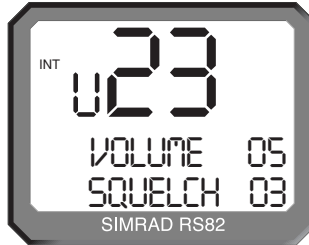


Fig 7.2 - User channel selected

The default setting for the User channel is 16 (please refer to section 8.3.1 for details on how to set the User channel).

7.3.1 Channel sets

In addition to the standard international channels, the RS82 can also be programmed with regional auxiliary channels, such as the Marina channels M and M2 in the UK, the USA Weather channels and the Fishing or Leisure channels in Scandinavia.



To display the channel sets available, press **SHIFT** followed by **1W (CH SET)**. Repeated pressing of the **1W** key while still in Shift mode will scroll through the available channel sets. When the required channel set is displayed, enter the channel number using the numeric keypad – e.g. “2” for M2 (Fig 7.3).

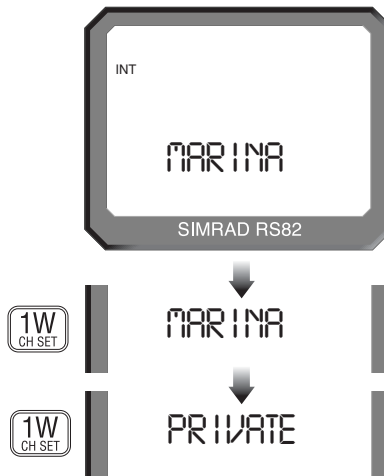


Fig 7.3 - Selecting auxiliary channel sets
(sets must be available to be displayed)

The only exception to this is the selection of the UK Marina channel “M”, which has no number associated with it. Selecting the Marina channel will set it automatically (Fig 7.4).



Fig 7.4 - Selecting auxiliary channel number

NOTE

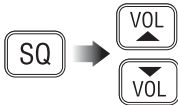
If no numeric keys are pressed within 2 seconds, the radio will revert to the working channel (except for Marina channel “M” as noted above).

7.4 Volume adjustment



To adjust the volume, use the **VOL ▲** and **VOL ▼** keys to increase or decrease the setting from 1 to 24 (loud). Pressing and holding either key will cycle through the settings.

7.5 Squelch adjustment



To enter squelch adjustment mode press **SQ**, then use the **VOL ▲** and **VOL ▼** keys to increase or decrease the squelch from 0 (open) to 10. Press and hold either key to scroll through the settings.

NOTE



Squelch adjustment mode will automatically time out after 2 seconds, unless another key is pressed. Squelch mode can also be cancelled by pressing **ON/C**.

7.6 Dual Watch mode

Dual Watch mode allows the radio to scan between the selected working channel and the watch channel (the priority channel, usually 16).



To enter Dual Watch, select the required working channel, then press **SHIFT** and **3 (DW)**. If Dual Watch is selected while the handset is off the cradle, the display will show "PLACE BACK ON CRADLE". Dual Watch will automatically commence, if the handset is replaced within 10 seconds.

The display now shows "D/W" – the large digits on the display will indicate the working channel, with the watch channel shown below in small digits (Fig 7.5).

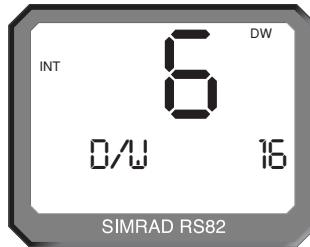


Fig 7.5 - Dual Watch mode

If the radio detects a signal on the Watch channel, it will lock onto this and the large digits will change to show the watch channel.

NOTE

All other stations will also show the Dual Watch display.

NOTE



Normal VHF functions will not be available when in Dual Watch mode. To exit Dual Watch press **16**, or **ON/C**, or lift the handset from the cradle.

7.7 Triple Watch or Tri-Watch mode

Triple or Tri-Watch allows the radio to scan between the selected working channel, the User channel and the watch channel.



To enter Tri-Watch, select the required working channel, press **SHIFT** and then press and hold **3 (DW)** for 2 seconds. If Triple Watch is selected while the handset is off cradle, the display will show "PLACE BACK ON CRADLE". Tri-Watch will automatically commence, if the handset is replaced within 10 seconds.

The display will now show "T/W" – with the large digits on the display indicating the working channel, and the User and watch channels shown below in small digits (Fig 7.6).

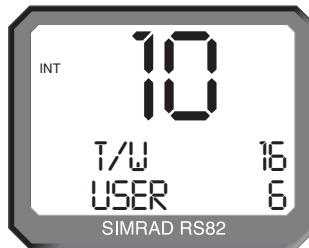


Fig 7.6 - Tri-Watch mode

If the radio detects a signal on the User or Watch channels, it will lock onto this and the large digits will change to show the relevant channel.

NOTE Tri-Watch cannot be selected if the User channel is set to 16.

NOTE All other stations will also show the Tri-Watch display.

NOTE Normal VHF functions will not be available when in Tri-Watch mode.



To exit Tri-Watch, press **16** or **ON/C**, or lift the handset from the cradle.

7.8 All scan mode

The scan function cycles the RS82 sequentially through each enabled channel, pausing each time a signal is detected.



Press **SHIFT** followed by **1 (SCAN ALL)** to enter All scan mode. If All scan is selected while the handset is off the cradle, the display will show "PLACE BACK ON CRADLE". All scan will be cancelled if the handset is not returned to the cradle within 10 seconds.

When the radio detects a signal, the display will change to show the relevant channel number (Fig 7.7).

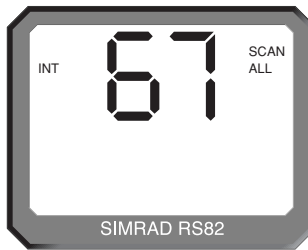


Fig 7.7 - All scan mode



Should the radio lock onto a busy channel, pressing **OK** will manually continue the scan. All scan will otherwise automatically restart when the channel becomes clear.

NOTE

All other stations will also show the All scan display.

NOTE



While in All scan mode, normal VHF functions are not available. To exit All scan, press **16** or **ON/C**, or lift the handset from the cradle.

7.8.1 Dynamic All scan inhibit

During All scan, if the radio repeatedly locks onto a busy channel, this channel can be excluded from scanning by pressing **SHIFT** then **1 (SCAN ALL)** while locked onto it. The display will show "CHANNEL INHIBITED" and the channel will no longer be included in the scan cycle.



The channel can be reinstated using Memory scan select (please refer to section 8.1.4).

7.9 Memory scan mode

Memory scan allows scanning a pre-programmed set of channels specified by the user (see also sections 8.1.4 and 8.1.5).



To enter Memory scan mode press **SHIFT** then **2 (SCAN M)**. If Memory scan is selected while the handset is off the cradle, the display will show “PLACE BACK ON CRADLE”. Memory scan will automatically commence, if the handset is replaced within 10 seconds.

The display will show “SCAN M”. When the radio detects a signal, it will lock onto this and the large digits will change to show the relevant channel (Fig 7.8).

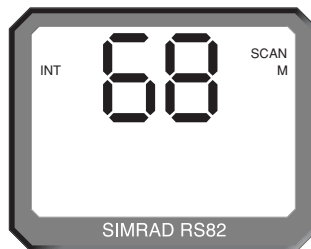


Fig 7.8 - Memory scan mode



Should the radio lock onto a busy channel, pressing **OK** will manually continue the scan. Memory scan will otherwise automatically restart when the channel becomes clear.

NOTE

If only one channel has been stored initiating Memory scan will return the RS82 to this channel.

NOTE

All other stations will also show the Memory scan display.

NOTE

While in Memory scan mode, normal VHF functions are not available.



To exit Memory scan, press **16**, or **ON/C**, or lift the handset from the cradle.

7.9.1 Dynamic Memory scan delete

If the radio repeatedly locks onto a busy channel when scanning, this channel can be removed from the Memory scan by pressing **SHIFT** then **2 (SCAN M)** while locked on that channel. The display will show “CHANNEL DELETED” and the channel will no longer be included in the scan cycle.



7.10 Adjusting backlighting



Both the LCD display and keypad are backlit – to enter back-lighting mode press **SHIFT** followed by **CALL** ◀ (**DIMMER**), then use the **VOL ▲** and **VOL ▼** keys to adjust the backlighting level from “OFF” through level 1 (bright) to 5.



Press **OK** or **ON/C** to exit the backlighting mode.

NOTE

Backlighting levels are set individually and will only affect the individual station.

7.11 Handset off cradle

When a handset is lifted off its cradle, all other stations will display “OCCUPIED” (Fig 7.9). This means that these stations are locked out until the handset is returned to the cradle, unless it is an intercom call (see section 11.5).

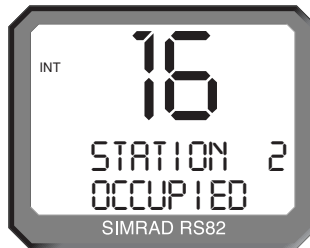


Fig 7.9 - Station 2 handset is in use

NOTE

However, lifting the master handset will override all other stations, even if it is displaying “OCCUPIED”. All other stations will be automatically locked out and display “OCCUPIED” instead.