LOWRANCE®

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LVR-880 US
LVR-880 EU

VHF Radio

Operation Instructions

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

Important safety information	
Please read carefully before installation and use.	
DANGER	This is the safety alert symbol. It is used to alert you to potential personal injury hazards, Obey all safety messages that follow this symbol to avoid possible injury or death.
⚠ **WARNING**	WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury
⚠ **CAUTION**	CAUTION indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.
CAUTION	CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

Contents

Section 1 - General Information

1-1 Features

Congratulations on your purchase of a Lowrance LVR-880US or LVR-880EU marine band VHF radio. Both models provide you with the following useful features:

- Adjustable contrast settings for the LCD
- Adjustable keypad backlighting for easy night-time use
- Waterproof and submersible to comply with JIS-7
- Choice of High or Low (25 W or 1 W) transmission power
- Access to all currently available Marine VHF Channel Banks (USA, Canada, International) including weather channels where available
- Special CH16 or CH16/9 key for quick access to the priority (International Distress) channel
- Special 3CH key for quick selection of your three favorite channels
- DISTRESS call button to automatically transmit the MMSI and position until an acknowledgement is received
- Easy access to a buddy list of up to 20 favorite people
- MMSI storage for three favorite groups
- GROUP CALL and ALL SHIPS CALL Facility
- Automatic position and time update when connected to a GPS receiver
- DSC (Digital Select Calling) capability that meets USCG SC101 standards. LVR-880US only
- DSC (Digital Select Calling) capability that meets EC Class D standards. LVR-880EU only
- ATIS facility for inland waterways. LVR-880EU only

In addition, the LVR-880 US/EU models also provide:

- Rotary channel selector knob with PUSH TO SELECT function
- Speaker microphone with large PTT key and 6 keys for easy channel and mode selection
- 22 W Hailer with talkback capability
- Foghorn (manual and automatic)
- FM stereo radio capability with global bands
- Great Circle GPS navigation calculations to a waypoint (stores up to 200 waypoints)
- NMEA2000 & NMEA0183 connectivity
- Local / Distance sensitivity to eliminate noise in high traffic urban areas
- Memory retention
- Memory channel scan and All channel priority scan
- Dual / Tri Watch capability
- Call log for the 20 most recent incoming DSC calls
- Distress call log for the 10 most recent distress calls
- LL position polling and Track Your Buddy feature
- 10 weather channels (where available), NOAA and SAME weather alert capability. LVR-880US only

1-2 LCD Symbols and Meanings

A typical operational display is shown here:
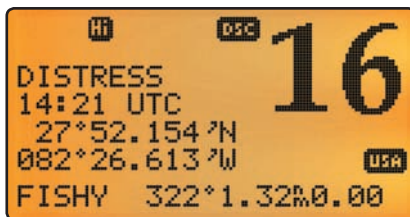
The bottom line is blank when a waypoint is not selected. This operational display shows:

- the channel that you are receiving (16) and Tx power is set to high (Hi)
- the channel bank selected (USA) and DSC is enabled (DSC)
- the channel name tag (DISTRESS)
- your latitude (27°52.154N) and longitude (082°26.613W) and UTC time in 12 hour format (14:21pm).
- the name of the destination waypoint (FISHY), its bearing (322°), your distance in nautical miles, mile, or kilometers (depending on your choice of units), and any cross track error (XTE) are shown.

All the symbols that may appear on the LCD are explained here:

Symbol	Meaning
Tx	Transmitting.
BUSY	Receiver busy with an incoming signal.
SCAN	Scanning for the broadcasting channel. Press PTT to stop scanning.
	When the broadcasting channel is found, scanning stops at that channel.
DSC	DSC capability is available.
Envelope symbol	Incoming DSC call OR blinks to notify you of any unread call log messages.
DI STRESS	Channel name tag.
27°52. 154N	Your latitude.
082°26. 6131W	Your longitude.
14: 21 UTC	Time (UTC). Local time has suffix LOC (for example; 12:30pmLOC)
16	Channel selected.
LOCAL	Local calling is selected. Otherwise, blank for distance calling.
X	Channel is temporarily deleted from the SCAN operation.
B A	Channel suffix, if applicable.

CH1 CH2 CH3	Shows which of the 3 favorite channels, if any, are selected. Otherwise blank.
Hi Lo	Transmission power. High (Hi) 25 W or Low (Lo) 1 W.
USA Int Can	Selected channel bank for VHF radio operations and regulations.
WX	Weather channel. *LVR-880US only.*
WX ALT	Weather alert. *LVR-880US only.*
SAME	Specific Area Message Encoding – County weather warning.
D	Duplex operation. Otherwise, blank for Simplex operation.
ATIS	ATIS is enabled for use in European inland waterways. Otherwise, blank.
PRi	Priority channel is selected.
ACK	Your DSC call has been received.
Battery symbol	Low Battery warning (activates at 10.5 V).
FISHY 322°	Waypoint name and bearing.
1. 32	Distance to waypoint.
0. 00	XTE (Cross track error).
NO GPS	No GPS data is available.
ST	Stereo signal (FM radio mode).
DW	Dual watch mode.
TRI	Tri watch mode.

1-3 Beep tones & call alerts

•	Error	2 short beeps
•	Acknowledge	1 long beep
•	Alarm	Two-tone ring (repeated for 2 minutes or until any key is pressed)
•	LL position call alert	Friendly 5-tone ring sequence (press any key to cancel)
•	WX alert / SAME alert	Ear-catching multi-tone sequence
•	ROUTINE call alert	Friendly 5-tone ring sequence (press any key to cancel)
•	URGENCY call alert	Two-tone ring (repeated for 2 minutes or until any key is pressed)
•	SAFETY call alert	Two-tone ring (repeated for 2 minutes or until any key is pressed)
•	DISTRESS call alert	Two-tone ring (repeated for 2 minutes or until any key is pressed)

1-4 Customizing your Lowrance VHF Radio

You can customize the radio to suit your individual preferences. Some preferences can be set directly through the keys as explained in this Section.

Other preferences are set up through the built-in menus and these are explained in the other Sections.

1-5 How to Display and Navigate Menus

1.   Press MENU (or CALL). Note that only three menu items can be displayed at any one time on the screen.
2.   Rotate the Rotary knob, or use + / - keys on the microphone to scroll up and down the menu until the cursor is positioned at the desired option. Press ENT (press the Push To Select) to display that option.
3.   Make any entries or changes as explained in the following section.
4.   Press ENT to confirm changes. Otherwise, press EXIT to keep the original entry.
5.   Press EXIT to backup one screen (this key is equivalent to an ESC function on a PC)

1-6 How to Enter Alphanumeric Data

If your radio does not have the optional alphanumeric microphone, you can Rotate the Rotary knob, or use + / - keys on the microphone key to enter alphanumeric data.

Press - to count through numbers, or hold down to scroll rapidly to the desired number.

Press + to step through the alphabet, or hold down to scroll rapidly to the desired character.

If you make an error, press - until < is displayed, then press ENT to backup and correct the entry.

Section 2 - The Radio Keys

All possible keys and their functions are listed here. Note that some of the keys may not available, depending on your Lowrance VHF radio model.

2-1 VOL - Volume and Power

Turn clockwise to power on. After displaying the startup LCD briefly, the radio goes to operational mode in CH16, Hi power transmission, and shows your current position and time if GPS data is available.

Continue to turn until a comfortable volume is reached. It will also adjust the settings of an external speaker, if the internal speaker is turned OFF in the Radio Setup MENU.

2-2 SQL - Squelch or Threshold Level

Sets the threshold level for the minimum receiver signal.

Turn fully counterclockwise until random noise is heard, then turn slowly clockwise until the random noise disappears. Make another ¼ turn clockwise for best reception in open sea conditions.

In areas of high noise (eg close to large cities) reception may improve if sensitivity is reduced. Either turn SQL slowly clockwise OR use the LOCAL setting. See section 3-4.

2-3 16/9 - Priority channel (LVR-880US only)

Also on the microphone. Press to cancel all other modes and to tune into the priority channel on Hi power. Press again to return to your original channel.

The default is Channel 16. To make Channel 09 the default instead, hold down 16/9 until a beep sounds and 09 is displayed.

The PRi annunciator shows the selected priority channel that will be accessed with a quick press of the 16/9 key.

2-4 16 - Priority channel (LVR-880EU only)

Also on the microphone. Press to cancel all other modes and to tune into the priority channel Channel 16, on high power. Press again to return to your original channel.

2-5 PUSH TO SELECT (ENT)

When you are in MENU mode, push the center of the Channel Select knob to ENTER your choice or setting. This is referred to throughout the manual as "press ENT".

2-6 PTT

Press To Talk. (Located on the microphone).

Press PTT to transmit at any time on an allowable channel OR to quit MENU mode.

You must release PTT to receive a signal.

If the PTT key sticks, a built-in timer will automatically shut down a transmission after five minutes and sound the error beep 10 seconds before shut down.

2-7 H/L

Transmission Power. (Located on the microphone).

High (Hi) 25 W or Low (Lo) 1 W. Press to toggle between high or low transmission power for the entire channel bank. The Hi or Lo selection is shown on the LCD.

Some channels allow only low power transmissions. Error beeps will sound if the power transmission setting is incorrect.

Some channels allow only low power transmissions initially but can be changed to high power by holding down H/L and PTT at the same time. See Appendix C for a complete listing of channel charts. 1-4 Customizing your Lowrance VHF Radio

You can customize the radio to suit your individual preferences. Some preferences can be set directly through the keys as explained in this Section.

Other preferences are set up through the built-in menus and these are explained in the other Sections.

2-8 + / -

Channel Select and scroll through menus. (Located on the microphone.)

When in MENU mode:

* press + or - to scroll the cursor through the MENU options.

When in operational mode:

* press + to step UP a channel OR – to step DOWN a channel.
* hold down + or – to step quickly through the channels.

2-9 EXIT

Quit a menu

Press to quit the current MENU option without making any changes and to return to the previous menu.

Cancel a distress call

Hold down EXIT or press CH16 to cancel a Distress call or a Distress call relay. See Section 7-4.

2-10 DISTRESS - Send DSC Distress call

Lift the red cover door then press and release DISTRESS to show the DISTRESS menu.

Select the category you want to transmit.

Hold down DISTRESS for about 3 seconds to transmit.

The DISTRESS key can also be held down continuously to transmit an "undefined" category Distress call. See Chapter 7 for more information about distress calls.

2-11 Channel Select knob - Change channel

When you are in operational mode, turn to step through the channels one at a time and select a channel.

The current channel is shown on the LCD in BIG digits. It may have a designator suffix (A B, or D) in small letters below the channel number. If D is shown, this means DUPLEX operation. See Appendix C for a complete listing of channel frequencies.

Scroll through menus

When you are in MENU mode, turn to scroll the cursor through the menu options.

2-12 CALL MENU

Make DSC calls

Press to enter the DSC CALL menu and make DSC calls.

Enter MENU mode

Hold down for about 3 seconds to show the radio MENU so that you can customize your radio, enter categories, and enter alphanumeric data.

2-13 SCAN (ALL SCAN & 3CH SCAN)

There are two SCAN modes you can use to find the broadcast channel:
- ALL SCAN mode scans ALL channels in sequence AND checks the priority channel every 2 seconds.
- 3CH SCAN mode scans the favorite channels and CH16.

When a signal is received, scanning stops at that channel and BUSY appears on the LCD. If the signal ceases for more than 5 seconds, the scan restarts. Press SCAN or PTT to stop at the current channel.

If you are in NAVIGATION mode or FM RADIO mode and want to scan the DSC channels while staying in that mode, just hold down SCAN.

Note: SCAN functionality is limited in some European countries and, if ATIS mode is enabled, the 3CH SCAN mode will be disabled and an error beep will sound.

Note: The weather channel is also scanned if TONE ALERT or SAME is ON (LVR-880US only).

ALL SCAN mode

Hold down SCAN for about 3 seconds to start an ALL SCAN. ALL SCAN appears on the LCD.

Press ENT to temporarily skip over (lock out) an "always busy" channel when in ALL SCAN mode. An X is shown on the top line of the LCD to designate a skipped channel. The X will disappear when the radio is powered OFF/ON. With scanning OFF and the X channel selected, press ENT to cancel the skipped channel.

Note: It is not possible to skip over the priority channel.

Press SCAN to stop at the current channel.

3CH SCAN mode

With any of your three favorite channels selected (by pressing the 3CH key) hold down SCAN to start all 3CH scanning.

Press SCAN again to stop at the broadcast channel OR press EXIT to quit 3CH SCAN and return automatically to the previous broadcast channel.

2-14 SCAN (DUAL WATCH Mode)

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

Press SCAN to start scanning in dual watch mode. DUAL WATCH appears on the LCD.

Press 16 OR 16/9 to listen to the priority channel.

Press SCAN again to quit scanning and return automatically to the previous broadcast channel.

Note: SCAN functionality is limited in some European countries and, if ATIS mode is enabled, 3CH SCAN mode will be disabled and an error beep will sound.

2-15 SCAN (TRI WATCH Mode) *LVR-880US only.*

Tri watch mode monitors the current working channel and both priority channels.

Press MENU and select RADIO SETUP. Select WATCH mode then 16CH + 9CH to start scanning in Tri watch mode. TRI WATCH appears on the LCD.

Press 16/9 to listen to the priority channel.

Press SCAN again to quit scanning and return automatically to the previous broadcast channel.

2-16 3CH

Three favorite channels

This works only when you have saved one or more favorite channels.

Press 3CH to go to CH1 (favorite channel 1).

Press to toggle between your favorite channels. The CH1, CH2, or CH3 symbol appears on the LCD to show which favorite channel is selected.

To add a favorite channel for the first time, select that channel then hold 3CH to store it in the CH1 location. The CH1 symbol will appear on the LCD to confrm the channel has been stored.

Repeat the procedure to store two more favorite channels in the CH2 and CH3 locations respectively.

If you try and add another favorite channel, a warning message asks if you want to overwrite CH3. Press ENT to confirm.

To delete a favorite channel, select that channel then hold down 3CH. A message asks if you want to delete that favorite channel. Select YES then press ENT to delete it.

2-17 WX   LVR-880US only.

Weather channel

In USA or Canadian waters, press WX to enter WEATHER mode and hear the most recently selected weather station. The WX symbol is displayed on the LCD.

Rotate the dial or press + / - to change to a different weather channel.

Press WX again to return to the most recent channel.

If TONE ALERT is ON and an alert tone of 1050 Hz is broadcast from the weather station, the weather alert is picked up automatically and the alarm sounds. Press any key to cancel the alarm and to hear the weather alert voice message.

Note: If SAME is activated and the 6 digit County IDs you want to monitor are entered, the radio will sound the weather alarm when it detects a weather alert or weather hazard alert on the selected weather channel.

2-18 FM (FM Stereo Radio)

Note: You need to select your FM region. This selection specifies the range of the frequency band and the frequency steps. See Section 4-11.

Press FM to enter FM RADIO mode and tune automatically to the most recent memorized frequency.
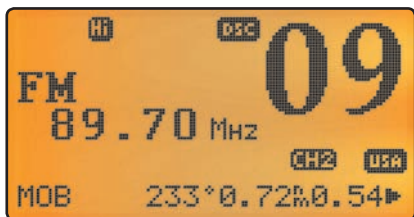
The LCD shows FM and the frequency (in this example, FM 89.70 MHz).

The ST symbol appears if a stereo signal is detected (not shown in this example).

To quickly tune to a different FM radio station, turn the Channel Select knob OR press + or - to change the frequency.

Press EXIT to return to operational mode.

If you are in FM RADIO mode, you can press ENT to enter SCAN mode. The SCAN symbol appears on the LCD. Turn the Channel Select knob left or right to move to the next strong channel. After the channel is selected, press ENT again to exit SCAN mode.

Note: It is not possible to enter FM mode if the VHF radio is busy (BUSY icon showing) - a double beep will occur. Ensure the VHF radio is not busy (BUSY icon NOT showing) to enter FM mode. Check Squelch is not set too high.

2-19 IC (FOG HORN mode)

1. Hold down IC for about 3 seconds to enter HAILER mode.
2. Select FOG and press ENT. There are 8 choices of of internationally recognized fog horn sounds and timing:

   - **HORN**   (Horn)
   - **UNDERWAY**   (Underway)
   - **STOP**   (Stop)
   - **SAIL**   (Sail)
   - **ANCHOR**   (Anchor)
   - **TOW**   (Tow)
   - **AGROUND**   (Aground)
   - **SIREN**   (Siren)

3. Scroll through the menu to select a fog horn, then press ENT to start the fog horn sounding.

   The fog horn will sound automatically until you press EXIT to cancel it. When the fog horn is not sounding, it is in LISTEN mode.

4. To change the volume, turn the Channel Select knob OR press + or – when the fog horn is sounding.

Note: you cannot change the volume of the HORN or SIREN.

2-20 IC (HAILER mode)
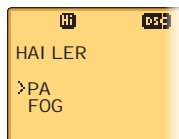
1. Hold down IC for about 3 seconds to enter HAILER mode. Press ENT.
2. Press PTT to talk through the hailer. Turn the Channel Select knob OR press + or – to change the volume.
3. Release PTT to LISTEN.
4. Press EXIT to return to operational mode.

2-21 NAV (Show Waypoint)

If a waypoint is already selected, the bearing and distance to the waypoint and the cross track error are shown on the bottom line of the LCD.

Hold down NAV to enter NAVIGATION mode and show these details:
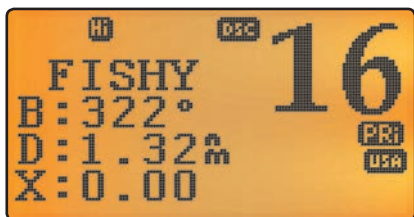
To quit NAVIGATION mode, you must reset the radio. See Section 3-8.

If you are in NAVIGATION mode and want to scan all the VHF channels while staying in NAVIGATION mode, just hold down SCAN. Press SCAN to quit scanning.

To select a favorite channel, use the 3CH key. See Section 2-16.

2-22 GO (Reset the Cross Track Error)

Press GO if you are navigating to a waypoint and want to reset the cross track error. This is a VERY useful single keystroke feature to use if you wander a little off-course but want to continue to your active waypoint.

The bearing and distance to the waypoint, and any cross track error, are shown on the bottom line of the LCD.

2-23 MOB (Man Overboard)

Man Overboard

Hold down MOB until the radio automatically enters NAVIGATION mode, saves your current latitude and longitude as the MOB waypoint and immediately sets this position as the destination waypoint.

You will see the following sequence of LCDs:

```
┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐
│  Hi      DSC    │  │  Hi      DSC    │  │  Hi      DSC    │  │  Hi      DSC    │
│ HOLD 3 SEC      │  │ HOLD 2 SEC      │  │ HOLD 1 SEC      │  │ MOB             │
│ FOR MOB         │  │ FOR MOB         │  │ FOR MOB         │  │ B:010°          │
│ RELEASE TO      │  │ RELEASE TO      │  │ RELEASE TO      │  │ D:0. 01         │
│ SAVE            │  │ SAVE            │  │ SAVE            │  │ X:0. 00         │
└─────────────────┘  └─────────────────┘  └─────────────────┘  └─────────────────┘
```

The bearing and distance to the Man Overboard position, and any cross track error (XTE), are shown on the bottom line of the LCD.

To cancel MOB, select another waypoint.

2-24 MOB (Temporary Waypoint)

To mark your current position as a temporary waypoint, hold down MOB and release the key before the 3 second countdown ends.

You will see the following sequence of LCDs:

```
┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐
│  Hi      DSC    │  │  Hi      DSC    │  │  Hi      DSC    │
│ HOLD 3 SEC      │  │ HOLD 2 SEC      │  │ HOLD 1 SEC      │
│ FOR MOB         │  │ FOR MOB         │  │ FOR MOB         │
│ RELEASE TO      │  │ RELEASE TO      │  │ RELEASE TO      │
│ SAVE            │  │ SAVE            │  │ SAVE            │
└─────────────────┘  └─────────────────┘  └─────────────────┘
```
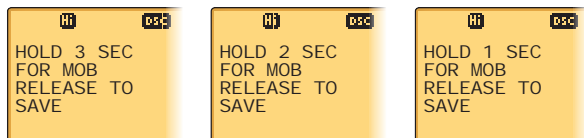
The new temporary waypoint is shown in your waypoints list. Hold down MENU, press ENT, then press ENT again to display the waypoints list (TEMP1, WP001, WP002).

You cannot store more than three temporary waypoints. If you store another temporary waypoint, TEMP1 is overwritten with the new information.

Section 3 - Radio MENU SELECT Options

Hold down CALL MENU for about 3 seconds to access any of the following radio MENU SELECT options.

Menu options shown inside the gray boxes are explained in this chapter.

WAYPOINT			**Section 3-1**
BACKLIGHT			**Section 3-2**
BUDDY LIST			**Section 3-3**
LOCAL/DIST			**Section 3-4**
CONTRAST			**Section 3-6**
GPS/DATA	**MANUAL**		**Section 3-6-1**
	SETTING	**TIME OFFSET**	**Section 3-6-2**
		TIME FORMAT	**Section 3-6-3**
		TIME DISPLY	**Section 3-6-4**
		LL DISPLY	**Section 3-6-5**
		COG/SOG	**Section 3-6-6**
		GPS ALERT	**Section 3-6-6**
RADIO SETUP	UIC LVR-880US only		Section 4-1
	CH NAME		Section 4-2
	RING VOLUME		Section 4-3
	KEY BEEP		Section 4-4
	UNITS		Section 4-5
	INT SPEAKER		Section 4-6
	WATCH MODE LVR-880US only		Section 4-7
	WX ALERT LVR-880US only	TONE ALERT	Section 4-8-1
		SAME ALERT	Section 4-8-2
		SAME CODE	Section 4-8-3
	COM PORT		Section 4-9
	GPS SOURCE		Section 4-10
	FM REGION		Section 4-11
DSC SETUP	USER MMSI		Section 5-1
	GROUP SETUP		Section 5-2
	INDIV REPLY LVR-880US only		Section 5-3
	ATIS MMSI LVR-880EU only		Section 5-4
	ATIS SELECT LVR-880EU only		Section 5-5
	DSC SELECT		Section 5-6
	LL REPLY		Section 5-7
GPS SIM			**Section 3-7**
RESET			**Section 3-8**

3-1 Manage your Waypoints List (WAYPOINT)

You can store a maximum of 200 waypoints with their LL positions. When your waypoint list is full, you cannot make a new entry until you have deleted an existing entry.

Each waypoint name can have a maximum of 6 alphanumeric characters.

Waypoints are stored in order of entry, with the most recent entry shown first.

The waypoints are displayed in columns of 6 with a box. Rotate the Channel Select knob to scroll through the columns to easily locate your desired waypoint. Then press ENT and use the Channel Select knob to select a waypoint within the column.

3-1-1 Add a new waypoint
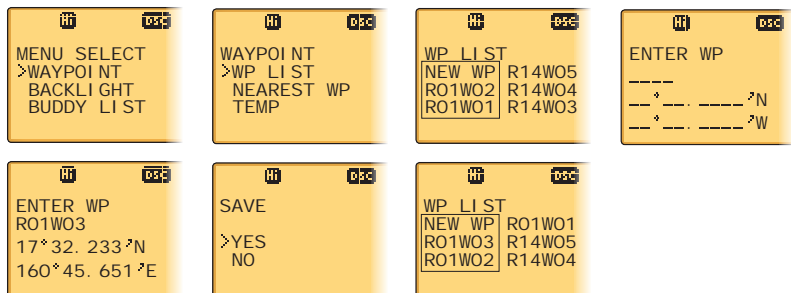
1. Select WAYPOINT then WP LIST.
2. Your waypoint list is displayed. Press ENT.
3. NEW WP starts to flash. Press ENT to add a new waypoint.
4. Enter a waypoint name (maximum 6 characters), then the latitude, then the longitude.
5. Press ENT when all the information is correct then select YES.

   The new waypoint is saved and your waypoint list is displayed again.

3-1-2 Edit or Delete a Waypoint

```
┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐
│  Hi        DSC  │  │  Hi        DSC  │  │  Hi        DSC  │  │  Hi        DSC  │
│ MENU SELECT     │  │ WAYPOINT        │  │ WP LIST         │  │ R14WO5          │
│ >WAYPOINT       │  │ >WP LIST        │  │ NEW WP  R14WO5  │  │ >GO             │
│  BACKLIGHT      │  │  NEAREST WP     │  │ RO1WO2  R14WO4  │  │  WP EDIT        │
│  BUDDY LIST     │  │  TEMP           │  │ RO1WO1  R14WO3  │  │  DELETE         │
└─────────────────┘  └─────────────────┘  └─────────────────┘  └─────────────────┘

┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐
│  Hi        DSC  │  │  Hi        DSC  │  │  Hi        DSC  │
│ WP EDIT         │  │ SAVE            │  │ WP LIST         │
│ R14END          │  │ R14END          │  │ NEW WP  RO1WO1  │
│ 17°32.233'N     │  │ >YES            │  │ RO1WO3  R14END  │
│ 160°45.651'E    │  │  NO             │  │ RO1WO2  R14WO4  │
└─────────────────┘  └─────────────────┘  └─────────────────┘
```
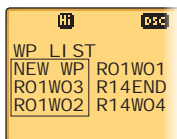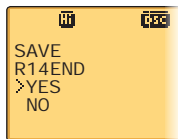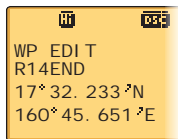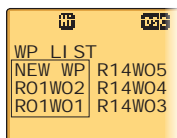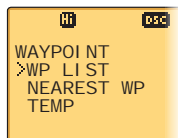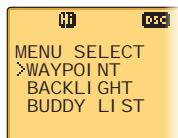
1. Select WAYPOINT then WP LIST.
    Note: A valid GPS signal must be received to see this selection.
2. Your waypoint list is displayed. Press ENT.
3. NEW WP starts to flash. Scroll down to the incorrect entry. The selected waypoint flashes. Press ENT again.
4. To delete the waypoint, select DELETE then YES. The waypoint is deleted immediately and the waypoint list is refreshed and displayed again.
5. To edit the waypoint, select WP EDIT. The cursor is at the first character of the name. Edit the waypoint name *or* to edit only the latitude or longitude, press ENT repeatedly until the cursor moves to the required line.
6. When you are finished, press ENT (repeatedly if necessary) until an updated page appears.
7. Press ENT to store the changes. The waypoint list is displayed again. If more changes are required, repeat steps 2 through 6. Otherwise, press EXIT to cancel any edits.

3-1-3 Go to a New Waypoint
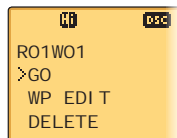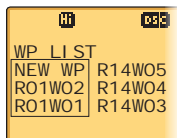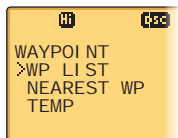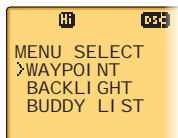
```
┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐
│  Hi        DSC  │  │  Hi        DSC  │  │  Hi        DSC  │  │  Hi        DSC  │
│ MENU SELECT     │  │ WAYPOINT        │  │ WP LIST         │  │ RO1WO1          │
│ >WAYPOINT       │  │ >WP LIST        │  │ NEW WP  R14WO5  │  │ >GO             │
│  BACKLIGHT      │  │  NEAREST WP     │  │ RO1WO2  R14WO4  │  │  WP EDIT        │
│  BUDDY LIST     │  │  TEMP           │  │ RO1WO1  R14WO3  │  │  DELETE         │
└─────────────────┘  └─────────────────┘  └─────────────────┘  └─────────────────┘
```

1. Select WAYPOINT then WP LIST.
2. Your waypoint list is displayed. Press ENT.
3. NEW WP starts to flash. Scroll down to the waypoint you want to go to. The selected waypoint flashes. Press ENT again.
4. Select GO. The waypoint is set immediately as the destination waypoint.

Tip: If you are in the NAV big number screen, just turn the Channel Select knob to immediately access the Waypoint List. Select the new waypoint and press ENT.

3-1-4 Go to Nearest Waypoint (NEAREST WP)

MENU SELECT >WAYPOINT BACKLIGHT BUDDY LIST	WAYPOINT >WP LIST NEAREST WP TEMP	NEAREST WP >RO1WO4 001° 98m RO1WO1 003° 136m

Note: A valid GPS signal must be received to see this selection.

1. Select WAYPOINT then NEAREST WP.
2. Press ENT to display the nearest waypoint with distance and bearing from your current position.

   Other waypoints are listed in increasing distance from your current position.
3. Press ENT to set the nearest waypoint as the active waypoint OR move the cursor to another waypoint and then press ENT.

   The chosen waypoint is shown on the bottom line of the LCD.

3-1-5 Go to Temporary Waypoint

MENU SELECT >WAYPOINT BACKLIGHT BUDDY LIST	WAYPOINT WP LIST NEAREST WP >TEMP	TEMP >TEMP1 TEMP2	TEMP1 >GO TEMP EDIT DELETE
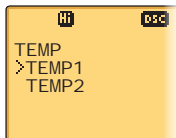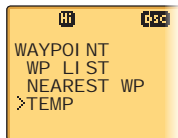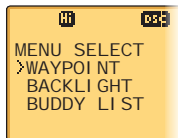
1. Select WAYPOINT then TEMP.
2. Your temporary waypoint list is displayed. There are 3 choices for quick access.
3. Select the temporary waypoint to go to. Press ENT.
4. Press ENT to set the temporary waypoint as the destination waypoint. It is immediately shown on the bottom line of the LCD.

Tip: Hold down MOB and release before the 3 second countdown completes. Your current LL position is stored in TEMP1 to TEMP3 in the waypoint list.

TEMP WP FULL DELETE TEMP1? >YES NO
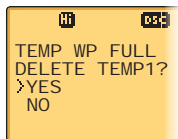
If the list is full, a message appears asking if the oldest location can be overwritten.

3-1-6 Send Waypoint Data to a Chartplotter

You can send waypoint data over NMEA2000 to a compatible chartplotter.

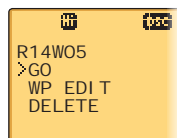|			
MENU SELECT >WAYPOINT BACKLIGHT BUDDY LIST	WAYPOINT >WP LIST NEAREST WP TEMP	WP LIST NEW WP TEMP2 MOB TEMP1	TEMP2 WPT DELETE >TX WPT DATA
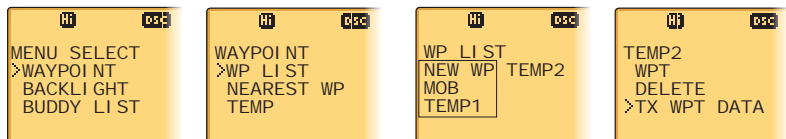
1. Select WAYPOINT then WP LIST. Your waypoint list is displayed. Press ENT. NEW WP starts to flash.

2. Scroll down to the waypoint whose data you want to send to the chartplotter then press ENT. In the example scroll to TEMP2 then press ENT.

3. Scroll down and select TX WPT DATA and press ENT to send the data.

3-1-7 Edit or Delete a Temporary Waypoint

MENU SELECT >WAYPOINT BACKLIGHT BUDDY LIST	WAYPOINT WP LIST NEAREST WP >TEMP	TEMP TEMP1 >TEMP2	TEMP2 GO >TEMP EDIT DELETE

TEMP EDIT TEMP2 18°46.243'N 160°125.341'E	SAVE NEW WP1 >YES NO
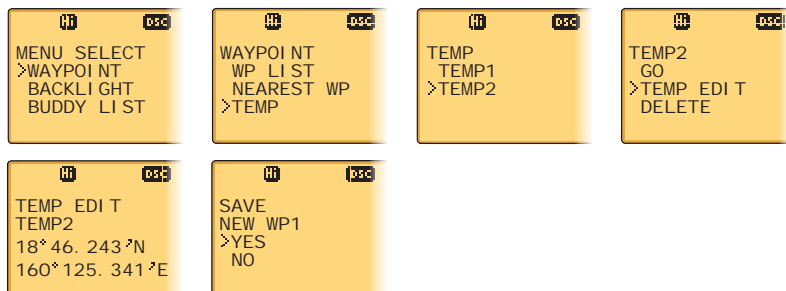
1. Select WAYPOINT then TEMP. Your temporary waypoint list is displayed.

2. Select the temporary waypoint to edit then select TEMP EDIT.

Note: To delete the temporary waypoint, select DELETE then YES. The temporary waypoint is deleted immediately and the temporary waypoint list is displayed again.

3. The waypoint details are displayed. The cursor is at the first character of the name.

4. Edit the temporary waypoint name OR to edit only the latitude or longitude, press ENT repeatedly until the cursor moves to the required line.

5. When you are finished, press ENT (repeatedly if necessary) until a new LCD appears.

6. Press ENT to store the changes. The waypoint list is displayed again. If more changes are required, repeat steps 2 through 6. Otherwise, press EXIT.

3-2 Set the Backlighting Level (BACKLIGHT)
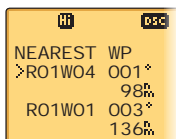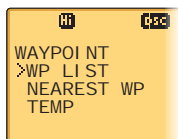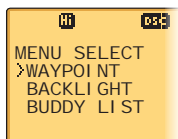
There are 8 levels of backlight. Level 8 is the brightest.

```
     📶        DSC        📶        DSC
MENU  SELECT        BACKLIGHT
  WAYPOINT          ██████
>BACKLIGHT           LO    HI
  BUDDY  LIST       PRESS  ENT
```
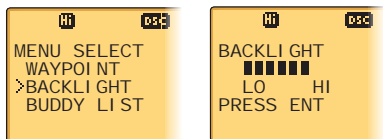
1. Select BACKLIGHT.
2. Select a comfortable level using the Channel Select knob or + or – on the microphone to change the setting.
3. Press ENT to enable the setting and return to the menu.

Note: If you set the backlight level to zero, the base station backlight and the microphone backlight will turn OFF. Otherwise, they will both be ON.

4. Press ENT to enable the setting and return to the menu.

Note: The DISTRESS key backlight cannot be switched off.

3-3 Maintain your buddy list (BUDDY LIST)

Use the buddy list to store the names and associated MMSIs of 20 favorite people. Names are stored in the order of entry, with the most recent entry shown first.

The following sections show how to use BUDDY LIST to add, edit, and delete entries on your buddy list. Section 6-3 explains how to call a buddy.

3-3-1 Add an Entry

You can enter a maximum of 20 buddy names. When your BUDDY LIST is full, you cannot make a new entry until you have deleted an existing entry.

Each buddy name can have a maximum of 11 alphanumeric characters.

```
     📶        DSC        📶        DSC        📶        DSC        📶        DSC
MENU  SELECT        BUDDY  LIST        ENTER  NAME        ENTER  NAME
  WAYPOINT         >MANUAL  NEW        _____           STARFISH
  BACKLIGHT          SEA  ROSE         ENTER  MMSI        ENTER  MMSI
>BUDDY  LIST         MERMAID  IV       _____           _____
```

```
     📶        DSC        📶        DSC        📶        DSC
ENTER  NAME        STARFISH2          BUDDY  LIST
STARFISH           123456789         >MANUAL  NEW
ENTER  MMSI       >STORE               STARFISH
123456789          CANCEL             SEA  ROSE
```
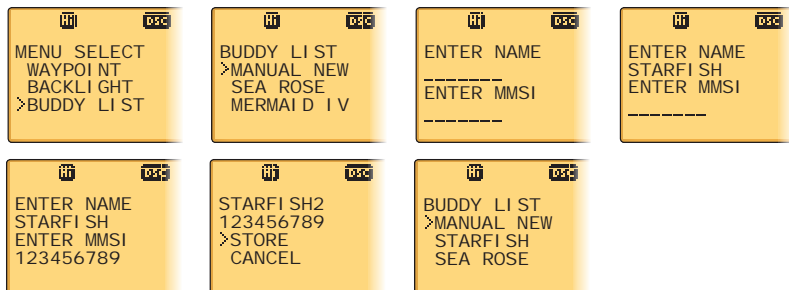
1. Select BUDDY LIST. The cursor is at MANUAL NEW.   Press ENT.

2. Enter the buddy name, one character at a time (this may be alphanumeric) then press ENT repeatedly until the cursor moves to the MMSI entry line.

3. Enter the MMSI associated with that buddy name (this must be numeric) then press ENT.

4. The new buddy name and MMSI are displayed. Press ENT to store the new entry, which is displayed at the top of your buddy list.

3-3-2 Edit or Delete an Entry

Hi **DSC**
MENU SELECT
  WAYPOINT
  BACKLIGHT
>BUDDY LIST
	Hi **DSC**
	BUDDY LIST
	>MANUAL NEW
	  SEA ROSE
	  MERMAID IV
		Hi **DSC**
		BUDDY LIST
		  MANUAL NEW
		>SEA ROSE
		  MERMAID IV
			Hi **DSC**
			SEA ROSE
			>EDIT
			  DELETE

Hi **DSC** EDIT NAME SEA ROSE EDIT MMSI 123456789	**Hi** **DSC** NAME SEA ROSE MMSI 122256798	**Hi** **DSC** SEA ROSE 122256798 >STORE CANCEL
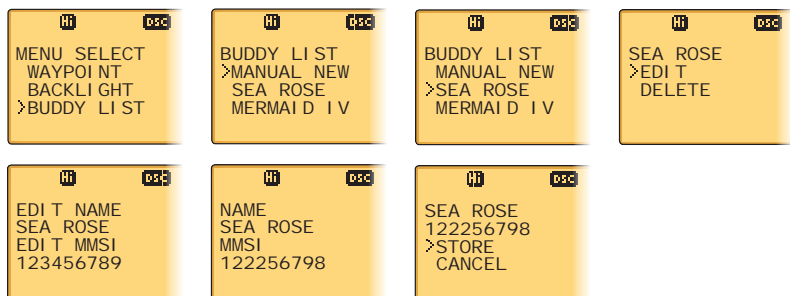
1. Select BUDDY LIST. The cursor is at MANUAL NEW.

2. Scroll down to the incorrect entry and press ENT.

3. To delete the buddy, select DELETE then YES. The buddy is deleted immediately and the buddy list is displayed again.

4. To edit the buddy, select EDIT. The cursor is at the first character of the name. Edit the buddy name *or* to edit only the MMSI, press ENT repeatedly until the cursor moves to the MMSI line.

5. When you are finished, press ENT (repeatedly if necessary) until an updated screen appears.

6. Press ENT to store the changes. The buddy list is displayed again. If more changes are required, repeat steps 2 through 6. Otherwise, press EXIT to ESC.

3-4 Local or Distance Sensitivity (LOCAL/DIST)

Use LOCAL/DIST to improve the sensitivity of the receiver either locally (LOCAL) or over distances (DIST).

LOCAL is not recommended for use in open sea conditions. It is designed for use in areas of high radio noise; for example, close to cities.

See also SQL (Squelch Control) in section 2-2.

3-4-1 Set Distance Sensitivity

```
   HI          DSC          HI           DSC
MENU  SELECT           SENSITIVITY
 BACKLIGHT             >DISTANT
 BUDDY  LIST            LOCAL
>LOCAL/DIST
```

1. Select LOCAL/DIST then select DISTANT.
2. Press ENT to activate the DIST setting. This disables local sensitivity and the menu is displayed again.

3-4-2 Set Local Sensitivity

```
   HI          DSC          HI           DSC
MENU  SELECT           SENSITIVITY
 BACKLIGHT              DISTANT
 BUDDY  LIST           >LOCAL
>LOCAL/DIST
```
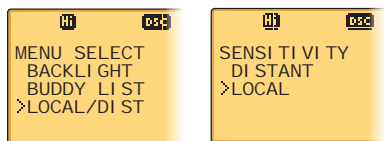
1. Select LOCAL/DIST then scroll to LOCAL.
2. Press ENT to activate the LOCAL setting. This disables distance sensitivity and the menu is displayed again.

   LOCAL is displayed on the LCD as a reminder that local sensitivity is selected.

3-5 Set the Contrast Level (CONTRAST)

There are 8 levels of contrast.

```
   HI          DSC          HI           DSC
MENU  SELECT           CONTRAST
 BUDDY  LIST            ████
 LOCAL/DIST            LO      HI
>CONTRAST             PRESS  ENT
```
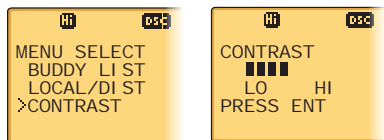
1. Select CONTRAST.
2. Select a comfortable contrast level using the Channel Select knob or + or – on the microphone to change the setting.
3. Press ENT to enable the setting and return to the menu.

3-6 GPS Data and Time (GPS/DATA)

If the boat has an operational GPS navigation receiver, the VHF radio automatically detects and updates the vessel position and the local time.

However, if the GPS navigation receiver is disconnected or absent, you can specify the vessel position and the local time manually, using the GPS/DATA option.

This information is important because it will be used if a DSC distress call is transmitted.

If GPS data is NOT available for some reason, the NO GPS alert will sound for 5 seconds (or until you press any key) and the radio requests you to enter the position data manually.

This request is repeated every 4 hours if you do not enter the position data manually. After you have entered the position data manually, you must update it within 23.5 hours otherwise the NO GPS alert sequence repeats.

The NO GPS symbol will be shown whenever GPS data is not available from an operational GPS navigation receiver.

3-6-1 Manually Enter Position and UTC Time (MANUAL)

Note that this function is available only if an operational GPS receiver is NOT connected.
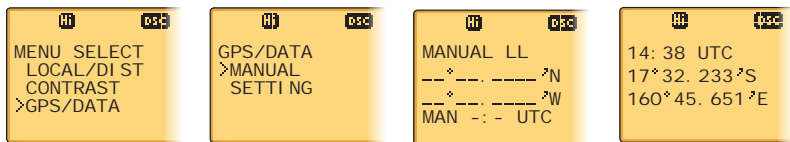
1. Select GPS/DATA then MANUAL.
2. Enter the latitude, then the longitude, then the UTC.
3. Press ENT when all the information is correct.

   The vessel's latitude and longitude are shown on the screen, with the UTC time. The prefix MAN indicates a manual entry. The manual entries are cancelled if a real GPS position is received.

3-6-2 Local Time (TIME OFFSET)

If your position and time data are being updated through a GPS navigation receiver, you can enter the time difference between UTC and local time and display your local time on the LCD.

```
MENU SELECT
 LOCAL/DIST
 CONTRAST
>GPS/DATA
```

```
GPS/DATA
 MANUAL
>SETTING
```

```
SETTING
>TIME OFFSET
 TIME FORMAT
 TIME DISPLY
```

```
TIME OFFSET
>+OO.OO

O4:43 UTC
```

```
TIME OFFSET
>+O3.OO

O7:43 LOC
```

```
O7:5OAM LOC
17°36.233'N
161°O5.651'E
```


WORLD MAP OF TIME ZONES

STANDARD TIME ZONES
Corrected to February 2008
Zone boundaries are approximate
Daylight Saving Time (*Summer Time*), usually one hour in advance of Standard Time, is kept in some places
Map outline © *Mountain High Maps*
Compiled by HM Nautical Almanac Office

Standard Time = Universal Time − value from table
Universal Time = Standard Time + value from table

	h m		h m		h m		h m		h m		h m		h m
Z	0	D*	4 30	H	8	L	11	N	+1	Q*	+4 30	V	+9
A	1	E	5	I	9	L*	11 30	O	+2	R	+5	V*	+9 30
B	2	E*	5 30	I*	9 30	M	12	P	+3	S	+6	W	+10
C	3	F	6	K	10	M*	13	P*	+3 30	T	+7	X	+11
C*	3 30	F*	6 30	K*	10 30	M†	14	Q	+4	U	+8	Y	+12
D	4	G	7										

‡ No Standard Time legally adopted

International Date Line

1. Work out the time difference between UTC and your local time.
2. Select GPS/DATA then SETTING.
3. Select TIME OFFSET to enter the difference between UTC and local time. Use the Channel Select knob OR + or – to change the time. Half hour increments can be used with a maximum offset of ±13 hours.
4. Press ENT when the local time is correct.

   LOC is displayed after the time on the LCD as a reminder that local time is selected.

3-6-3 Time Format Options (TIME FORMAT)

Time can be shown in 12 or 24 hour format.

```
┌─────────────┐  ┌─────────────┐  ┌─────────────┐  ┌─────────────┐
│ (Hi)   (DSC)│  │ (Hi)   (DSC)│  │ (Hi)   (DSC)│  │ (Hi)   (DSC)│
│ MENU SELECT │  │ GPS/DATA    │  │ SETTING     │  │ TIME FORMAT │
│  LOCAL/DIST │  │  MANUAL     │  │  TIME OFFEST│  │ >12 Hr      │
│  CONTRAST   │  │ >SETTING    │  │ >TIME FORMAT│  │  24 Hr      │
│ >GPS/DATA   │  │             │  │  TIME DISPLY│  │  06:56PM LOC│
└─────────────┘  └─────────────┘  └─────────────┘  └─────────────┘
```

1.   Select GPS/DATA then SETTING.
2.   Select TIME FORMAT.
3.   Select 12 or 24 hr as desired. In this example, 12 hour format has been selected and so the LCD shows the AM or PM suffix.

3-6-4 Time Display Options (TIME DISPLY)

If your vessel position and time data are being updated through a GPS navigation receiver, you can show or hide the time on the LCD.

```
┌─────────────┐  ┌─────────────┐  ┌─────────────┐  ┌─────────────┐
│ (Hi)   (DSC)│  │ (Hi)   (DSC)│  │ (Hi)   (DSC)│  │ (Hi)   (DSC)│
│ MENU SELECT │  │ GPS/DATA    │  │ SETTING     │  │ TIME DISPLY │
│  LOCAL/DIST │  │  MANUAL     │  │  TIME OFFEST│  │  ON         │
│  CONTRAST   │  │ >SETTING    │  │  TIME FORMAT│  │ >OFF        │
│ >GPS/DATA   │  │             │  │ >TIME DISPLY│  │             │
└─────────────┘  └─────────────┘  └─────────────┘  └─────────────┘
```

1.   Select GPS/DATA then SETTING.
2.   Select TIME DISPLY.
3.   Select ON (on) or OFF (off) as desired. In this example, OFF has been selected and the LCD no longer shows the time.

Note: If the time display is set ON, course and speed data are NOT displayed on the LCD, irrespective of the COG/SOG setting. See Section 3.6.6.

3-6-5 Position Display Options (LL DISPLY)

If your vessel position and time data are being updated through a GPS navigation receiver, you can show or hide your vessel position on the LCD.

```
┌─────────────┐  ┌─────────────┐  ┌─────────────┐  ┌─────────────┐
│ (Hi)   (DSC)│  │ (Hi)   (DSC)│  │ (Hi)   (DSC)│  │ (Hi)   (DSC)│
│ MENU SELECT │  │ GPS/DATA    │  │ SETTING     │  │ LL DISPLY   │
│  LOCAL/DIST │  │  MANUAL     │  │  TIME FORMAT│  │  ON         │
│  CONTRAST   │  │ >SETTING    │  │  TIME DISPLY│  │ >OFF        │
│ >GPS/DATA   │  │             │  │ >LL DISPLY  │  │             │
└─────────────┘  └─────────────┘  └─────────────┘  └─────────────┘
```

1.   Select GPS/DATA then SETTING.

2. Select LL DISPLY.

3. Select ON (on) or OFF (off) as desired. In this example, OFF has been selected and the LCD no longer shows the vessel position.

3-6-6 Course & Speed Display Options (COG/SOG)

If your vessel position and time data are being updated through a GPS navigation receiver, you can show or hide your course over ground (COG) and speed over ground (SOG) data on the LCD.
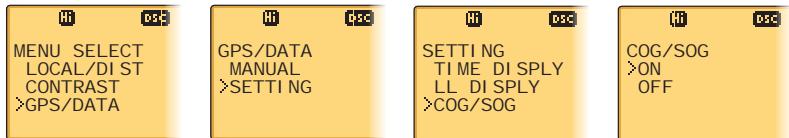
1. Select GPS/DATA then SETTING.

2. Select COG/SOG.

3. Select ON (on) or OFF (off) as desired. In this example, ON has been selected and so the LCD shows the bearing and speed.

Note: If TIME DISPLY is ON, the course and speed data are NOT displayed on the LCD, irrespective of the COG/SOG setting. See Section 3-6-4.

3-6-7 GPS Alert (GPS ALERT)

If the GPS Alert is ON and the GPS navigation receiver is disconnected, the alarm sounds.

Note: The default setting is ON for the LVR-880EU and OFF for the LVR-880US.

1. Select GPS/DATA then SETTING.

2. Select GPS ALERT.

3. Select ON (on) or OFF (off) as desired.

3-7 GPS Simulator (GPS SIM)

The GPS simulator is set to OFF whenever the radio is turned ON or whenever real GPS data is available through the COM port. (The GPS simulator will not operate if a GPS signal is received.)

However, if you want to test it, turn it ON. Note that DSC transmissions will be blocked while the GPS simulator is ON.

```
      Hi        DSC              Hi        DSC
  MENU SELECT            GPS SIM
   RADIO SETUP            ON
   DSC SETUP           >OFF
  >GPS SIM
```
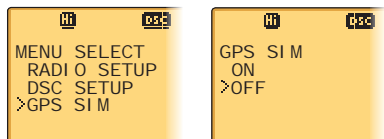
1.   Select GPS SIM.
2.   Select ON (on) or OFF (off) as desired.

3-8 Reset to Factory Defaults (RESET)

Use this to return every setting to the factory defaults except all MMSI settings and the entries in your buddy list.

```
      Hi        DSC              Hi        DSC
  MENU SELECT            RADIO RESET
   DSC SETUP            ARE YOU SURE
   GPS SIM             >YES
  >RESET                 NO
```
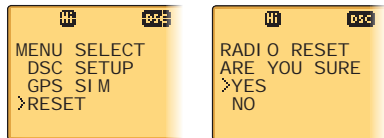
1.   Select RESET. The radio asks for confirmation.
2.   Select YES then press ENT to confirm and reset the radio.

      The menu is displayed again.

Section 4 - Radio Setup Menu (RADIO SETUP)

Hold down CALL MENU for about 3 seconds to access the following RADIO SETUP options. Menu options shown inside the gray box are explained in this chapter.

|			
WAYPOINT			Section 3-1
BACKLIGHT			Section 3-2
BUDDY LIST			Section 3-3
LOCAL/DIST			Section 3-4
CONTRAST			Section 3-6
GPS/DATA	MANUAL		Section 3-6-1
	SETTING	TIME OFFSET	Section 3-6-2
		TIME FORMAT	Section 3-6-3
		TIME DISPLY	Section 3-6-4
		LL DISPLY	Section 3-6-5
		COG/SOG	Section 3-6-6
		GPS ALERT	Section 3-6-6
RADIO SETUP	**UIC** *LVR-880US only*		**Section 4-1**
	CH NAME		**Section 4-2**
	RING VOLUME		**Section 4-3**
	KEY BEEP		**Section 4-4**
	UNITS		**Section 4-5**
	INT SPEAKER		**Section 4-6**
	WATCH MODE *LVR-880US only*		**Section 4-7**
	WX ALERT *LVR-880US only*	**TONE ALERT**	**Section 4-8-1**
		SAME ALERT	**Section 4-8-2**
		SAME CODE	**Section 4-8-3**
	COM PORT		**Section 4-9**
	GPS SOURCE		**Section 4-10**
	FM REGION		**Section 4-11**
DSC SETUP	USER MMSI		Section 5-1
	GROUP SETUP		Section 5-2
	INDIV REPLY *LVR-880US only*		Section 5-3
	ATIS MMSI *LVR-880EU only*		Section 5-4
	ATIS SELECT *LVR-880EU only*		Section 5-5
	DSC SELECT		Section 5-6
	LL REPLY		Section 5-7
GPS SIM			Section 3-7
RESET			Section 3-8

See sections 1-5 and 1-6 if you want to know how to move around the menu and enter, save and change data.

4-1 Channel (UIC)

LVR-880US only.

Toggle between USA, International, or Canadian channel banks. The selected channel bank is displayed on the LCD along with the last used channel. All the channel charts are shown in Appendix C.
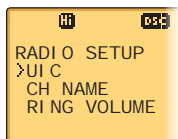
1. Select RADIO SETUP then UIC.
2. Select the desired channel bank then press ENT.

4-2 Channel Names (CH NAME)

The channel charts are listed in Appendix C with their default name tags. CH NAME gives you the option to edit or delete the channel name tags displayed on the LCD.

In this example, the channel name tag PHONE-PORTOP associated with channel 87 is being changed to CALL PORT OP.
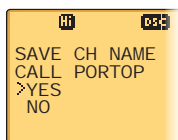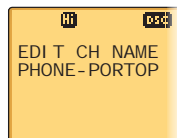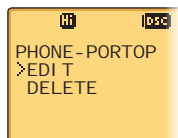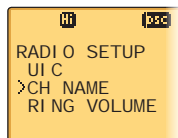
1. Select RADIO SETUP then CH NAME. Use the Channel Select knob OR + or - to step through the channel name tags until you see the one you want to change then press ENT.
2. To delete the channel name, select DELETE and press ENT.
3. To edit the channel name, select EDIT to edit the existing name tag.
4. Input the new name over the existing name. It can be a maximum of 12 characters.
5. Press ENT (repeatedly is necessary) to display the YES/NO confirmation.
6. Press ENT to confirm the new channel name tag (or the deletion).

4-3 Ring Volume (RING VOLUME)

The radio sounds the friendly two-tone alert when it detects an incoming DSC call. You can change the volume level.

```
   ⊞        DSC        ⊞        DSC
RADIO SETUP         RING VOLUME
 UIC               >HIGH
 CH NAME             LOW
>RING VOLUME
```
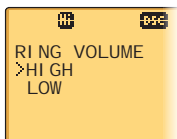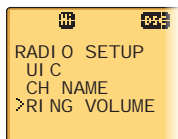
1.   Select RADIO SETUP then RING VOLUME.
2.   Select HIGH (loud) or LOW (soft) then press ENT.

4-4 Key Beep Volume (KEY BEEP)

You can change the key beep volume or turn the key beeps off completely.

```
   ⊞        DSC        ⊞        DSC
RADIO SETUP         KEY BEEP
 CH NAME             HIGH
 RING VOLUME       >LOW
>KEY BEEP            OFF
```
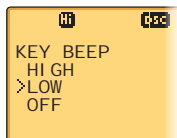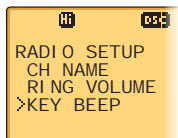
1.   Select RADIO SETUP then KEY BEEP.
2.   Select the desired setting then press ENT.

4-5 Select Units (UNITS)

You can select your preferred measurement units for distance and cross track error.

```
   ⊞        DSC        ⊞        DSC
RADIO SETUP         UNITS
 RING VOLUME       >METRIC
 KEY BEEP            NAUTICAL
>UNITS              STATUTE
```
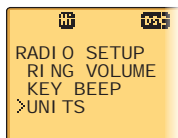
1.   Select RADIO SETUP then UNITS.
2.   Select your preferred measurement units then press ENT.

4-6 Internal Speaker Connections (INT SPEAKER)

You can switch the radio's internal speaker ON or OFF. The external speaker is always ON if a speaker is plugged into the external speaker jack.

Note: To enable stereo FM speaker amplifiers, the internal speaker must be OFF.
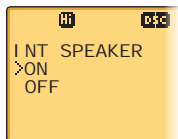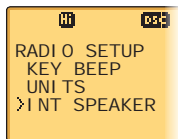
1. Select RADIO SETUP then INT SPEAKER.
2. Select ON (on) or OFF (off) then press ENT to enable the setting and return to the menu.

4-7 Set the Priority Channel (WATCH MODE)

LVR-880US only.

If you are operating on the USA or Canadian channel banks, you can set the priority channel to cover both CH16 and CH09 as well as the working channel, similar to a TRI WATCH.
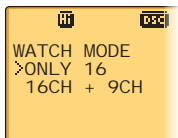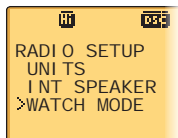
1. Select RADIO SETUP then WATCH MODE.
2. Select the desired setting then press ENT.

4-8 Weather Alerts (WX ALERT)

LVR-880US only.

Use WX ALERT to set your preferences for weather alert information.

The NOAA provides several weather forecast channels on USA and Canadian channel banks. If severe weather such as storms or hurricanes are forecast, the NOAA broadcasts a weather alert on 1050 Hz.

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

Each transmitter in the NOAA All Hazards Weather Radio Service (NWR) network is identified with a unique 6-digit SAME code. Each transmitter operates on one of 7 frequencies.

Note: To activate a SAME alert, a SAME CODE (county ID) must be selected and turned ON (see section 4-8-2)

4-8-1 TONE ALERT

LVR-880US only.

If TONE ALERT is ON and an alert tone of 1050 Hz is broadcast from the NOAA weather station, the weather alert is picked up automatically and the alarm sounds. Press any key to cancel the alarm and to hear the weather alert message.
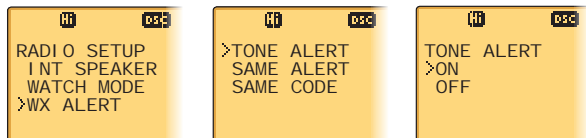
1. Select RADIO SETUP then WX ALERT.
2. Select TONE ALERT.
3. Select ON to hear any weather alerts on 1050 Hz OR, to ignore these weather alerts, select OFF.

4-8-2 SAME ALERT

LVR-880US only.

Note: SAME ALERT works only after you have entered and selected a SAME code for your geographic area (see Section 4-8-5 and 4-8-6).

Note: SCAN mode will operate up to 50% more slowly when SAME ALERT is ON to allow time to decode the special warning code transmissions.
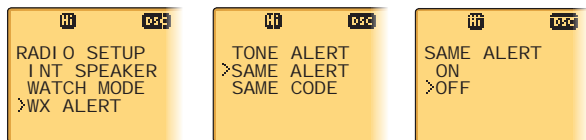
1. Select RADIO SETUP then WX ALERT.
2. Select SAME ALERT.
3. Select ON to receive any local NWR or EAS alerts OR, to ignore these weather alerts, select OFF.

4-8-3 Receiving a SAME ALERT

LVR-880US only.

If SAME ALERT alert is ON and an NWR or EAS alert for your geographic area is broadcast by the NOAA NWR transmitters, the alert is picked up automatically and the alarm sounds. Press any key to cancel the alarm.

If the alert is being sent by NOAA NWR, the radio automatically tunes to the designated frequency so that you can listen to the alert.

If the alert is being sent by the EAS, the nature of the alert is shown on the LCD as WARNING, WATCH, ADVISORY, or TEST.
Press any key to show the nature of the alert. (The list of alerts is shown in Appendix C.)

4-8-4 Receiving SAME TEST Messages

LVR-880US only.

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

Note: If there is a threat of severe weather, the test is postponed until the next good weather day.

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

4-8-5 Enter a SAME CODE (County ID)

LVR-880US only.

If you want to receive SAME weather alerts, you must enter and then Select a SAME code for your geographic area into your radio. You can enter a maximum of 4 SAME codes (4 counties) in your geographic area.

Telephone 1-888-NWR-SAME (1-888-697-7263) or visit www.nws.noaa.gov/nwr/indexnw.htm to find the SAME codes for your geographic area (you must be within the United States of America, Puerto Rico, the U.S. Virgin Islands and U.S. Pacific Territories).
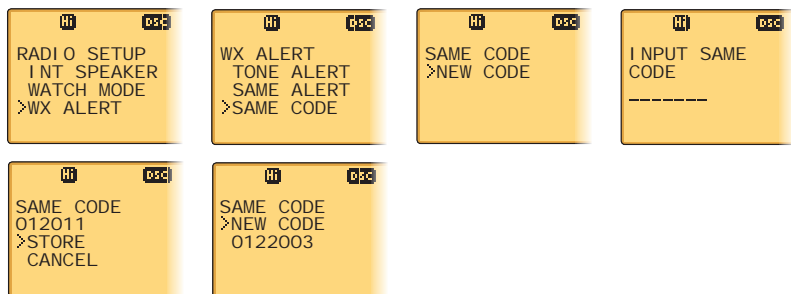
1. Select RADIO SETUP then WX ALERT.
2. Select SAME CODE. If you have already entered any SAME codes, they are listed on the LCD.
3. Select NEW CODE. Enter the new SAME code along the dashed line, one number at a

time. Press ENT to confirm each correct entry and to move to the next digit.

If you make an error, press – until < appears, then press ENT to backup and correct the entry.

4. Press ENT to store the SAME code.
5. Repeat if necessary to enter a maximum of 10 SAME codes.

4-8-6 Select a Working SAME code

LVR-880US only.

You must select a SAME code for your geographic working area that you have previously entered into the radio in order to receive SAME weather alerts:
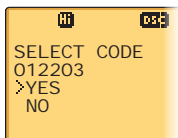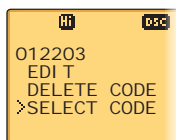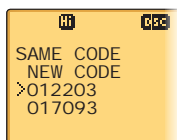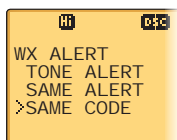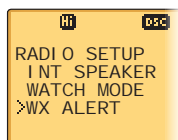
```
    Hi        DSC
RADIO SETUP
 INT SPEAKER
 WATCH MODE
>WX ALERT
```

```
    Hi        DSC
WX ALERT
 TONE ALERT
 SAME ALERT
>SAME CODE
```

```
    Hi        DSC
SAME CODE
 NEW CODE
>012203
 017093
```

```
    Hi        DSC
012203
 EDIT
 DELETE CODE
>SELECT CODE
```

```
    Hi        DSC
SELECT CODE
012203
>YES
 NO
```

1. Select RADIO SETUP then WX ALERT.
2. Select SAME CODE. If you have already entered any SAME codes, they are listed on the LCD.
3. Select the SAME# for your geographic area (0122003 in the above example) and press ENT.
4. Choose SELECT CODE. Then select YES.

4-9 NMEA Protocol (COM PORT)

The COM PORT must be configured correctly before use. The radio can be added to a group of instruments using NMEA protocol.

```
    Hi        DSC
RADIO SETUP
 UNITS
 INT SPEAKER
>COM PORT
```

```
    Hi        DSC
NMEA
CHECK SUM
>ON
 OFF
```
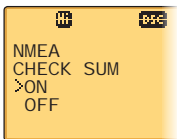
1. Select RADIO SETUP then COM PORT.
2. Select the desired setting then press ENT.

CHECK SUM ON (on) is the usual setting.

The COM PORT uses 4800 baud rate and can receive the following GPS data sentences: RMC, GGA, GLL, GNS. Additionally, the radio will output the following NMEA DSC data: DSC (for DSC call), DSE (for enhanced position).

4-10 Select the GPS Source (GPS SOURCE)

This radio can use either NMEA0183 or NMEA2000 protocol to receive GPS data from a compatible GPS unit.

Note: NMEA2000 SOURCE options will appear (up to 4 sources showing the actual source name) only if NMEA2000 is operational.
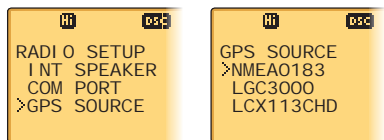
1. Select RADIO SETUP then GPS SOURCE. (If there is only one NMEA protocol available on your vessel, only that will be shown.)
2. Select the desired NMEA source then press ENT.

4-11 Select the FM Region (FM REGION)

1. Select RADIO SETUP then FM REGION.
2. Select the FM region and press ENT. If you selected USA, EUROPE, AUS/NZ, or JAPAN, the FM REGION selection is now complete.

   If you selected OTHERS, you must also specify the channel spacing, upper frequency, and lower frequency.
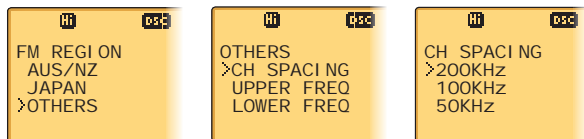
1. Select CH SPACING then select the channel spacing.
2. Select UPPER FREQ then select the upper frequency (between 108.00 and 106.00 MHz).
3. Select LOWER FREQ then select the lower frequency (between 87.50 and 89.50 MHz).

Section 5 - DSC Setup Menu (DSC SETUP)

⚠ WARNING

A valid USER MMSI must be entered into the radio before these DSC functions can be used. See Section 5-1 for instructions on entering your USER MMSI.

Hold down CALL MENU for about 3 seconds to access any of the following DSC SETUP options.

Menu options shown inside the gray box are explained in this chapter.

WAYPOINT			Section 3-1
BACKLIGHT			Section 3-2
BUDDY LIST			Section 3-3
LOCAL/DIST			Section 3-4
CONTRAST			Section 3-6
GPS/DATA	MANUAL		Section 3-6-1
	SETTING	TIME OFFSET	Section 3-6-2
		TIME FORMAT	Section 3-6-3
		TIME DISPLY	Section 3-6-4
		LL DISPLY	Section 3-6-5
		COG/SOG	Section 3-6-6
		GPS ALERT	Section 3-6-6
RADIO SETUP	UIC LVR-880US only		Section 4-1
	CH NAME		Section 4-2
	RING VOLUME		Section 4-3
	KEY BEEP		Section 4-4
	UNITS		Section 4-5
	INT SPEAKER		Section 4-6
	WATCH MODE *LVR-880US only*		Section 4-7
	WX ALERT *LVR-880US only*	TONE ALERT	Section 4-8-1
		SAME ALERT	Section 4-8-2
		SAME CODE	Section 4-8-3
	COM PORT		Section 4-9
	GPS SOURCE		Section 4-10
	FM REGION		Section 4-11
DSC SETUP	**USER MMSI**		**Section 5-1**
	GROUP SETUP		**Section 5-2**
	INDIV REPLY *LVR-880US only*		**Section 5-3**
	ATIS MMSI *LVR-880EU only*		**Section 5-4**
	ATIS SELECT *LVR-880EU only*		**Section 5-5**
	DSC SELECT		**Section 5-6**
	LL REPLY		**Section 5-7**
GPS SIM			Section 3-7
RESET			Section 3-8

See sections 1-5 and 1-6 if you want to know how to move around the menu and enter, save and change data.

5-1 Enter or Check Your USER MMSI (USER MMSI)

This is a **ONCE-ONLY** operation. You must enter your user MMSI before you can access the DSC functions.

You can display and read your user MMSI at any time, but you get only one opportunity to enter your user MMSI.

The user MMSI (Marine Mobile Service Identity) is a unique 9 digit number, similar to a personal telephone number. It is used on marine transceivers that are capable of using DSC (Digital Select Calling).

Contact the appropriate authorities in your country to obtain your user MMSI. If you are unsure who to contact, consult your Lowrance dealer.
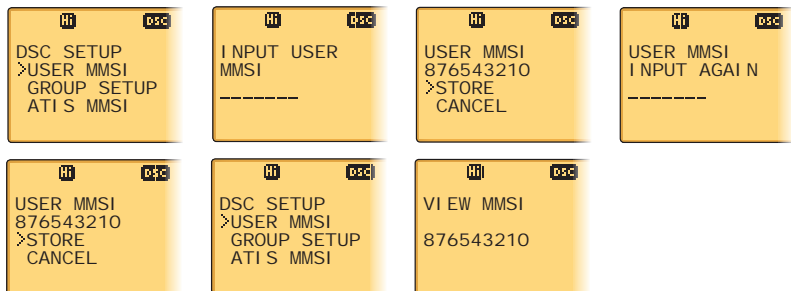
1. Select DSC SETUP, then USER MMSI.

   If you have already entered your MMSI, it is shown on the LCD.

2. If this is the **first time** that you are entering your MMSI, a dashed line appears.

   Enter your MMSI along the dashed line, one number at a time. Press ENT to confirm each correct entry and to move to the next digit.

   If you make an error, press – until < appears, then press ENT to backup and correct the entry.

3. Press ENT to store your user MMSI.

4. Enter your user MMSI again as a password check, then press ENT to permanently store the user MMSI and return to the menu.

5. You can view your stored user MMSI at anytime by selecting USER MMSI in the main menu.

5-2 Maintain Your Groups

Use GROUP SETUP to create, edit, or delete 1, 2, or 3 groups of frequently called people stored in alphanumeric order. A group MMSI always starts with 0.

5-2-1 Create a Group (GROUP SETUP)

DSC SETUP USER MMSI >GROUP SETUP ATIS MMSI	GROUP SETUP >MANUAL NEW	GROUP NAME _ _ _ _ _ _ GROUP MMSI 0_ _ _ _ _ _	FISHING 1 012345678 >STORE CANCEL

1. Select DSC SETUP then GROUP SETUP.
2. Select MANUAL NEW.
3. If this is the **first time** that you are entering a group name, a dashed line appears
4. Enter the group name along the dashed line. It can be a maximum of 12 alphanumeric characters. Press ENT to confirm each correct entry and to move to the next position.

    If you make an error, press – until < appears, then press ENT to backup and correct the entry.
5. Enter the group MMSI. (Note that the first number is always a 0.) Press ENT.
6. The group name and group MMSI are shown in a confirmation screen. Press ENT to store the details and return to the GROUP SETUP screen.

5-2-2 Edit or Delete a Group Name or Group MMSI (GROUP SETUP)

You can edit a group name or group MMSI at any time.

DSC SETUP USER MMSI >GROUP SETUP ATIS MMSI	GROUP SETUP MANUAL NEW >FISHING 1 SAILING	FISHING 1 012345678 EDIT DELETE	EDIT NAME FISHING 1 ENTER MMSI 012345678

FISHING 1 012345678 >STORE CANCEL
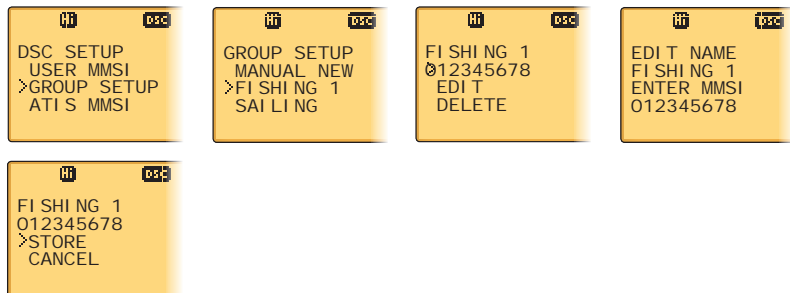
1. Select DSC SETUP then GROUP SETUP. The existing group names are displayed.
2. Select the group you want to edit. Press ENT.
3. To delete the group, select DELETE then YES. The group is deleted immediately and the group list is displayed again.

4. To edit the group, select EDIT.

5. Edit the group name OR to edit only the MMSI, press ENT repeatedly until the cursor moves to the MMSI line.

6. When you are finished, press ENT (repeatedly if necessary) until a new LCD appears.

7. Press ENT to store the changes and return to the GROUP SETUP screen.

5-3 Response to Individual Calls (INDIV REPLY)

LVR-880US only.

You can respond to incoming individual calls with an automatic response or with a manual response.

An automatic response sends an acknowledgement and then sets the request link channel, ready for a conversation.

A manual response asks if you want to acknowledge the call, and then asks if you want to converse with the caller.

1. Select DSC SETUP, then INDIV REPLY.

2. Select AUTO for an automatic response, or MANUAL for a manual response.

3. Press ENT to confirm your choice and return to the menu.
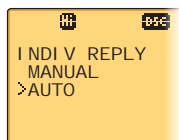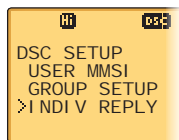
5-4 Enter or check your ATIS MMSI (ATIS MMSI)

LVR-880EU only.

You must enter your ATIS MMSI to access ATIS functionality if you are navigating inland waterways within Europe.

ATIS sends a digital message any time that you release the PTT key. Inland waterways rules require 1 W Tx power on Channels 06, 08, 10, 11, 12, 13, 14, 15, 17, 71, 72, 74, and 77.

An ATIS MMSI always starts with the number 9.

This is a **ONCE-ONLY** operation. You must enter your ATIS MMSI before you can access the ATIS functions.

You can display and read your ATIS MMSI at any time, but you get only one opportunity to enter your ATIS MMSI.
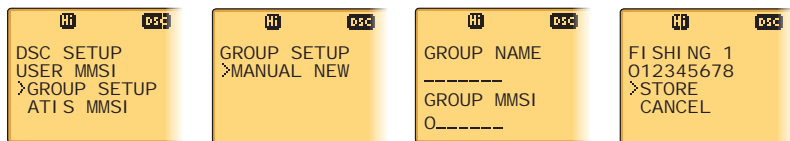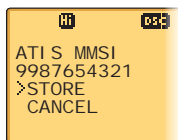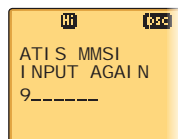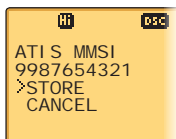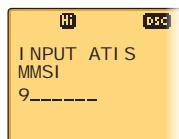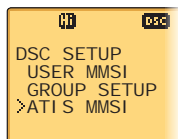
1. Select DSC SETUP then ATIS MMSI.

   If you have already entered your ATIS MMSI, it is shown on the LCD.

2. If this is the **first time** that you are entering your ATIS MMSI, a dashed line appears. Enter your ATIS MMSI along the dashed line. The first number is always 9. Press ENT to confirm each correct entry and to move to the next digit.

   If you make an error, press – until < appears then press ENT to backup and correct the entry.

3. Press ENT to store the ATIS MMS.

4. Enter your ATIS MMSI again as a password check, then press ENT to permanently store the ATIS MMSI and return to the menu.

5. You can view your stored ATIS MMSI at any time by selecting ATIS MMSI in the main menu.

5-5 Enable ATIS Functionality (ATIS SELECT)

LVR-880EU only.

ATIS functionality will operate only after the ATIS MMSI has been entered (see previous section).

When ATIS functionality is enabled, the ATIS symbol is shown on the LCD.
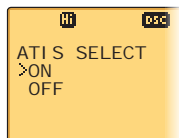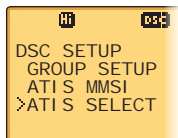
1. Select DSC SETUP then ATIS SELECT.

2. Select OFF to disable ATIS functionality or ON to enable ATIS functionality.

3. Press ENT to confirm.

It is not possible to have both DSC ON and ATIS ON simultaneously. When you enable one, the other will turn OFF. If DSC and ATIS are both OFF, DSC will have to be switched ON for normal DSC operation.

5-6 Enable DSC Functionality (DSC SELECT)

DSC functionality will operate only after a valid USER MMSI has been entered.

When DSC functionality is selected, the DSC symbol is shown on the LCD.

```
    HI        DSC
DSC SETUP
 ATIS MMSI
 ATIS SELECT
>DSC SELECT
```

```
    HI        DSC
DSC SELECT
 ON
>OFF
```
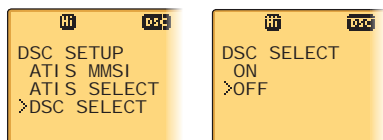
1. Select DSC SETUP then DSC SELECT.
2. Select OFF to disable DSC functionality or ON to enable DSC functionality.

Note: Disabling DSC functionality is not recommended.

3. Press ENT to confirm.

It is not possible to have both DSC ON and ATIS ON simultaneously. When you enable one, the other will turn OFF. If DSC and ATIS are both OFF, DSC will have to be switched ON for normal DSC operation.

5-7 Response Type to LL Polling Calls (LL REPLY)

You can set up the radio to respond to an LL polling request in one of three ways:

- **MANUAL** reply manually to any incoming LL polling requests from your buddies.
- **AUTO** automatically replies to any incoming LL polling requests from any of your buddies.
- **OFF** ignores all incoming buddy LL polling requests.

```
    HI        DSC
DSC SETUP
 ATIS SELECT
 DSC SELECT
>LL REPLY
```

```
    HI        DSC
LL REPLY
>MANUAL
 AUTO
 OFF
```
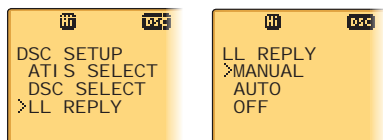
1. Select DSC SETUP then LL REPLY.
2. Select your response and press ENT to confirm and return to the menu.

Section 6 - Sending and Receiving DSC Calls

⚠ WARNING

A valid USER MMSI must be entered into this radio before these DSC functions can be used. See section 5-1.

6-1 What is DSC?

DSC (Digital Selective Calling) is a semi-automated method of establishing VHF, MF, and HF radio calls. It has been designated as an international standard by the IMO (International Maritime Organization) and is part of the GMDSS (Global Maritime Distress and Safety System).

Currently, you are required to monitor Distress Channel 16, but DSC will eventually replace listening watches on distress frequencies and will be used to broadcast routine and urgent maritime safety information.

DSC enables you to send and receive calls from any vessel or coast station that is equipped with DSC functionality and within geographic range. Calls can be categorised as distress, urgency, safety, or routine, and DSC selects a working channel automatically.

6-2 Sending DSC Calls

You can call any other person that has another DSC equipped radio.

Press CALL MENU to access the following DSC CALL menu options – select LAST CALL to quickly call back the person who called you.

Note that only three DSC CALL menu options can be shown on the LCD at any one time.

Press + or – on the microphone OR turn the Channel Select knob on the base station to scroll up or down through the menu until the cursor is positioned at the desired option. Press ENT (the center of the Channel Select knob) to display that option.

The following options are available:

DSC CALL	INDIVIDUAL	Section 6-3
	LAST CALL	Section 6-6
	GROUP	Section 6-7
	ALL SHIPS	Section 6-8
	CALL LOG	Section 6-9
	DIST LOG	Section 6-10
	LL REQUEST	Section 6-12
	TRACK BUDDY	Section 6-14

Call to a Buddy

DSC CALL >INDIVIDUAL LAST CALL GROUP	**INDIVIDUAL** >ROUTINE SAFETY URGENCY	**INDIVIDUAL** MANUAL NEW >MERMAID IV SEAROSE	**MERMAID IV** INDIVIDUAL ROUTINE >SEND?
MERMAID IV INDIVIDUAL ROUTINE CALLING...	**MERMAID IV** INDIVIDUAL ROUTINE WAITING ACK	**INDIV ACK** MERMAID IV PRESS PTT EXIT->ESC	

Call to others

DSC CALL >INDIVIDUAL LAST CALL GROUP	**INDIVIDUAL** >ROUTINE SAFETY URGENCY	**INDIVIDUAL** >MANUAL NEW MERMAID IV SEAROSE	**MANUAL MMSI** O—————
678912345 INDIVIDUAL ROUTINE >SET CHANNEL	**678912345** INDIVIDUAL ROUTINE >SEND?	**678912345** INDIVIDUAL ROUTINE CALLING...	**678912345** INDIVIDUAL ROUTINE WAITING ACK

1. Select DSC CALL then INDIVIDUAL.
2. Select the priority level.
3. Select the buddy you want to call from your buddy list - *or* Select MANUAL NEW then enter the MMSI of the individual you want to call and press ENT.
4. Select the working channel and press ENT.

Note: Duplex channels cannot usually be called and are automatically eliminated from the suggested call list. If the call is to a coast station, the channel is selected automatically.

5. Press ENT to SEND the call. Channel 70 is selected automatically and the Tx symbol is shown on the LCD while the call is being sent.
6. The radio waits for an acknowledgement (WAITING ACK). If the call is acknowledged (INDIV ACK) press PTT to talk.
7. If there is no reply (UNABLE TO ACKNOWLEDGE) a message asks if you want to retry (SEND AGAIN?). Press ENT to retry the call.

6-4 Acknowledgement of an Individual Incoming Call (INDIV)

The radio sounds a friendly two-tone alert when it detects an incoming DSC call.
Incoming individual calls are almost always ROUTINE priority.

You must manually acknowledge an incoming call.


```
RCV: INDIV
012345678
ENTER -> ACK
EXIT
```
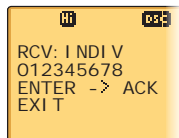
If the radio recognizes the MMSI as one of your buddies, your buddy's name is displayed in place of the MMSI.

1. Press ENT to automatically acknowledge the incoming call and stop the call alert.

    The radio automatically selects the channel designated by the incoming call.

2. The caller should respond to your acknowledgement by making voice contact on the designated channel. If not, you can press PTT to initiate voice contact instead.

6-6 Reply to the Last Call (LAST CALL)

This facility is useful and used frequently.


```
DSC CALL
  INDIVIDUAL
>LAST CALL
  GROUP
```

```
SEAROSE
INDIVIDUAL
ROUTINE
10:22AM LOC
```

```
SEAROSE
INDIVIDUAL
ROUTINE
>SET CHANNEL
```

```
SEAROSE
INDIVIDUAL
ROUTINE
>SEND?
```
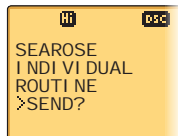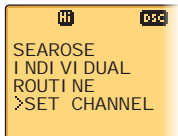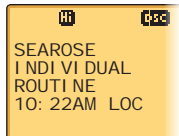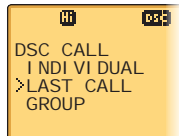
1. Select DSC CALL then LAST CALL.
2. The contact details of the most recent incoming call are displayed. Press ENT.
3. Select the working channel and press ENT.

Note: Duplex channels cannot usually be called and are automatically eliminated from the suggested call list. If the call is to a coast station, the channel is selected automatically.

4. The call details are shown. Press ENT to send the call.

    The Tx symbol is displayed on the LCD while the call is being sent.

5. If the call is acknowledged (INDIV ACK) press PTT to talk. If there is no reply (UNABLE TO ACKNOWLEDGE) a message asks if you want to retry (SEND AGAIN?). Press ENT to retry the call.

6-7 Send a Group Call (GROUP)

You must have already stored the GROUP MMSI before making the call. See Section 5-2-2

Group calls are always sent with ROUTINE priority.

```
┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐
│  ⊞        DSC   │  │  ⊞        DSC   │  │  ⊞        DSC   │  │  ⊞        DSC   │
│ DSC CALL        │  │ GROUP           │  │ DIVE 1          │  │ DIVE 1          │
│  INDIVIDUAL     │  │ >DIVE 1         │  │ 112345678       │  │ ROUTINE         │
│  LAST CALL      │  │  DIVE 2         │  │ ROUTINE         │  │ >SEND?          │
│ >GROUP          │  │                 │  │ >SET CHANNEL    │  │                 │
└─────────────────┘  └─────────────────┘  └─────────────────┘  └─────────────────┘
```
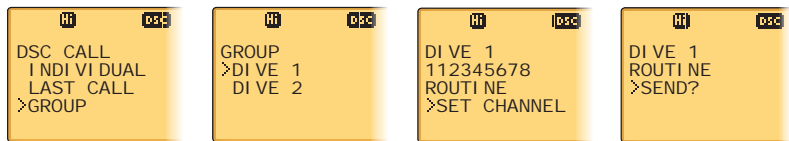
1. Select DSC CALL then GROUP CALL.

   The radio displays the names of your groups.

2. Select the group that you want to call (the GROUP MMSI must be set before making the call). Then set the channel and continue as explained in Section 6-4.

6-8 Send an All Ships Call (ALL SHIPS)

```
┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐
│  ⊞        DSC   │  │  ⊞        DSC   │  │  ⊞        DSC   │  │  ⊞        DSC   │
│ DSC CALL        │  │ ALL SHIPS       │  │ ALL SHIPS       │  │ ALL SHIPS       │
│  LAST CALL      │  │ >URGENCY        │  │ SAFETY          │  │ SAFETY          │
│  GROUP          │  │  SAFETY         │  │ >SET CHANNEL    │  │ >SEND?          │
│ >ALL SHIPS      │  │  ROUTINE        │  │                 │  │                 │
└─────────────────┘  └─────────────────┘  └─────────────────┘  └─────────────────┘
```

1. Select DSC CALL then ALL SHIPS.

2. The priority is set automatically to URGENCY. However, you can select one of the following call priorities:

   - **URGENCY** For use when a serious situation or problem arises that could lead to a distress situation.
   - **SAFETY** To send safety information to all other vessels in range.
   - **ROUTINE** To send a routine call to all other vessels in range

3. Then set the channel and continue as explained in Section 6-4.

6-9 Send Using the Call Log (CALL LOG)

The Call Log contains the contact details for the 20 most recent incoming calls, so that you can call any of them again quickly.

When the call log is full, the oldest entry is overwritten.
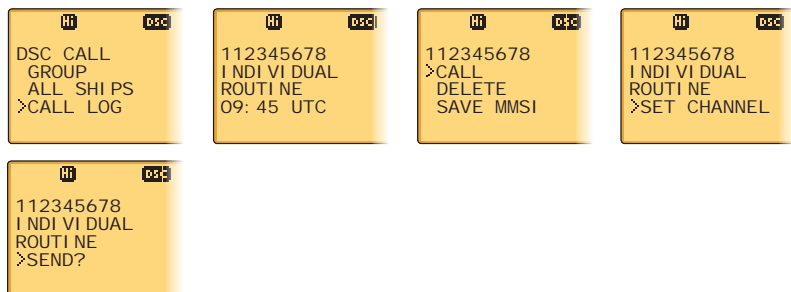
1. Select DSC CALL then CALL LOG.
2. The radio displays the contact details for the most recent incoming call as the first entry (01) in the call log. In the example, the contact details for the 11th most recent call are displayed. Press ENT to move to the next screen.
3. Press ENT again to confirm the call back then set the working channel and press ENT to send the call.
4. Continue as explained in Section 6-4.

6-10 Send Using the Distress Log (DIST LOG)
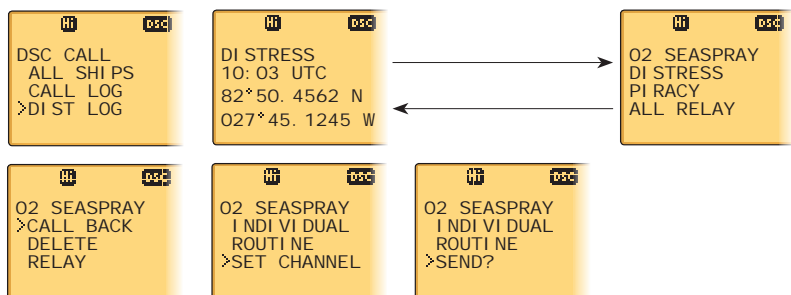
The Distress Log contains the Distress Log data for the 10 most recent relayed Distress Calls, so that you can call any of them quickly. Always try to make voice contact first on CH16 first, as follows:

1. Select DSC CALL then DIST LOG.

2. The most recently received Distress Call is the first entry (01) in the Distress Log. Select the entry that you want to call and press ENT.

   The details are displayed over two screens that alternate every 1.5 seconds: the first screen shows the location of the vessel in distress, the second screen shows the nature of the emergency (if specified) and the name or MMSI of the vessel that relayed the distress call.

3. Select CALL BACK and press ENT then set the working channel and continue as explained in Section 6-4.

6-11 Send an Individual Distress Relay Using the Distress Log (DIST LOG)

You can make a distress relay to an individual in the log.
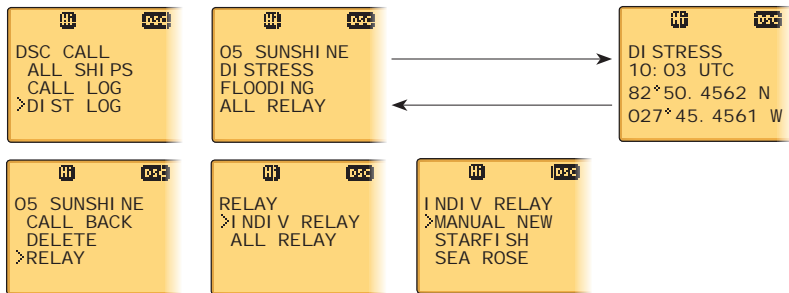
1. Select DSC CALL then DIST LOG.
2. Select the entry that you want to call and press ENT.

   The details are displayed over two screens that alternate every 1.5 seconds: the first screen shows the name or MMSI of the vessel in distress, the second screen shows the location of the vessel.

3. Press ENT then select RELAY.
4. Press ENT to select INDIV RELAY to show your buddy list.
5. Select the buddy (or enter the MMSI of the vessel) that you want to receive the distress call relay, then set the working channel and continue as explained in Section 6-4.

6-12 Send an ALL SHIPS Distress Relay Using the Distress Log (DIST LOG)

You can make a distress relay to an individual in the log.

```
┌─────────────────┐         ┌─────────────────┐                    ┌─────────────────┐
│  (ii)     (DSC)  │         │  (ii)     (DSC)  │                    │  (ii)     (DSC)  │
│ DSC CALL        │         │ O5 SUNSHINE     │  ─────────────▶    │ DISTRESS        │
│  ALL SHIPS      │         │ DISTRESS        │                    │ 10:03 UTC       │
│  CALL LOG       │         │ FLOODING        │                    │ 82°50.4562 N    │
│ >DIST LOG       │         │ ALL RELAY       │  ◀─────────────    │ 027°45.4561 W   │
└─────────────────┘         └─────────────────┘                    └─────────────────┘

┌─────────────────┐         ┌─────────────────┐         ┌─────────────────┐
│  (ii)     (DSC)  │         │  (ii)     (DSC)  │         │  (ii)     (DSC)  │
│ O2 SEASPRAY     │         │ RELAY           │         │ 987654321       │
│  CALL BACK      │         │  INDIV RELAY    │         │ IN DISTRESS     │
│  DELETE         │         │ >ALL RELAY      │         │ RELAY           │
│ >RELAY          │         │                 │         │ >SEND?          │
└─────────────────┘         └─────────────────┘         └─────────────────┘
```
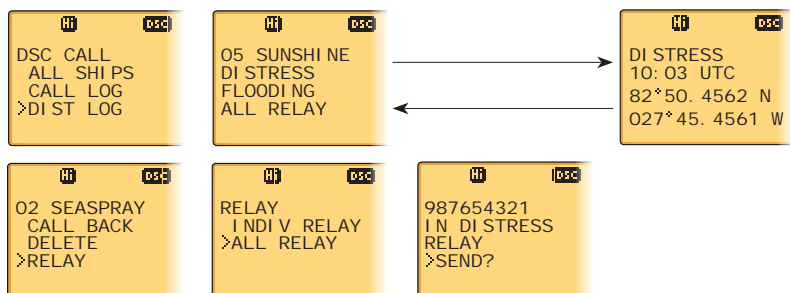
1. Select DSC CALL then DIST LOG.
2. Select the entry that you want to call and press ENT. The details are displayed over two screens that alternate every 1.5 seconds.
3. Press ENT then select RELAY.
4. Select ALL RELAY and press ENT.
5. Press ENT again to SEND the call.

6-13 Request the LL Position of a Buddy (LL REQUEST)

```
┌─────────────────┐    ┌─────────────────┐    ┌─────────────────┐    ┌─────────────────┐
│  (ii)     (DSC)  │    │  (ii)     (DSC)  │    │  (ii)     (DSC)  │    │  (ii)     (DSC)  │
│ DSC CALL        │    │ LL REQUEST      │    │ STARFISH        │    │ STARFISH        │
│  CALL LOG       │    │ >STARFISH       │    │ LL REQUEST      │    │ LL REQUEST      │
│  DIST LOG       │    │  SEAROSE        │    │                 │    │                 │
│ >LL REQUEST     │    │  MERMAID IV     │    │ >SEND?          │    │ CALLING...      │
└─────────────────┘    └─────────────────┘    └─────────────────┘    └─────────────────┘

┌─────────────────┐
│  (ii)     (DSC)  │
│ STARFISH        │
│ LL REQUEST      │
│                 │
│ WAITING ACK     │
└─────────────────┘
```
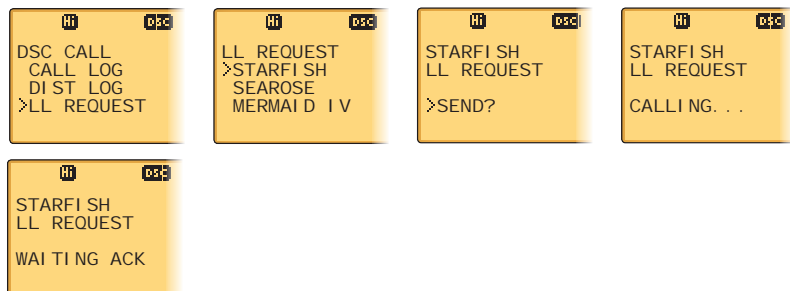
1. Press CALL to enter DSC mode, then select LL REQUEST.

2. Select the buddy whose LL position you want to request then press ENT to send the request.

3. The working channel name is displayed while the radio waits for an acknowledgement from your buddy. If there is no reply after 30 seconds the radio asks if you want to retry. Press ENT to retry the call.

6-14 Track a Buddy (TRACK BUDDY)

You can select a buddy to track; start and stop tracking your buddy, and add or remove buddies from your buddy tracklist.

6-14-1 Start or Stop Tracking a Buddy (START TRACK)

Use TRACK START to track the position of a buddy on your TRACKLIST whose status is ON (see the following section.) The buddy's position is updated at the interval you selected (15, 30, or 60 minutes).

Note: START TRACK will track every buddy on your TRACKLIST whose status is ON.

DSC CALL DIST LOG LL REQUEST >TRACK BUDDY	TRACK BUDDY >START TRACK SET BUDDY TRACKLIST	START TRACK SEAROSE OFF MERMAID ON SEASPRA ON	START TRACK >YES NO

MERMAID IV LL REQUEST CALLING...	SEASPRAY LL REQUEST CALLING...

1. Select DSC CALL then TRACK BUDDY.
2. Select START TRACK.
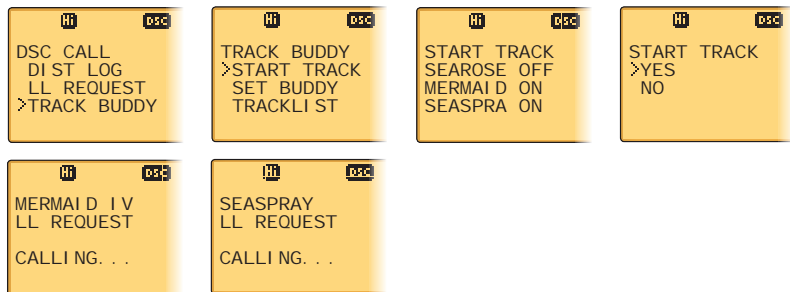3. The status of each buddy on your tracklist (ON or OFF) is displayed.
4. Check that the status of the buddy (or buddies) that you want to track is ON, then press ENT.
5. Select YES then press ENT to start tracking (in this example, MERMAID IV and SEASPRAY.)

   An LL Request is sent to each buddy on CH70 and your radio waits for your buddy's LL position to be displayed on the LCD. See Section 6-20 for more information.

   (Select NO in the START TRACK page to STOP tracking your buddies.)

6-14-2 Select a Buddy to Track (SET BUDDY)

DSC CALL DIST LOG LL REQUEST >TRACK BUDDY	TRACK BUDDY START TRACK >SET BUDDY TRACKLIST	SET BUDDY SEAROSE OFF >MERMAID OFF	SET BUDDY MERMAID IV >ON OFF
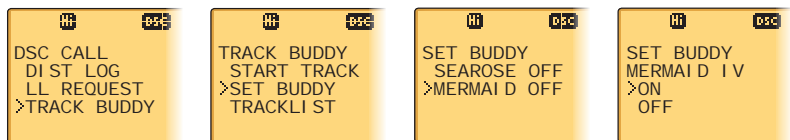
1. Select DSC CALL then TRACK BUDDY.
2. Select SET BUDDY to show the status of each buddy on your tracklist (ON or OFF).
3. Select the buddy whose status you want to change, then select the new status and press ENT to confirm.

6-14-3 Add or Delete a Buddy on Your Track List (TRACKLIST)
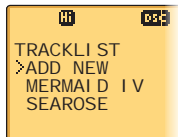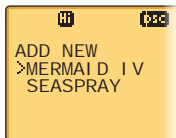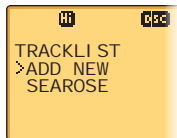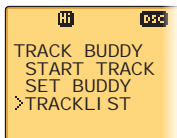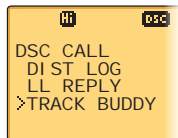
1. Select DSC CALL then TRACK BUDDY.
2. Select TRACKLIST. Any buddies already on the tracklist will be listed.
   Note: To delete a buddy from the tracklist, select that buddy then press ENT. Select YES then press ENT again to delete.
3. Select ADD NEW to show your buddy list.
4. Select the buddy then press ENT to add that buddy to the tracklist.

6-15 Receiving DSC Calls

Several types of DSC calls can be received from vessels within range at various priority levels:

- **DISTRESS**   See Section 7.
- **ALL SHIPS**   Urgency, Safety, or Routine priority (see Section 6-16)
- **INDIVIDUAL**   Urgency, Safety, or Routine priority (see Section 6-17)
- **GROUP**   Routine priority only (see Section 6-18)
- **GEOGRAPHIC**   Routine priority only see Section 6-19)
- **POLLED POSITION**   Routine or Safety priority (see Section 6-20)

In addition to the audible alert, the telephone icon will flash on the screen.
This is to remind you that a call is stored in the CALL LOG. Polled position call data is NOT stored.

6-16 Receiving an All Ships Call (ALL SHIPS)

```
┌────────────────────┐              ┌────────────────────┐
│  [Hi]        [DSC] │              │  [Hi]        [DSC] │
│ ALL SHIPS          │─────────────▶│ 16 CHANNEL         │
│ URGENCY            │              │ REQUEST            │
│ FROM               │              │ ENT->ACCEPT        │
│ 123456789          │◀─────────────│ EXIT->ESC          │
└────────────────────┘              └────────────────────┘
```
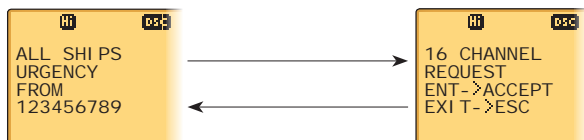
1. When you receive notification of an ALL SHIP call, press any key to cancel the alert. Press ENT to switch to the designated working channel manually; press EXIT to return to old CH. The priority level and the user MMSI are displayed on the screen. If the radio recognises the user MMSI as one of your buddies, the buddy name is shown in place of the user MMSI.

2. No acknowledgement is required. Press PTT to initiate voice contact on CH16 and then switch to the designated working channel.

    The call data is stored in your Call Log (see Section 6-9).

6-17 Receiving an Individual Call (INDIV)

```
┌────────────────────┐              ┌────────────────────┐
│  [Hi]        [DSC] │              │  [Hi]        [DSC] │
│ RCV: INDIV         │─────────────▶│ 12 CHANNEL         │
│ 123456789          │              │ REQUEST            │
│ ROUTINE            │              │                    │
│ ENT->ACK           │◀─────────────│ EXIT->ESC          │
└────────────────────┘              └────────────────────┘
```
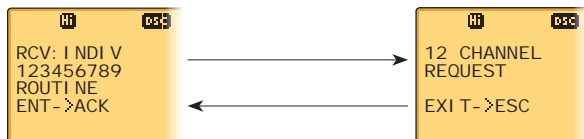
1. When you receive notification of an INDIV call, press any key to cancel the alert. The radio manually selects the channel designated in the incoming call by pressing ENT key. INDIV calls are almost always routine priority.

2. If the radio recognises the user MMSI as one of your buddies, the buddy's name is displayed in place of the user MMSI.

3. The LVR-880US responds automatically to the acknowledge the incoming call. The LVR-880EU responds manually.

4. The caller should respond to your acknowledgement by making voice contact designated channel. If this does not happen, you can press PTT to initiate voice contact instead.

    The call data is stored in your Call Log (see Section 6-9).

6-18 Receiving a Group Call (GROUP)

```
      ⊞          DSC
RCV: GROUP
GP: 012345678
987654444
EXIT->ESC
```
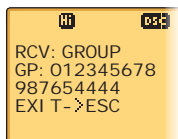
1. When you receive notification of a GROUP call, press any key to cancel the alert. The radio automatically selects the channel designated in the incoming call.

   The priority level is always routine, and the group is identified on the screen. The group will be one of the three groups of frequently called people that you set up earlier (see Section 5-2).

2. You do not need to send an acknowledgement. If desired, press PTT to initiate voice contact on the designated channel.

   The call data is stored in your Call Log (see Section 6-9).

6-19 Receiving a Geographic Area Call (GEOGRAPH)
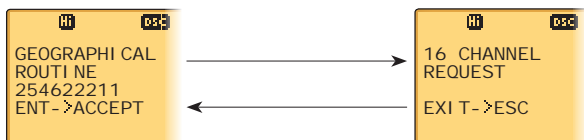
```
      ⊞          DSC
GEOGRAPHICAL
ROUTINE
254622211
ENT->ACCEPT
```
→
```
      ⊞          DSC
16 CHANNEL
REQUEST

EXIT->ESC
```
←

A geographic call is received by vessels within a specific geographic boundary area.

1. When you receive notification of a GEOGRAPHICAL call, press any key to cancel the alert. The radio manually selects the channel designated in the incoming call. Press ENT

   The user MMSI or name is displayed on the screen. If the radio recognises the user MMSI as one of your buddies, the buddy's name is displayed in place of the user MMSI.

2. Monitor the working channel for an announcement from the calling vessel.

6-20 Receiving a Polled Position Call (POSITION)

```
      ⊞          DSC
POSITION ACK
123456789

EXIT->ESC
```
→
```
      ⊞          DSC
POSITION ACK
12:45 UTC
82°50.1234 N
127°45.1425 W
```
←
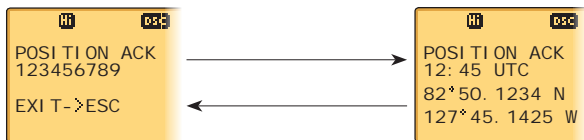
When you receive GPS position data from a buddy in response to your LL request (see Section 6-13) you are recommended to make a written note of the position, especially is it is a good fishing position. If enhanced LL position information is available from your buddy, this is shown on the screen until the screen display changes.

Section 7 - DISTRESS Calls

<div align="center">

⚠ **WARNING**

</div>

A valid USER MMSI must be entered into this radio before these DSC functions can be used. See section 5-1.

7-1 Sending a Distress Call

```
    📶        DSC
DISTRES CALL
>UNDEFINED
 FIRE
 FLOODING
```
```
    📶        DSC
DISTRES CALL
>UNDEFINED
 HOLD DISTRES
 3 SECONDS..
```
```
    📶        DSC
DISTRES CALL
SENT! WAIT.
PRESS EXIT
TO CANCEL...
```
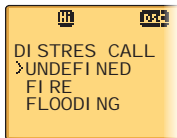
1. Open the red cover labeled DISTRESS.
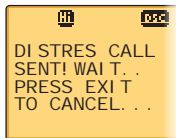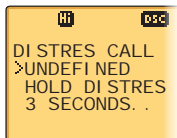
    If time is available to specify the nature of the distress, go to step 2. Otherwise, go directly to step 3.

2. Press the DISTRESS key to display the following categories. Scroll to the category that describes your situation then press ENT.

    - **UNDEFINED**   (Undefined)
    - **FIRE**   (Fire)
    - **FLOODING**   (Flooding)
    - **COLLISION**   (Collision)
    - **GROUNDING**   (Grounding)
    - **LISTING**   (Listing)
    - **SINKING**   (Sinking)
    - **ADRIFT**   (Adrift)
    - **ABANDONING**   (Abandoning)
    - **PIRACY**   (Piracy)
    - **OVER BOARD**   (Overboard)

3. Hold down the DISTRESS key for about 3 seconds until you see the DISTRESS CALL SENT! message on the LCD. The whole display starts to FLASH and BEEP loudly.

    The distress call repeats 5 times continuously on CH70. It then repeats randomly every 3.5 to 4.5 minutes until a distress acknowledgement (DISTRESS ACK) is received from a search and rescue authority OR until you press EXIT to cancel the distress call manually.

    The radio selects CH16 on Hi power automatically so that you can hear any incoming voice contacts from search and rescue authorities or other boats within range.

    Press EXIT to cancel the distress call. This is the only key that operates in DISTRESS mode.

7-2 Receiving a Distress Call (DISTRESS!)
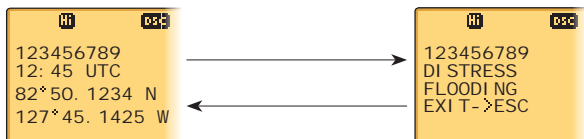
1. An alert sounds when a distress call (DISTRESS!) is received. Press any key to cancel the alert. You do not need to send an acknowledgement.
2. The radio automatically selects CH16 and displays details of the distress call on the screen. Press PTT to establish voice contact.
- The details are displayed over two screens that alternate every 1.5 seconds: one screen shows the user MMSI and nature of the emergency (if specified), the other screen shows the time and the location (if specified). If the location and time are not specified, these are replaced with sequences of 9s and 8s respectively.
- The radio is capable of receiving enhanced LL position data if the vessel transmitting the distress call is sending this. This provides the position of the distressed vessel to within 20 m (60 ft).

7-3 Distress Acknowledgement (DISTRESS ACK) or Relay (DISTRESS REL)

1. An alert sounds when a Distress Relay (DISTRESS RELAY) is received. Press any key to cancel the alert.
2. Try to make voice contact with the calling vessel. Maintain a listening watch on CH16 and standby to lend assistance
   - For a Distress Acknowledgement (DISTRESS ACK) sent from the Search and Rescue (SAR) authorities of your country, your radio automatically cancels Distress Mode transmissions and CH16 appears. Press PTT to establish voice contact with the Search and Rescue (SAR) authority.
   - The Search and Rescue (SAR) authorities of your country are the only instance allowed to send a Distress Acknowledgement (DISTRESS ACK)

Details of the distress call are displayed over two screens that alternate every 1.5 seconds:
- one screen shows the user MMSI of the boat relaying the distress call or the Coast Guard and GPS position of the boat in distress. (If the GPS position data is not available, it is filled with 9s.)
- the other screen shows the the MMSI of the boat in distress, the distress category (if specified) and GPS time data. (If the GPS time data is not available, it is filled with 8s.)

7-4 Cancel a Distress Call

Hold down EXIT or press CH16 to cancel a Distress call or a Distress call relay.

Appendix A - Technical Specifications

LOWRANCE LVR-880US & LVR-880EU

A-1 GENERAL

Frequency Range:	
Transmit	156.025 to 157.425 MHz LVR-880US
	156.050 to 162.425 MHz LVR-880EU
Receive	156.025 to 163.275 MHz LVR-880US
	156.050 to 162.425 MHz LVR-880EU
Oscillate Mode	PLL
Modulation	FM (16KOG3E) DSC(16K0G2B)
Channel Spacing	25 KHz
Frequency Stability:	±10 PPM
Standard Operation Temperature:	-15 to + 55°C LVR-880EU
	-20 to + 50°C LVR-880US
Normal Working Voltage:	+13.6 V DC
Low battery detect Voltage:	10.5V
Digital Selectivity Calling (DSC):	SC101 for LVR-880US
	Class D (EN301-025) for LVR-880EU
Audio power of speaker mike:	80 dBA @ 1 m

A-2 PHYSICAL

Compass Safe Distance:	0.50 m (1.5′)

A-3 RECEIVER

12dB SINAD Sensitivity:	0.25uV (distance)/2.5uV (local) - model dependent
20dB SINAD Sensitivity:	0.35uV (distance)/3.5uV (local) - model dependent
Spurious Response:	≥70 dB
Adjacent Channel Selectivity:	≥70 dB
Intermodulation Rejection Ratio:	≥68 dB
Residual Noise Level:	>40 dB unsquelched
Audio power of 60 mm speaker:	94 dBA @ 1 m

Audio Output Power at THD 10%:	2 W (with 8 Ohms)
	4 W (with 4 Ohms external speaker)
Current Drain At:	
Max Audio Power	≤1.5 A
Stand-By	≤0.25 A

A-4 TRANSMITTER

RF Power:	
Hi	23 W
Lo	0.8 W
Maximum Deviation	± 5 KHz
Modulation Distortion ±3KHz	≤7%
Audio Response at 1KHz Dev.	+1 to -3 dB of 6 dB/octave from 300 Hz to 3 kHZ
Transmitter Protection	Open/short circuit of antenna
Spurious/Harmonic Emissions	HI/LO 80/60 dB
Current Drain at 13.6V DC :	
Hi Power	≤6 A
Lo Power	≤1.5 A

A-5 FM STEREO RECEIVER

Frequency Range:	87.5 - 108 MHz (Country Specific)
Sensitivity (S/N 30 dB):	6~9 dBµ
Audio power out:	2 x 2 W @ 8 Ohms (for external stereo speakers)

A-6 HAILER

Audio Power Out:	22W @ 4 Ohms

A-7 COMMS

LowranceNet:	NMEA2000
Comm. Port:	4800 Baud NMEA0183
NMEA output sentences:	DSC (for DSC call),
	DSE (for enhanced position).

Specifications are subject to change without notice.

Appendix B - Troubleshooting

1.   The transceiver will not power up.

A fuse may have blown OR there is no voltage getting to the transceiver.

a)   Check the power cable for cuts, breaks, or squashed sections.

b)   After checking the wiring, replace the 7 Amp fuse.

c)   Check the battery voltage. This must be greater than 10.5V.

2.   The transceiver blows the fuse when the power is switched on.

The power wires may have been reversed.

a)   Check that the red wire is connected to the positive battery terminal, and the black wire is connected to the negative battery terminal.

3.   The speaker makes popping or whining noises when the engine is running.

Electrical noise may be interfering with the transceiver.

a)   Re-route the power cables away from the engine.

b)   Add a noise suppressor to the power cable.

c)   Use resistive spark plug wires and/or use an alternator whine filter.

4.   No sound from the external speaker.

a)   Check that the external speaker cable is physically connected.

b)   Check the soldering of the external speaker cable.

5.   Transmissions are always on low power, even when high (Hi) power is selected.

The antenna may be faulty.

a)   Test the transceiver with a different antenna.

b)   Have the antenna checked out.

6.   Battery symbol is displayed.

The power supply is too low.

a)   Check the battery voltage. This should be at least 10.5 V $\pm$ 0.5 V DC.

b)   Check the alternator on the vessel.

7. GPS alarm sounds and LCD shows: Please check GPS link! The NO GPS symbol is shown.

GPS data has been lost. This sequence will repeat every 4 hours until GPS data from an operational GPS receiver is available.

The GPS cable may faulty or the GPS setting may be incorrect:

a)   Manually enter your position and UTC time data (see Section 3.6.1)
b)   Check that the GPS cable is physically connected.
c)   Check the polarity of the GPS cable.
d)   Check the baud rate setting of the GPS if applicable. The baud rate setting should be 4800. Parity should be set to NONE.

8. FM stations are weak; no STEREO indicator.

a)   Ensure the supplied FM aerial is connected and fully extended in an upright position.
b)   The supplied FM aerial is to be used in strong FM areas. If the FM stations are weak, recommend using a dedicated marine FM antenna. Connect using the FM antenna adapter supplied.

9. Problem accessing FM Radio mode.

a)   It is not possible to enter FM mode if the VHF radio is busy (BUSY icon showing) - a double beep will occur. Ensure the VHF radio is not busy (BUSY icon NOT showing) to enter FM mode.
b)   Check Squelch is not set too high.

Appendix C - VHF Marine Channel Charts

C-1 International Channel Chart

CH	TX (MHz)	RX (MHz)	MODE	TRAFFIC TYPE	SHIP TO SHIP	SHIP TO SHORE	NAME TAG	REMARK
01	*156.050*	*160.650*	*D*	Public Correspondence	No	Yes	TELEPHONE	
02	*156.100*	*160.700*	*D*	Public Correspondence	No	Yes	TELEPHONE	
03	*156.150*	*160.750*	*D*	Public Correspondence	No	Yes	TELEPHONE	
04	*156.200*	*160.800*	*D*	Port Operations	No	Yes	PORT OP	
05	*156.250*	*160.850*	*D*	Port Operations, Selected VTS Areas	No	Yes	PORT OPS/VTS	
06	156.300	156.300	S	Inter-ship Safety	Yes	No	SAFETY	
07	*156.350*	*160.950*	*D*	Port Operations	No	Yes	PORT OPS	
08	156.400	156.400	S	Commercial (inter-ship only)	Yes	No	COMMERCIAL	
09	156.450	156.450	S	Recreational Calling Channel	Yes	Yes	CALLING	
10	156.500	156.500	S	Commercial	Yes	Yes	COMMERCIAL	
11	156.550	156.550	S	Commercial, VTS in Selected Areas	Yes	Yes	VTS	
12	156.600	156.600	S	Port Operations, Selected VTS Areas	Yes	Yes	PORT OPS/VTS	
13	156.650	156.650	S	Inter-ship Navigation Safety (bridge-to bridge)	Yes	No	BRIDGE COM	
14	156.700	156.700	S	Port Operations, Selected VTS Areas	Yes	Yes	PORT OPS/VTS	
15	156.750	156.750	S	Port Operations	Yes	Yes	PORT OPS	① 1W only
16	**156.800**	**156.800**	**S**	International Distress, Safety, and Calling	Yes	Yes	DISTRESS	
17	156.850	156.850	S	State Controlled	Yes	Yes	SAR	① 1W only
18	*156.900*	*161.500*	*D*	Port Operations	No	Yes	PORT OPS	
19	*156.950*	*161.550*	*D*	Commercial	No	Yes	SHIP - SHORE	
20	*157.000*	*161.600*	*D*	Port Operations	No	Yes	PORT OPS	
21	*157.050*	*161.650*	*D*	Port Operations	No	Yes	PORT OPS	
22	*157.100*	*161.700*	*D*	Port Operations	No	Yes	PORT OPS	
23	*157.150*	*161.750*	*D*	Public Correspondence	No	Yes	TELEPHONE	
24	*157.200*	*161.800*	*D*	Public Correspondence	No	Yes	TELEPHONE	
25	*157.250*	*161.850*	*D*	Public Correspondence	No	Yes	TELEPHONE	
26	*157.300*	*161.900*	*D*	Public Correspondence	No	Yes	TELEPHONE	
27	*157.350*	*161.950*	*D*	Public Correspondence	No	Yes	TELEPHONE	
28	*157.400*	*162.000*	*D*	Public Correspondence	No	Yes	TELEPHONE	
60	*156.025*	*160.625*	*D*	Public Correspondence	No	Yes	TELEPHONE	
61	156.075	160.675	D	Port Operations	No	Yes	PORT OPS	

62	*156.125*	*160.725*	*D*	Port Operations	No	Yes	PORT OPS	
63	*156.175*	*160.775*	*D*	Port Operations	No	Yes	PORT OPS	
64	*156.225*	*160.825*	*D*	Public Correspondence	No	Yes	TELEPHONE	
65	*156.275*	*160.875*	*D*	Port Operations	No	Yes	PORT OPS	
66	*156.325*	*160.925*	*D*	Port Operations	No	Yes	PORT OPS	
67	156.375	156.375	S	Commercial, bridge-to-bridge	Yes	No	BRIDGE COM	
68	156.425	156.425	S	Boat Operations, Recreational	Yes	No	SHIP - SHIP	
69	156.475	156.475	S	Port Operations	Yes	Yes	PORT OPS	
70	156.525	156.525		Digital Selective Calling - DSC	------	------	DSC	③
71	156.575	156.575	S	Port Operations	Yes	Yes	PORT OPS	
72	156.625	156.625	S	Inter-ship	Yes	No	SHIP - SHIP	
73	156.675	156.675	S	Port Operations	Yes	Yes	PORT OPS	
74	156.725	156.725	S	Port Operations	Yes	Yes	PORT OPS	
77	156.875	156.875	S	Inter-ship	Yes	No	SHIP - SHIP	
78	*156.925*	*161.525*	*D*	Non-Commercial	No	Yes	SHIP - SHORE	
79	*156.975*	*161.575*	*D*	Commercial	No	Yes	SHIP - SHORE	
80	*157.025*	*161.625*	*D*	Commercial	No	Yes	SHIP - SHORE	
81	*157.075*	*161.675*	*D*	Port Operations	No	Yes	PORT OPS	
82	*157.125*	*161.725*	*D*	Port Operations	No	Yes	PORT OPS	
83	*157.175*	*161.775*	*D*	Public Correspondence	No	Yes	TELEPHONE	
84	*157.225*	*161.825*	*D*	Public Correspondence	No	Yes	TELEPHONE	
85	*157.275*	*161.875*	*D*	Public Correspondence	No	Yes	TELEPHONE	
86	*157.325*	*161.925*	*D*	Public Correspondence	No	Yes	TELEPHONE	
87	157.375	157.375	S	Port Operations	No	Yes	PORT OPS	
88	157.425	157.425	S	Port Operations	No	Yes	PORT OPS	

Special Notes on International Channel Usage

①. LOW POWER (1W) only.

②. LOW POWER (1W) initially. Override to HIGH POWER by holding down H/L key before transmitting. Used normally in bridge-to-bridge communications.

③. Channel 70 is designated for use exclusively for Digital Selective Calling (DSC), such as Distress, Safety, and Ship Calls. No voice communication is allowed on CH70. This channel is only available on DSC enabled radios.

Note: The INTERNATIONAL mode is not legal for use in U.S. or Canada waters.

KEY: S = Simplex operating channel; D = Duplex operating channel.

C-2 USA Channel Chart

CH	TX (MHz)	RX (MHz)	MODE	TRAFFIC TYPE	SHIP TO SHIP	SHIP TO SHORE	NAME TAG	REMARK
01A	156.050	156.050	S	Port Operations, Selected VTS Areas	Yes	Yes	PORT OPS/VTS	
03A	156.150	156.150	S	US Government, Coast Guard	Yes	Yes	UNAUTHORIZED	④
05A	156.250	156.250	S	Port Operations, Selected VTS Areas	Yes	Yes	PORT OPS/VTS	
06	156.300	156.300	S	Inter-ship Safety	Yes	No	SAFETY	
07A	156.350	156.350	S	Commercial	Yes	Yes	COMMERCIAL	
08	156.400	156.400	S	Commercial (inter-ship only)	Yes	No	COMMERCIAL	
09	156.450	156.450	S	Recreational Calling Channel	Yes	Yes	CALLING	
10	156.500	156.500	S	Commercial	Yes	Yes	COMMERCIAL	
11	156.550	156.550	S	Commercial, VTS in Selected Areas	Yes	Yes	VTS	
12	156.600	156.600	S	Port Operations, Selected VTS Areas	Yes	Yes	PORT OPS/VTS	
13	156.650	156.650	S	Inter-ship Navigation Safety (bridge-to bridge), 1W with Power-up	Yes	No	BRIDGE COM	③ 1W
14	156.700	156.700	S	Port Operations, Selected VTS Areas	Yes	Yes	PORT OPS/VTS	
15	---	156.750	S	Environmental	------	------	ENVIRONMEN-TAL	② RX only
16	156.800	156.800	S	International Distress, Safety, and Calling	Yes	Yes	DISTRESS	
17	156.850	156.850	S	State Controlled	Yes	Yes	SAR	① 1W only
18A	156.900	156.900	S	Commercial	Yes	Yes	COMMERCIAL	
19A	156.950	156.950	S	Commercial	Yes	Yes	COMMERCIAL	
20	*157.000*	*161.600*	*D*	Port Operations, Canadian Coast Guard	No	Yes	PORT OPS	
20A	157.000	157.000	S	Port Operations	Yes	Yes	PORT OPS	
21A	157.050	157.050	S	U.S. Government, Canadian Coast Guard	Yes	Yes	UNAUTHORIZED	④
22A	157.100	157.100	S	Coast Guard Liaison	Yes	Yes	COAST GUARD	
23A	157.150	157.150	S	U.S. Government, Coast Guard	Yes	Yes	UNAUTHORIZED	④
24	*157.200*	*161.800*	*D*	Public Correspondence, Marine operator	No	Yes	TELEPHONE	
25	*157.250*	*161.850*	*D*	Public Correspondence, Marine operator	No	Yes	TELEPHONE	
26	*157.300*	*161.900*	*D*	Public Correspondence, Marine operator	No	Yes	TELEPHONE	
27	*157.350*	*161.950*	*D*	Public Correspondence, Marine operator	No	Yes	TELEPHONE	
28	*157.400*	*162.000*	*D*	Public Correspondence, Marine operator	No	Yes	TELEPHONE	
61A	156.075	156.075	S	U.S. Government, Canadian Coast Guard	Yes	Yes	UNAUTHORIZED	④
63A	156.175	156.175	S	Port Operations, VTS in Selected Areas	Yes	Yes	PORT OPS/VTS	
64A	156.225	156.225	S	U.S. Government, Canadian Commercial Fishing	Yes	Yes	UNAUTHORIZED	④
65A	156.275	156.275	S	Port Operations	Yes	Yes	PORT OPS	
66A	156.325	156.325	S	Port Operations	Yes	Yes	PORT OPS	

Channel	TX	RX	Mode	Use	Ship to Ship	Ship to Shore	Name	Notes
67	156.375	156.375	S	Commercial, bridge-to-bridge, 1W with Power-up	Yes	No	BRIDGE COM	③ 1W
68	156.425	156.425	S	Boat Operations, Recreational	Yes	No	SHIP - SHIP	
69	156.475	156.475	S	Boat Operations, Recreational	Yes	Yes	PLEASURE	
70	156.525	156.525		Digital Selective Calling - DSC	------	------	DSC	⑥
71	156.575	156.575	S	Boat Operations, Recreational	Yes	Yes	PLEASURE	
72	156.625	156.625	S	Boat Operations, Recreational	Yes	No	SHIP - SHIP	
73	156.675	156.675	S	Port Operations	Yes	Yes	PORT OPS	
74	156.725	156.725	S	Port Operations	Yes	Yes	PORT OPS	
77	156.875	156.875	S	Port Operations	Yes	Yes	PORT OPS	① 1W only
78A	156.925	156.925	S	Boat Operations, Recreational	Yes	No	SHIP - SHIP	
79A	156.975	156.975	S	Commercial	Yes	Yes	COMMERCIAL	
80A	157.025	157.025	S	Commercial	Yes	Yes	COMMERCIAL	
81A	157.075	157.075	S	U.S. Government, Environmental Protection Agency Operations	Yes	Yes	UNAUTHORIZED	④
82A	157.125	157.125	S	U.S. Government, Canadian Coast Guard	Yes	Yes	UNAUTHORIZED	④
83A	157.175	157.175	S	U.S. Government, Canadian Coast Guard	Yes	Yes	UNAUTHORIZED	④
84	*157.225*	*161.825*	*D*	Public Correspondence, Marine Operator	No	Yes	TELEPHONE	
85	*157.275*	*161.875*	*D*	Public Correspondence, Marine Operator	No	Yes	TELEPHONE	
86	*157.325*	*161.925*	*D*	Public Correspondence, Marine Operator	No	Yes	TELEPHONE	
87	157.375	157.375	S	Port Operations	No	Yes	PORT OPS	
88	157.425	157.425	S	Port Operations	No	Yes	PORT OPS	
88A	157.425	157.425	S	Commercial, Inter-ship Only	Yes	No	COMMERCIAL	

Special Notes on USA Channel Usage

①. LOW POWER (1 W) only.

②. Receive Only.

③. LOW POWER (1 W) initially. Override to HIGH POWER by holding down H/L key before transmitting. Used normally in bridge-to-bridge communications.

④. Lightly shaded simplex channels 03A, 21A, 23A, 61A, 64A, 81A, 82A, and 83A cannot be lawfully used in U.S. waters unless special authorization is obtained from the U.S. Coast Guard. Not for use by the general public.

⑤. The letter "A" illuminated by the channel number indicates the USA channel is simplex.

This same channel is always duplex when selecting International. There is no "A" reference for International channels. The letter "B" is only used for some Canadian "Receive only" channels.

⑥. Channel 70 is designated for use exclusively for Digital Selective Calling (DSC), such as Distress, Safety, and Ship Calls. No voice communication is allowed on CH70. This channel is only available on DSC enabled radios.

KEY: S = Simplex operating channel; D = Duplex operating channel.

C-3 CANADA Channel Chart

CH	TX (MHz)	RX (MHz)	MODE	TRAFFIC TYPE	SHIP TO SHIP	SHIP TO SHORE	NAME TAG	REMARK
01	156.050	160.650	D	Public Correspondence	No	Yes	TELEPHONE	
02	156.100	160.700	D	Public Correspondence	No	Yes	TELEPHONE	
03	156.150	160.750	D	Public Correspondence	No	Yes	TELEPHONE	
04A	156.200	156.200	S	Canadian Coast Guard, SAR	Yes	Yes	CANADIAN CG	
05A	156.250	156.250	S	Port Operations, VTS in Selected Areas	Yes	Yes	PORT OPS/VTS	
06	156.300	156.300	S	Inter-ship Safety	Yes	No	SAFETY	
07A	156.350	156.350	S	Commercial	Yes	Yes	COMMERCIAL	
08	156.400	156.400	S	Commercial (inter-ship only)	Yes	No	COMMERCIAL	
09	156.450	156.450	S	Recreational Calling Channel	Yes	Yes	CALLING	
10	156.500	156.500	S	Commercial	Yes	Yes	COMMERCIAL	
11	156.550	156.550	S	Commercial, VTS in Selected Areas	Yes	Yes	VTS	
12	156.600	156.600	S	Port Operations, VTS in Selected Areas	Yes	Yes	PORT OPS/VTS	
13	156.650	156.650	S	Inter-ship Navigation Safety (bridge-to bridge) 1W with power-up	Yes	No	BRIDGE COM	③ 1W
14	156.700	156.700	S	Port Operations, VTS in Selected Areas	Yes	Yes	PORT OPS/VTS	
15	156.750	156.750	S	Commercial	Yes	Yes	COMMERCIAL	① 1W only
16	156.800	156.800	S	International Distress, Safety, and Calling	Yes	Yes	DISTRESS	
17	156.850	156.850	S	State Controlled	Yes	Yes	SAR	① 1W only
18A	156.900	156.900	S	Commercial	Yes	Yes	COMMERCIAL	
19A	156.950	156.950	S	Canadian Coast Guard	Yes	Yes	CANADIAN CG	
20	157.000	161.600	D	Canadian Coast Guard	No	Yes	CANADIAN CG	① 1W only
21	157.050	161.650	D	Port Operations	No	Yes	PORT OPS	
21A	157.050	157.050	S	U.S. Government, Canadian Coast Guard	Yes	Yes	UNAUTHORIZED	
21B	---	161.650	S	Port Operations	------	------	PORT OPS	RX only
22A	157.100	157.100	S	Canadian Coast Guard Liaison	Yes	Yes	CANADIAN CG	
23	157.150	161.750	D	Public Correspondence	No	Yes	TELEPHONE	
24	157.200	161.800	D	Public Correspondence	No	Yes	TELEPHONE	
25	157.250	161.850	D	Public Correspondence	No	Yes	TELEPHONE	
25B	---	161.850	S	Public Correspondence	------	------	TELEPHONE	RX only
26	157.300	161.900	D	Public Correspondence	No	Yes	TELEPHONE	
27	157.350	161.950	D	Public Correspondence	No	Yes	TELEPHONE	
28	157.400	162.000	D	Public Correspondence	No	Yes	TELEPHONE	
28B	---	162.000	S	Public Correspondence	------	------	TELEPHONE	RX only
60	156.025	160.625	D	Public Correspondence	No	Yes	TELEPHONE	
61A	156.075	156.075	S	U.S. Government, Canadian Coast Guard	Yes	Yes	UNAUTHORIZED	④

62A	156.125	156.125	S	Canadian Coast Guard	Yes	Yes	CANADIAN CG	
64	**156.225**	**160.825**	**D**	Public Correspondence, Duplex	No	Yes	TELEPHONE	
64A	156.225	156.225	S	U.S. Government, Canadian Commercial Fishing	Yes	Yes	UNAUTHORIZED	④
65A	156.275	156.275	S	Port Operations	Yes	Yes	PORT OPS	
66A	156.325	156.325	S	Port Operations	Yes	Yes	PORT OPS	① 1W only
67	156.375	156.375	S	Commercial, SAR	Yes	No	COMMERCIAL	
68	156.425	156.425	S	Boat Operations, Recreational	Yes	No	SHIP - SHIP	
69	156.475	156.475	S	Commercial Fishing Only	Yes	Yes	COMMERCIAL	
70	156.525	156.525	S	Digital Selective Calling - DSC	------	------	DSC	⑥
71	156.575	156.575	S	Boat Operations, Recreational	Yes	Yes	PLEASURE	
72	156.625	156.625	S	Inter-ship	Yes	No	SHIP - SHIP	
73	156.675	156.675	S	Commercial Fishing Only	Yes	Yes	COMMERCIAL	
74	156.725	156.725	S	Commercial Fishing Only	Yes	Yes	COMMERCIAL	
77	156.875	156.875	S	Port Operations	Yes	Yes	PORT OPS	① 1W only
78A	156.925	156.925	S	Boat Operations, Recreational	Yes	No	SHIP - SHIP	
79A	156.975	156.975	S	Commercial	Yes	Yes	COMMERCIAL	
80A	157.025	157.025	S	Commercial	Yes	Yes	COMMERCIAL	
81A	157.075	157.075	S	U.S. Government Operations	Yes	Yes	UNAUTHORIZED	④
82A	157.125	157.125	S	U.S. Government, Canadian Coast Guard	Yes	Yes	UNAUTHORIZED	④
83	**157.175**	**161.775**	**D**	Canadian Coast Guard	Yes	Yes	CANADIAN CG	
83A	157.175	157.175	S	U.S. Government, Canadian Coast Guard	Yes	Yes	UNAUTHORIZED	④
83B	---	161.775	S	Canadian Coast Guard, RX Only	------	------	CANADIAN CG	
84	**157.225**	**161.825**	**D**	Public Correspondence, Marine Operator	No	Yes	TELEPHONE	
85	**157.275**	**161.875**	**D**	Public Correspondence, Marine Operator	No	Yes	TELEPHONE	
86	**157.325**	**161.925**	**D**	Public Correspondence, Marine Operator	No	Yes	TELEPHONE	
87	157.375	157.375	S	Port Operations	No	Yes	PORT OPS	
88	157.425	157.425	S	Port Operations	No	Yes	PORT OPS	

Special Notes on Canada Channel Usage

①.   LOW POWER (1 W) only.

②.   Receive Only.

③.   LOW POWER (1 W) initially. Override to HIGH POWER by holding down H/L key before transmitting. Used normally in bridge-to-bridge communications.

④.   Lightly shaded simplex channels 21A, 23A, 61A, 64A, 81A, 82A, and 83A cannot be lawfully used in Canada waters unless special authorization is obtained from the Canadian Coast Guard. Not for use by the general public.

⑤. The letter "A" illuminated by the channel number indicates the Canada channel is simplex. This same channel is always duplex when selecting International.
There is no "A" reference for International channels. The letter "B" is only used for some Canadian "Receive only" channels.

⑥. Channel 70 is designated for use exclusively for Digital Selective Calling (DSC), such as Distress, Safety, and Ship Calls. No voice communication is allowed on CH70.
This channel is only available on DSC enabled radios.

Note: The CANADA mode is not legal to use in U.S. waters.

KEY: S = Simplex operating channel; D = Duplex operating channel.

C-4 WEATHER Channels

CH	RX (MHz)	TRAFFIC TYPE	NAME	REMARK
WX01	162.550	NOAA Weather Channel	NOAA WX	RX only
WX02	162.400	NOAA Weather Channel	NOAA WX	RX only
WX03	162.475	NOAA Weather Channel	NOAA WX	RX only
WX04	162.425	NOAA Weather Channel	NOAA WX	RX only
WX05	162.450	NOAA Weather Channel	NOAA WX	RX only
WX06	162.500	NOAA Weather Channel	NOAA WX	RX only
WX07	162.525	NOAA Weather Channel	NOAA WX	RX only
WX08	161.650	CANADIAN Weather Channel	CANADA WX	RX only
WX09	161.775	CANADIAN Weather Channel	CANADA WX	RX only
WX10	163.275	NOAA Weather Channel	NOAA WX	RX only

C-5 EAS (Emergency Alert Systems) Alerts

National Codes Nature of Activation	Event Codes	Message
Emergency Action Notification (National only)	EAN	WARNING
	EAT	ADVISORY
National Information Center	NIC	ADVISORY
National Periodic Test	NPT	TEST
Required Monthly Test	RMT	TEST
Required Weekly Test	RWT	TEST

State and Local Codes Nature of Activation	Event Codes	Message
Avalanche Warning	AVW	WARNING
Avalanche Watch	AVA	WATCH
Blizzard Warning	BZW	WARNING
Child Abduction Emergency	CAE	WARNING
Civil Danger Warning	CDW	WARNING
Civil Emergency Message	CEM	WARNING
Coastal Flood Warning	CFW	WARNING
Coastal Flood Watch	CFA	WATCH
Dust Storm Warning	DSW	WARNING
Earthquake Warning	EQW	WARNING
Evacuation Immediate	EVI	WARNING
Fire Warning	FRW	WARNING
Flash Flood Warning	FFW	WARNING
Flash Flood Watch	FFA	WATCH
Flash Flood Statement	FFS	ADVISORY
Flood Warning	FLW	WARNING
Flood Watch	FLA	WATCH
Flood Statement	FLS	ADVISORY
Hazardous Materials Warning	HMW	WARNING
High Wind Warning	HWW	WARNING
High Wind Watch	HWA	WATCH

State and Local Codes Nature of Activation	Event Codes	Message
Hurricane Warning	HUW	WARNING
Hurricane Watch	HUA	WATCH
Hurricane Statement	HLS	ADVISORY
Law Enforcement Warning	LEW	WARNING
Local Area Emergency	LAE	WARNING
911 Telephone Outage Emergency	TOE	WARNING
Nuclear Power Plant Warning	NUW	WARNING
Radiological Hazard Warning	RHW	WARNING
Severe Thunderstorm Warning	SVR	WARNING
Severe Thunderstorm Watch	SVA	WATCH
Severe Weather Statement	SVS	ADVISORY
Shelter in Place Warning	SPW	WARNING
Special Marine Warning	SMW	WARNING
Special Weather Statement	SPS	ADVISORY
Tornado Warning	TOR	WARNING
Tornado Watch	TOA	WATCH
Tropical Storm Warning	TRW	WARNING
Tropical Storm Watch	TRA	WATCH
Tsunami Warning	TSW	WARNING
Tsunami Watch	TSA	WATCH
Volcano Warning	VOW	WARNING
Winter Storm Warning	WSW	WARNING
Winter Storm Watch	WSA	WATCH

For more information about the Emergency Alert System and event codes, visit:

http://www.nws.noaa.gov/os/eas_codes.shtml

Appendix D - EU Inland Waterway Channels

Country Specific table

For specific channel information for your country, please refer to local authorities.

CH	SPECIFIC FOOT-NOTES	TRANSMITTING FREQUENCY (MHZ)		SHIP-TO-SHIP	SHIP-TO PORT	NAUTICAL INFORMATION
		SHIP	**LAND**			
60	a)	156.025	160.625			x
01	a)	156.05	160.65			x
61	a)	156.075	160.675			x
02	a)	156.1	160.7			x
62	a)	156.125	160.725			x
03	a)	156.15	160.75			x
63	a)	156.175	160.775			x
04	a)	156.2	160.8			x
64	a)	156.225	160.825			x
05	a)	156.25	160.85			x
65	a)	156.275	160.875			x
06	a) b)	156.3	156.3	x		
66	a)	156.325	160.925			x
07	a)	156.35	160.95			x
67	a) c)	156.375	156.375			x
08	a) q)	156.4	156.4	x		
68	a)	156.425	156.425			x
09	a) b) c)	156.45	156.45			x
69	a)	156.475	156.475			x
10	e)	156.5	156.5	x		
70	a)	156.525	156.525	Digital selective calling for distress, safety and calling		
11		156.55	156.55		x	
71		156.575	156.575		x	
12		156.6	156.6		x	
72	a) r)	156.625	156.625	x		
13	f)	156.65	156.65	x		
73	f) g)	156.675	156.675			x
14	q)	156.7	156.7		x	
74	a)	156.725	156.725		x	
15	h)	156.75	156.75			x
75	o)	156.775	156.775		x	
16	i)	156.8	156.8			x

76	j) d) o)	156.825	156.825			x
17	h)	156.85	156.85			x
77	a) k)	156.875	156.875	x		
18		156.9	161.5			x
78		156.925	161.525			x
19		156.95	161.55			x
79	a)	156.975	161.575			x
20		157	161.6			x
80		157.025	161.625			x
21	a)	157.05	161.65			x
81	a)	157.075	161.675			x
22		157.1	161.7			x
82	l) m)	157.125	161.725			x
23	m)	157.15	161.75			x
83	a) m)	157.175	161.775			x
24	m)	157.2	161.8			x
84	m)	157.225	161.825			x
25	m)	157.25	161.85			x
85	a) m)	157.275	161.875			x
26	m)	157.3	161.9			x
86	a) m)	157.325	161.925			x
27	m)	157.35	161.95			x
87	a) d)	157.375	157.375			x
28	m)	157.4	162			x
88	a) p)	157.425	157.425			x
AIS 1	a) n)	161.975	161.975			
AIS 2	a) n)	162.025	162.025			

General remarks to Country Specific table:

1   The channels for service categories ship-to-ship and nautical information may also be used for vessel traffic -systems by traffic centres.

2   In some countries, frequencies certain channels are used for an other service category or other radio services. These countries are Austria, Bulgaria, Croatia, the Federal Republic of Yugoslavia, Hungary, Moldova, Romania, the Russian Federation, the Slovak Republic, the Czech Republic (with exemption of channels 08, 09, 72, 74 and 86), Ukraine and the Federal Republic of Yugoslavia. The Administrations concerned should make any possible attempt to make these frequencies channels as soon as possible available for the radiotelephone service on Inland Waterways and/or the required service category.

Explanation of specific footnotes in Country Specific table:

a.   In the countries mentioned under remark 2, it is strictly prohibited to use this channel.

b.   This channel is not allowed to be used between Rhine km 150 and km 350.

c.   In the Netherlands, this channel is used by for its on-scene communications during safety operations on the North Sea, IJsselmeer, Waddenzee, Ooster- and Westerschelde.

d.   This channel may also be used for piloting, mooring, tugging and for other nautical purposes.

e.   This channel is the first ship-to-ship channel, unless the competent authority has designated an other channel. In the countries mentioned under remark 2, it is allowed that the output power is set to a value between 6 and 25 W until 1 January 2005.

f.   In the countries mentioned under remark 2, this channel is used for service category ship-to-port authorities.

g.   In the Netherlands, this channel is used by its national coastguard for communications during oil pollution operations on the North Sea and for safety messages for the North Sea, Waddenzee, IJsselmeer, Ooster- and Westerschelde.

h.   This channel may be used only for service category on-boardon board communications.

i.   This channel may be used only for communications between seagoing vessels and participating land stations in case of distress and safety communications within the maritime sea-areas. In the countries mentioned under remark 2, this channel may be used only for distress, safety and calling.

j.   The output power shall be reduced automatically to a value between 0.5 and 1 W.

k.   This channel may be used for communications with a social character.

l.   In the Netherlands and Belgium, this channel may be used for transmitting messages concerning bunkering and victualling. The output power has to be reduced manually to a value between 0.5 and- 1 W.

m.   This channel may also be used for public correspondence.

n.   This channel will be used for an automatic ship identification and surveillance system (AIS) capable of providing worldwide operating on seas and Inland Waterways.

o.   The availability of this channel is on a voluntary basis. All existing equipment shall be capable to of operating on this channel within a ten-year period after the entry into force of this Arrangement.

p.   After permission of the competent authority, this channel may be used only for special events on a temporary basis.

q.   In the Czech Republic this channel is used for service category nautical information.

r.   In the Czech Republic this channel is used for service category ship-to-port authorities.

D-1 Special Channels [2]

CH	SEND (MHz)	RECEIVE (MHz)	TRAFFIC TYPE	SHIP TO SHIP	SHIP TO SHORE	NAME TAG
00 [1]	156.000	156.000	UK Coast Guard Users	Yes	Yes	UK COAST GRD
M1	157.425	157.850	UK Marina Channel M1	Yes	Yes	UK MARINA
M2	161.425	161.425	UK Marina Channel M2	Yes	Yes	UK MARINA
31	157.550	162.150	INT'L, Duplex (Holland)	No	Yes	NL MARINA
96H	162.425	162.425	INT'L (Belgium)	No	Yes	BEL G MARINA
L1	155.500	155.500	INT'L (Skandinavia)	Yes	No	LEISURE 1
L2	155.525	155.525	INT'L (Skandinavia)	Yes	No	LEISURE 2
L3	155.650	155.650	INT'L (Skandinavia– not in Denmark)	Yes	No	LE ISURE3
F1	155.625	155.625	INT'L (Skandinavia)	Yes	No	FISHING 1
F2	155.775	155.775	INT'L (Skandinavia)	Yes	No	FISHING 2
F3	155.825	155.825	INT'L (Skandinavia) call back	Yes	No	FISHING 3
AIS1	161.975	161.975	AIS1	-----	-----	-----
AIS2	162.025	162.025	AIS2	-----	-----	-----

Note:

1. Lightly Shaded Simplex channel CH00 is only available in the UK to Coast Guard users with written authorization.
2. The special channels above maybe fitted to your radio. These are only licensed for use in the country indicated. No attempt should be made to use them in any other country.

Appendix E - MMSI and License Information

You must obtain a user MMSI (Marine Mobile Service Identity) and enter it into your LVR-880 in order to use the DSC functions. Contact the appropriate authorities in your country. If you are unsure who to contact, consult your Lowrance dealer.

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

Depending upon your location, you may need a radio station license for the LVR-880. You may also need an individual operator's license.

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

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