



G-Series Systems

Reference Guide

Raymarine®

Raymarine

G-Series System

Reference Guide

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Warnings and Cautions


The system described in this book may form part of a marine navigational radar or GPS-based system intended for use on (non-IMO/SOLAS class) leisure vessels or small workboats.


This handbook contains important information on the operation and maintenance of your G-Series system. To get the best results in operation and performance, please take the time to read this handbook thoroughly.


For full details of installation and system integration, refer to the G-Series Installation Guide and the G-Series Commissioning Guide.


	Navigation Aid
<p>This product is intended to serve only as an aid to navigation. Use of specific features such as AIS overlay, radar, and various cartographic aids are meant only to aid safety and decision-making. These features cannot be relied upon as complete or accurate as their use and availability may vary locally. It is your responsibility to use caution, sound judgement, official government charts, notices to mariners and proper navigational skill when using this or any other electronic device.</p>	

	Product installation
<p>This equipment must be installed in accordance with the instructions in the G-Series System Installation Guide. Failure to do so could result in poor product performance, personal injury and/or damage to the vessel.</p>	

	High voltage
<p>The display unit and scanner unit contain high voltages. Adjustments require specialized service procedures and tools only available to qualified service technicians - there are no user serviceable parts or adjustments. The operator should never remove the display unit cover or attempt to service the equipment.</p>	

	Electromagnetic energy
<p>The radar scanner transmits electromagnetic energy. Ensure that the scanner has been installed according to the recommendations given in the relevant scanner handbook. Avoid looking directly at the antenna.</p>	

	Fishfinder sounder module
<p>Removing the transducer cable from the rear of the fishfinder sounder module whilst it is switched on can cause sparks. Only remove the transducer cable after power has been switched off. Ensure that the sounder module is mounted where it is well ventilated and in an area free from flammable vapors.</p>	

	Water ingress
<p>To prevent the ingress of water and consequent damage to the display, ensure that the chart card door is firmly closed. This can be confirmed by an audible click.</p>	



CompactFlash Cards

Removing the CompactFlash card while information is being written to or read from it may cause damage to the card and loss of all data. Use the procedure detailed in this manual to remove the card.

Do not save data (waypoints, routes etc.) to a Navionics card as the charts may be overwritten. When archiving use a different CompactFlash card.

DO NOT use a metallic instrument such as a screwdriver or pliers to remove a card, as doing this can cause irreparable damage.



Global Positioning System Antenna

Do not connect or disconnect the GPS antenna from the display unit whilst power is switched on. Doing this may result in irreparable damage.



UV Light

To provide protection against the damaging effects of UV light, it is advisable to replace the sun cover provided when the display is not in use.



Cleaning the display

Take care when cleaning the display. To avoid damaging it: Do NOT wipe the display screen with a dry cloth, as this could scratch the screen coating. Do NOT use acid, ammonia-based or abrasive products.

Disclaimers

Electronic charts are an aid to navigation designed to facilitate the use of authorized government charts, not to replace them. Only official government charts and notices to mariners contain the current information needed for safe navigation. The Captain is responsible for their prudent use. The G-Series and its charts do not therefore exclude the user from carrying the required official charts and documents.

Raymarine does not warrant that this product is error-free or that it is compatible with products manufactured by any person or entity other than Raymarine.

This product uses digital chart data, and electronic information from the Global Positioning System (GPS) which may contain errors. Raymarine does not warrant the accuracy of such information and you are advised that errors in such information may cause the product to malfunction. Raymarine is not responsible for damages or injuries caused by your use or inability to use the product, by the interaction of the product with products manufactured by others, or by errors in chart data or information utilized by the product and supplied by third parties.

Weather services

All information presented by this service is advisory only. You acknowledge the risk of incomplete and erroneous information and assume complete responsibility and risks associated with this device, and accordingly release Raymarine, Sirius Satellite Radio Inc. and WSI Corporation from any and all claims arising from the use of this service. By using this service, you acknowledge and agree that you have read the terms of the subscription agreement for this service and agree to all of the terms contained therein. If you do not have the subscription agreement, you may view a copy on the internet at www.sirius.com/marineweatheragreement or call 1-800-869_5480 for a copy to be sent to you.

About this manual

This manual describes how to operate your G-Series display in conjunction with Navionics cartography. It assumes that all peripheral equipment to be operated with it is compatible and has been correctly installed.

This manual is intended for users of varying marine abilities, but assumes a general level of knowledge of display use, nautical terminology and practices.

Raymarine does not necessarily support all the features in particular Navionics cartography.

Technical accuracy

To the best of our knowledge, the technical information contained within this handbook, was correct at the time of printing. However, Raymarine cannot accept liability for any inaccuracies or omissions it may contain.

In addition, Raymarine's policy of continuous product improvement may change specifications without notice. As a result Raymarine cannot accept liability for any differences between the product and this handbook.

Raymarine does not support after-sales or technical support for Navionics chart cards. If you wish to file a report of an error or omission on a Navionics chart, please provide the information to the Navionics web site at the link below:

<http://www.navionics.com/DiscrepancyReports.asp>

EMC conformance

All Raymarine equipment and accessories are designed to the best industry standards for use in the recreational marine environment. Their design and manufacture conforms to the appropriate Electromagnetic Compatibility (EMC) standards, but correct installation is required to ensure that performance is not compromised.

Multi-media chart cards

The G-Series system comes pre-loaded with Navionics chart data. If you wish to use different chart data, you can insert Navionics chart cards into the Compact Flash slot on the G-Series system unit (GPM400).

To check the current availability of Navionics® chart card types and the latest feature sets, visit www.navionics.com or www.navionics.it

To obtain Navionics cards, contact your local dealer or visit the Navionics web site.

Alternatively, anywhere in North America call Navionics toll-free on **1-800-848-5896** Outside of North America, contact your local dealer or Navionics SpA on:

Phone: (+39) 0584 961696 or Fax: (+39) 0584 961309

When archiving data, Raymarine recommends the use of SanDisk CF memory cards. Other brands of CF memory card may not work in your G-Series system.

Disposal

Waste Electrical and Electronic Equipment (WEEE) Directive



The WEEE Directive requires the recycling of waste electrical and electronic equipment. Whilst the WEEE Directive does not apply to some of Raymarine's products, we support its requirements as part of our environmental policy and we ask you to be aware of how you should dispose of this product.

The crossed-out wheeled bin symbol found on a product signifies that it should not be disposed of in general waste or landfill.

Please contact your local dealer, national distributor or Raymarine Technical Services for information on product disposal.

Chapter 1: System Overview

This chapter gives you an overview of the G-Series system components and features.

Chapter contents

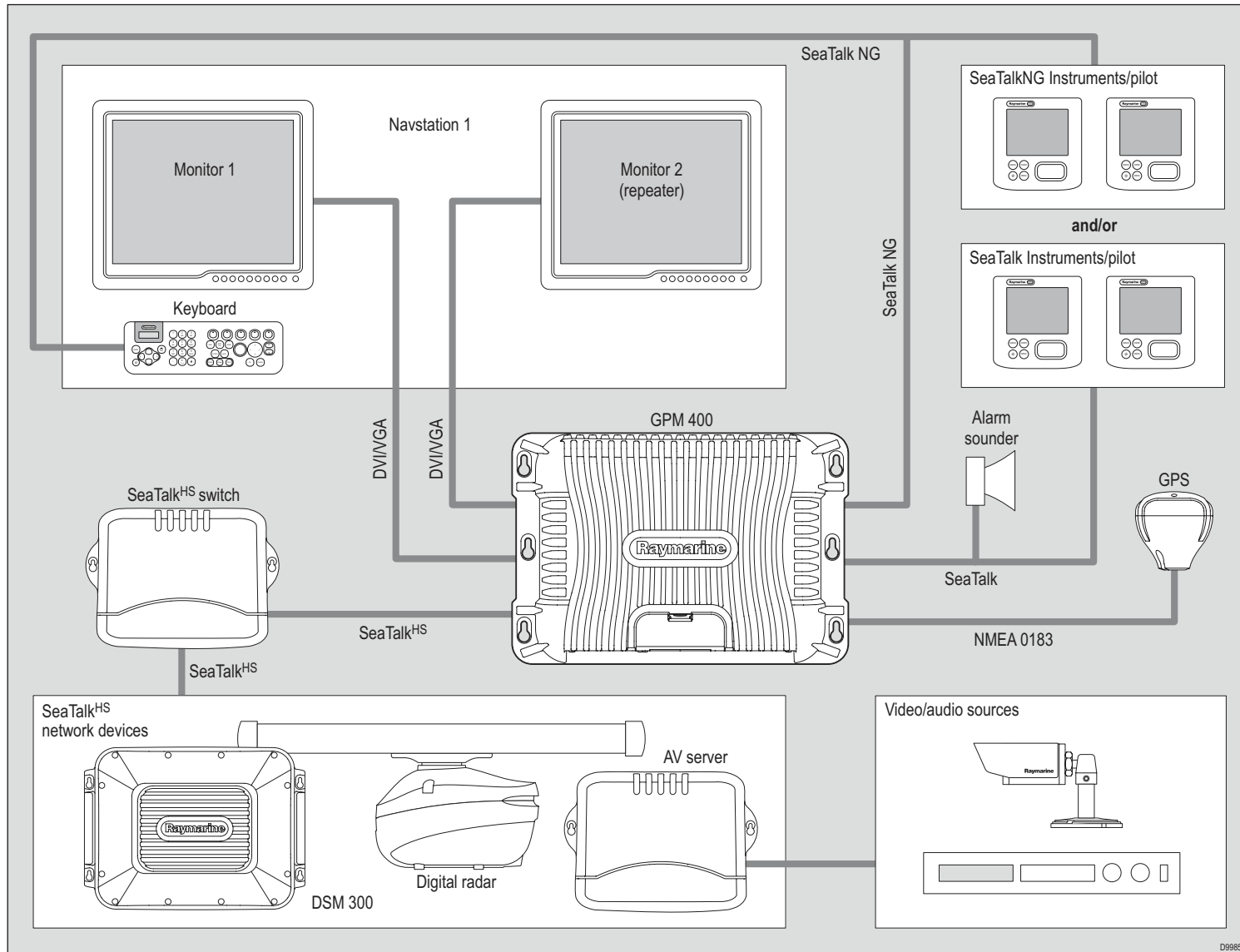
- [1.1 Hardware overview on page 14](#)
- [1.2 Display and keyboard on page 15](#)
- [1.3 Installing and commissioning on page 17](#)
- [1.4 System applications on page 17](#)

See also...

Operating Principles on [page 21](#) for information about how to use G-Series system features.

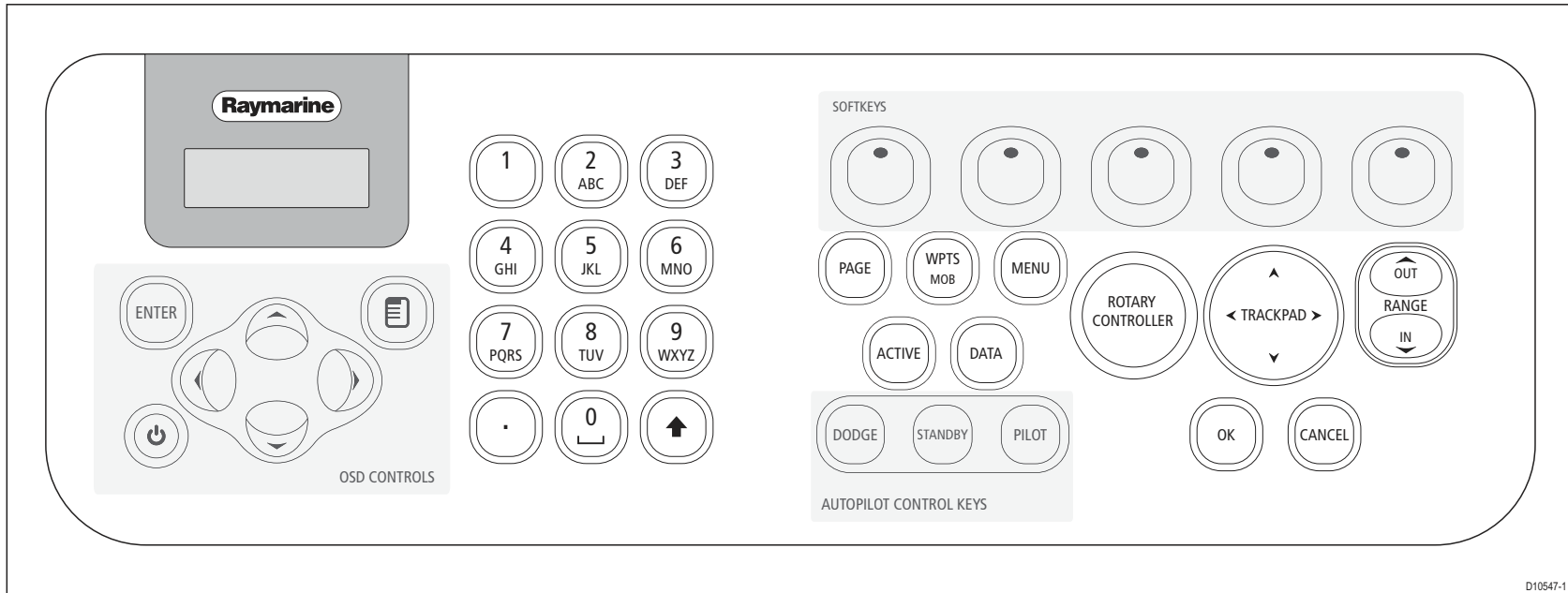
1.1 Hardware overview

The diagram below shows a G-Series system with one GPM400 and two monitors (second monitor is a repeater).



1.2 Display and keyboard

You access the features and functions of a G-Series system through Nav Stations, which comprise monitors and keyboards. This section gives you an overview of the controls in a Nav Station. For detailed information about how to operate the system, see *Chapter 2: Operating Principles* on page 21.



Keyboard controls

The diagram above shows the layout of controls on a G-Series keyboard. If you have more than one monitor in your Nav Station, you can switch between monitors from the keyboard. You can also use the keyboard at different Nav Stations on your vessel.

Power button

Controls system power. For further information, see *Controlling system power* on page 32.

Rotary controller

Choose items in menus or lists. Turning the controller clockwise or counterclockwise moves the highlight down or up through the list of available options.

You also use the rotary controller to select letters when you enter text and to set values on sliders.

Trackpad

Moves the on-screen cursor. The trackpad provides movement in eight directions.

You also use the trackpad to navigate system menus: move up or down through option lists and press trackpad-right to select the next menu level if there is one.

Softkeys

A **softkey** is a button whose function changes according to your task. The current function of each softkey is indicated in the **toolbar**, the strip of softkey labels along the bottom of the monitor. Softkeys are color-coded with softkey labels.

OK

Confirm the selection of a highlighted list, menu or screen object.

Cancel

Press the cancel button to undo an action or keypress. For example, if you make an incorrect menu or toolbar selection, press cancel to go back to the previous screen.

Range

Change the scale of a chart, radar or fishfinder view. Range in to decrease the scale (closer view), range out to increase the scale (more distant view).

Page

Switch to a different page view. Press-and-hold to configure page sets.

WPTS/MOB

Place waypoints (WPTS) or a Man Overboard Marker (MOB) and access waypoint functions.

Menu

Open menus for changing system- or application-wide settings.

Active

In multi-window views, cycle through windows to make each active in turn. Active windows are marked with a red border. Press-and-hold to make the current active window full-screen.

Data

Open the data toolbar for the current application and access databar preferences.

Autopilot control keys

If you have a Raymarine autopilot connected to the G-Series system, you can control some of its features from the G-Series keyboard.

- **Standby** puts autopilot on standby.
- **Dodge** to be implemented in future Raymarine product releases.
- **Pilot** displays the autopilot control screen.

Alphanumeric keys

Edit waypoint data.

Menu symbol

Open the on-screen menu when using a Raymarine monitor.

Up/Down

Select a different Nav Station if more than one is assigned to the keyboard.

Left/Right

Select a different monitor if more than one is assigned to the keyboard.

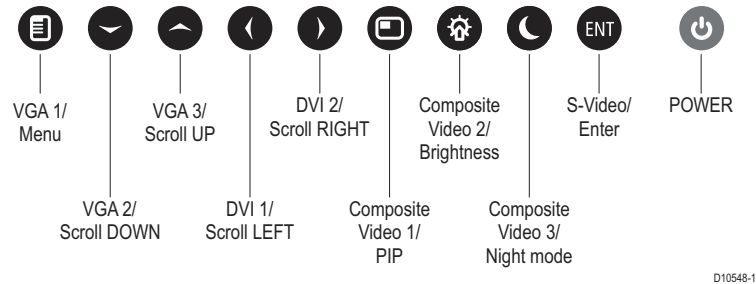
Enter

Confirm a selection in the on-screen display settings menu.

Display controls

If you have a Raymarine monitor you can customize display settings, including choosing between day or night-time color palettes, using the G-Series setup menus. For information about how to do that, see *Introducing Nav Stations on page 22*.

There are also controls on the front of Raymarine displays, summarized below:



Some of these controls are replicated on the keyboard and you can use them to adjust Raymarine monitors.

1.3 Installing and commissioning

This book assumes that a G-Series system has already been correctly installed and commissioned on your vessel. If you are about to install or commission a G-Series system, see the following documents for more information:

- **Raymarine G-Series Installation Manual**
- **Raymarine G-Series Commissioning Guide**

1.4 System applications

The features and functions of the G-Series system are grouped together in *applications*. Applications included on the system are summarized on the following pages.

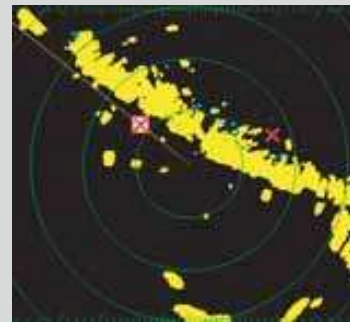
Chart



- Locate where you are
- Interpret your surroundings.
- Monitor where you are going.
- Record where you have been.
- Navigate to a specified position (waypoint).
- Build and navigate routes.
- View details of nearby features & services.
- View details of boats equipped with AIS.
- Distinguish between fixed & moving objects.
- Measure distances and bearings.

D9519-1

Radar



- Detect landmasses & navigation markers.
- Detect and measure the range and distance of other vessels.
- Acquire targets and track them for collision avoidance.
- Navigate to a specified position (waypoint).
- View details of boats equipped with AIS.

D9525-1

3D chart



- Display a 3D view of land, sea & features.
- Locate where you are.
- Interpret your surroundings.
- Monitor where you are going.
- Go to an existing waypoint.
- Navigate a route.
- Synchronize with the 2D chart.
- Identify fishing spots.

D9520-1

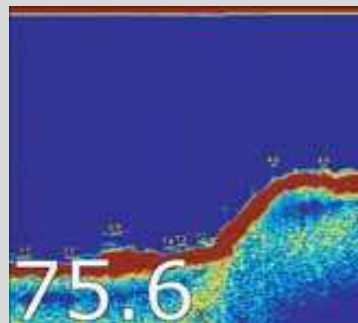
Data

Yen Pos	GOTO CURSOR	TID	WIG Wrt
25°45' 980N	220°T	--H--W--S	--,--kt
080°09' 718W	1.28nm		
Depth	Cog Steer	Heading	Speed
78.8ft	286°T	293°T	0.0kt
	0.0kt		
Set Crk	XTE	Trips	Local Time
355°T	0.00nm	0.00nm	01:42:12
0.0kt	Steer >		

- View data generated by the system or by instruments available on NMEA 0183, NMEA 2000, J1939, SeaTalk or SeaTalk².

D9527-1

Fishfinder



- See where the fish are.
- Identify underwater objects.
- View seabed structure.
- View sea depth and temperature data.
- Mark points of interest, like fishing spots or wrecks.

D9521-2

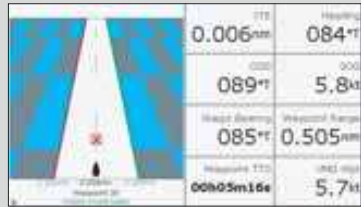
Video



- View video images from on-board CCTV cameras, DVD or video player.

D9528-1

Course Deviation Indicator



- View real-time display of your vessel on a 'rolling road' in 3D perspective.
- Give details of any correction required to steer your vessel along a given course.
- View data about the distance and time to go until you reach a specified point.


D9822_1

Navtex

- Automatic broadcast of localised Maritime Safety Information (MSI)
- Receive navigational and meteorological warnings, and search and rescue information.

D9831_1

Engine Monitor



- View engine data e.g. engine temperature, oil pressure, fuel level etc from up to three engines on a compatible engine system.

D9830_1

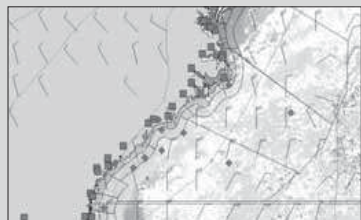
Sirius Audio

You can receive and manage radio broadcasts on the G-Series system using Sirius Audio (Sirius SR100 data receiver required).

Autopilot

If you have a Raymarine autopilot installed, you can make use of the pilot control features of the G-Series system. You can engage the autopilot from the G-Series keyboard instead of the pilot control head.

Sirius Weather



- Only available for the US.
- Superimpose historical and forecasted weather graphics on a world map.
- Determine conditions in your vicinity or at a particular location.
- View weather reports.

D9823_1

Chapter 2: Operating Principles

The first section of this chapter introduces **Nav Stations**: the networked keyboards and monitors you use to operate the G-Series.

The second section describes how you control the applications using the various **buttons**, **softkeys**, **menus** and **toolbars**.

The operating principles described in this section apply to all applications. Understanding them will help you use the system efficiently.

Chapter contents

- [2.1 Introducing Nav Stations on page 22](#)
- [2.2 Using the applications on page 22](#)
- [2.3 Displaying applications on page 25](#)
- [2.4 On-screen information on page 28](#)
- [2.5 Simulator mode on page 29](#)
- [2.6 Emergencies and warnings on page 29](#)

2.1 Introducing Nav Stations

A Nav Station comprises one or more monitors and associated keyboards grouped at a particular location. For example, you might have one Nav Station on the fly bridge and one at the cockpit. The Nav Station is where you access the functions and features of a G-Series system.

Data is shared over the network and repeater monitors let you see, for example, the same information on the bridge as is available in the cockpit. You can control the system from either location.

For information about managing and configuring Nav Stations, see *Nav Station Setup* on page 31.

Monitors

For each monitor, you can have a repeat monitor. This is driven by the same GPM400 as the first monitor, but would be placed at a different Nav Station to make information available at two locations.

Keyboard

A keyboard can be assigned to one or all monitors in your system, but can only control one monitor at a time. You can select which monitor you want to control from the keyboard. When a keyboard is associated with a monitor, this provides full control of the system.

For more information about using keyboards with monitors and Nav Stations, see *Keyboard settings* on page 33.

2.2 Using the applications

An application is what you open to use the features of the G-Series system. For a list of applications, see *System applications* on page 17.

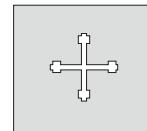
All the applications included on the G-Series operate on the same principles. You set them up and use them using a combination of menus and toolbars.

This section explains the general operating principles behind these various elements. Detailed application-specific information is given in the subsequent chapters of this book.

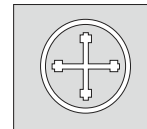
The cursor

In relevant applications, move the cursor over objects or areas on screen to **highlight** them. Once highlighted, the system recognizes that subsequent actions apply to the highlighted object.

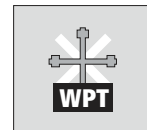
Use the trackpad to move the cursor.



Standard cursor.



If the cursor is not moved for a while, a white circle is put around it to make it easier to locate.



When you highlight an object, the cursor changes color.

Toolbars and softkeys

A toolbar is a set of softkey labels displayed along the bottom of a display. Each label is color-keyed to match the corresponding softkey on the keyboard.

Pressing a softkey can cause a new toolbar to appear, call up an options window or menu list, or trigger an action such as setting your vessel on a track to a selected waypoint. Some softkeys have sliders or pop-ups associated with them, where you make setting adjustments using the rotary controller or trackpad.

It is useful to think of toolbars arranged in tiers. To access some functions, you need to go to a second or third tier. If you accidentally press the wrong softkey, you can go back up a tier by pressing the **CANCEL** button.

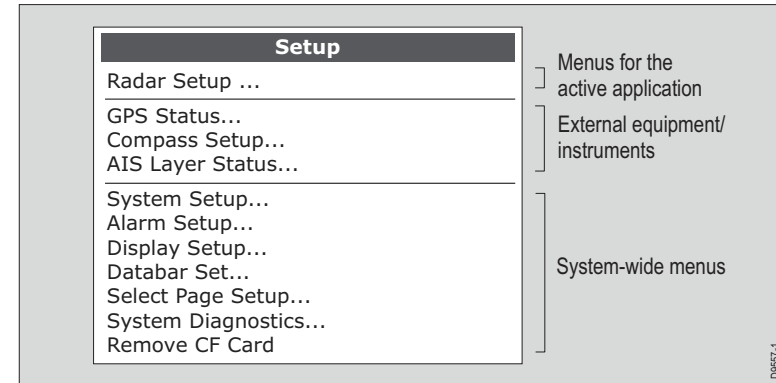
If there are tiers below a softkey, the softkey label ends with an ellipsis (...). For example, pressing "**GOTO...**" on the navigation toolbar opens the GOTO toolbar, giving you access to further options.

Note: When instructions in this book refer to softkey labels, the ellipsis is not included.

Setup menus

Menus are where you make system- or application-wide changes. Pressing the MENU button opens the Setup menu. From there you can choose **application setup menus** or **system setup menus**.

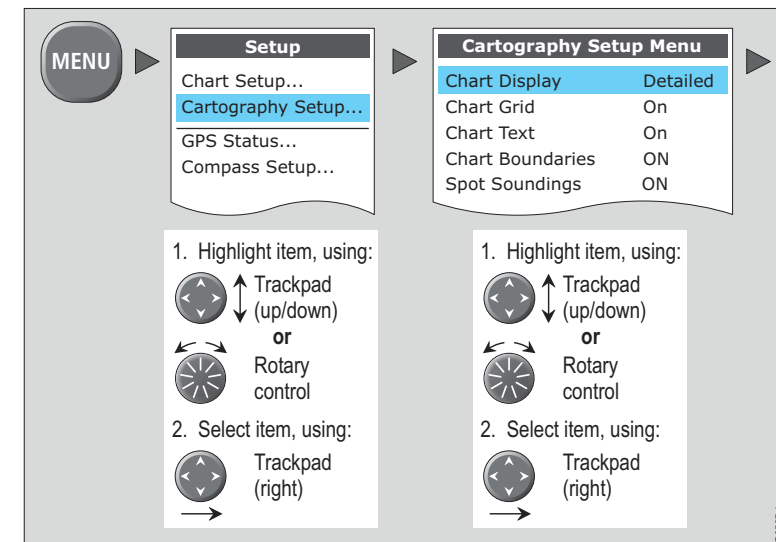
The application setup menus are context-sensitive: if you are in the chart application, for example, the chart setup menu is available.



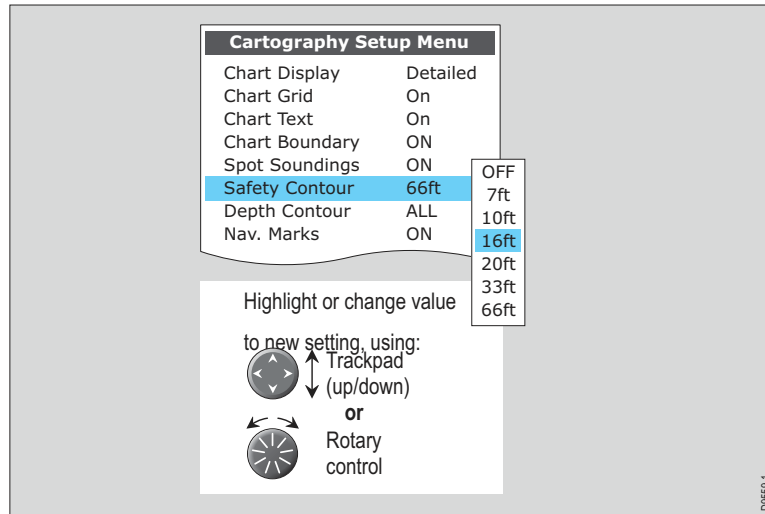
For more information about the setup menus for each application, see the appropriate chapter of this book. For all other settings, see *Chapter 18: System Setup and Customizing* on page 187.

To change a menu setting

1. Select the appropriate menu:



2. Change the setting:



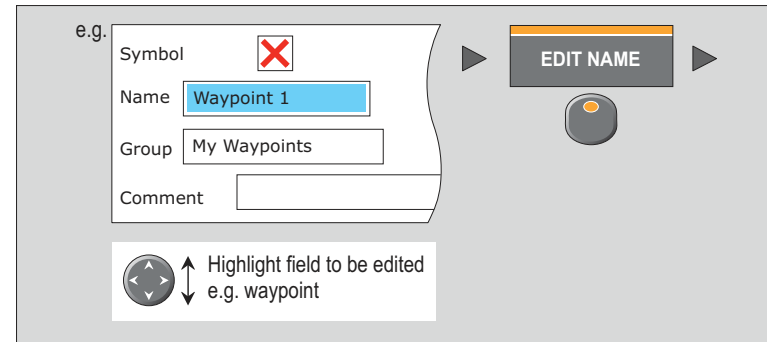
3. Press **OK** to accept your changes, or **CANCEL** to go back to the previous screen.

Dialog boxes

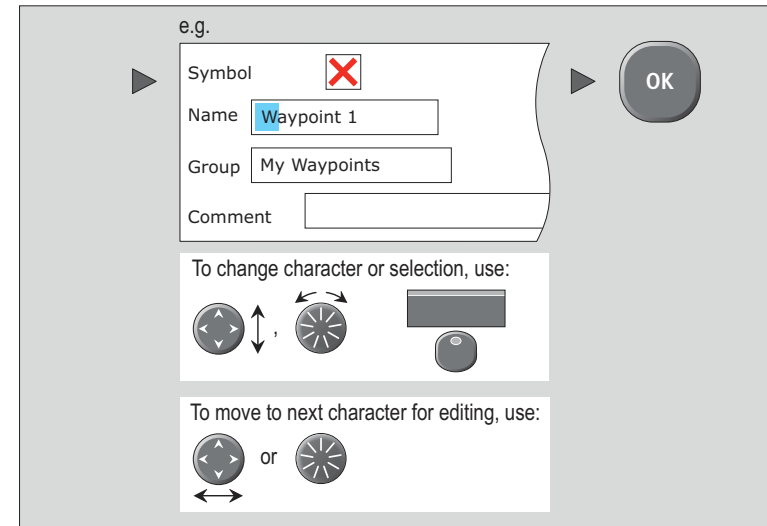
Dialog boxes are where you edit or enter data into the system. They appear automatically at appropriate points. For example, when you edit a list of waypoints, a dialog box appears for you to enter or change waypoint names.

To enter data into a dialog box

1. Select the appropriate field.



2. Enter the data. Press **OK** to save the changes.



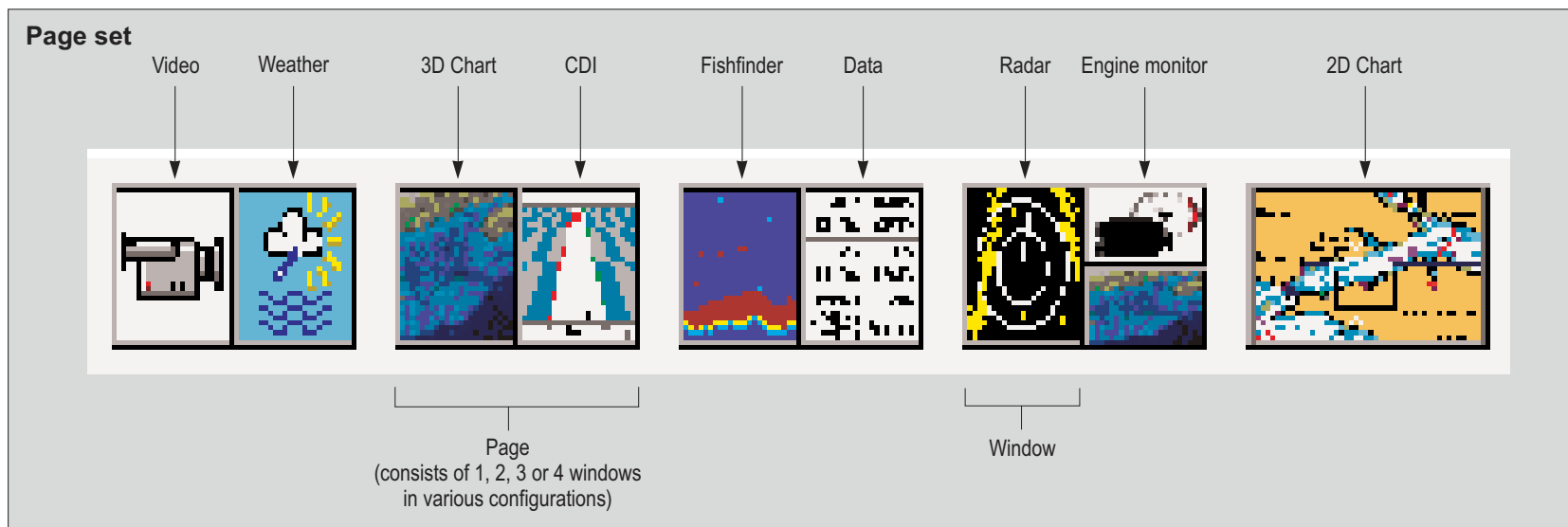
3. Repeat Steps 1 and 2 if necessary.

You can enter character text in upper- or lower-case but the system is not case sensitive: it considers 'WAYPOINT 1' to be the same as 'Waypoint 1'.

To use special or accented characters, turn on the Extended Character Set in the System Setup Menu (see [page 192](#)).

2.3 Displaying applications

Each G-Series application is displayed in a *window*. The system can display up to four windows at once, on a single *page*.



You can configure pages to contain the window or windows that best suit your requirements. You can also create *page sets*, each set comprising up to five customized pages, so that you can switch between different application views easily.

Choosing page sets

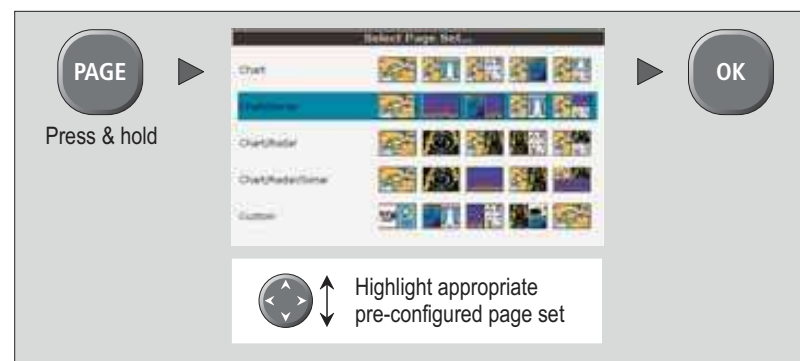
Page set configurations apply to the monitor on which you are working. You can display different pages on other monitors in your Nav Station.

To select a page set

1. Press and hold **PAGE**.
2. Select your preferred page set.
3. Press **OK**.

or

1. Press **MENU** to open the system **Setup** menu.
2. Choose **Select Page Set**.



None of the preconfigured sets includes a page for the **engine monitor**, **weather** or **video** applications. To configure a set that does, or to create a custom set for any combination of applications, see the Setup and Customizing chapter of this book.

Selecting an application page

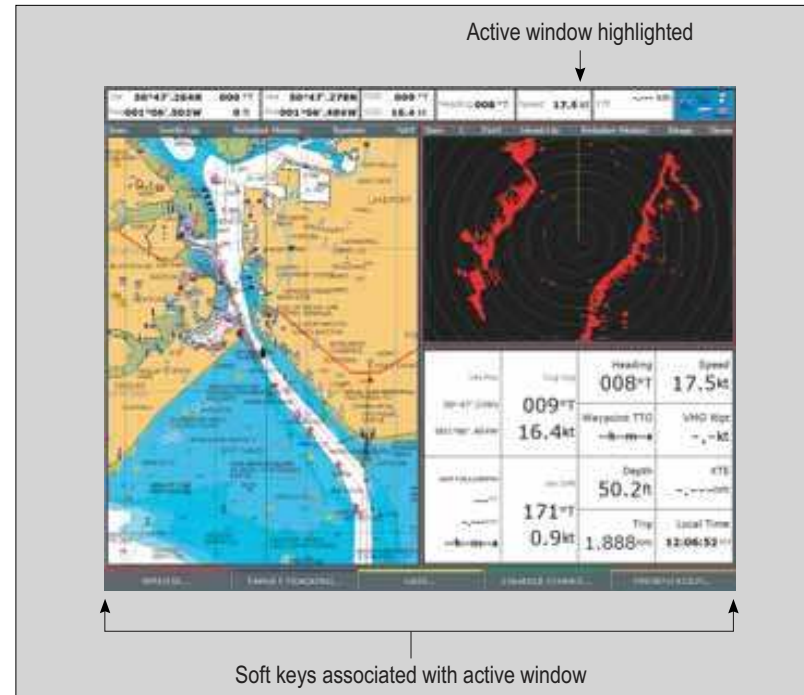
Once you have selected the appropriate page set, you can choose the view you want to use.

To view an application page

1. Press **PAGE**.
2. Either select the application page you want from the toolbar or toggle between the applications configured in the page set by pressing **PAGE**.
3. Press **OK** or **CANCEL**.

Selecting application windows

When the selected page has more than one window, the window that is currently active has a red border. The toolbar applies to the active window.



To change the active window

1. Press **ACTIVE** to toggle active status between windows (the red border moves to highlight the active window).

To toggle between multiple- and single-window views

1. In a multiple-window view, **press and hold** the **ACTIVE** button to display the active window at full-screen.
2. Press **ACTIVE** once more to return to multiple-window view.

Panning and zooming

In the appropriate application windows, you can pan and zoom the view to display a different geographic area (pan) or change the scale at which an area is displayed (zoom).

Panning

In the chart, 3D chart and weather applications, you move the cursor using the trackpad. When the cursor reaches an edge of the screen, the view automatically pans to display the appropriate area.

Zooming

In chart, 3D chart, fishfinder, weather or radar windows, you can use the Range In / Out rocker switch to change the scale of the view. When you zoom in, you see a smaller area of the chart in more detail (large scale). When you zoom out, you see a greater area of the chart in less detail (small scale).

The level of cartographic detail available at different scales varies. Some charts provide detail at smaller scales than others.

If you select a chart scale that does not provide cartographic detail for your chosen area, the chart will use the most detailed level available for the surrounding area and stretch it to fit the selected scale. This means that you will never have blank or hatched areas on your screen. However there may be some mis-alignment of objects which cross the chart boundary in this area.

2.4 On-screen information

Information is displayed on screen in a variety of ways:

The screenshot shows a marine display interface with several callout boxes explaining different UI elements:

- Menus (see next page)**: Used to configure system to your particular needs.
- Status bar**:
 - Gives information specific to each application.
 - Cannot be edited or moved.
- Data bar**:
 - Gives information associated with your boat or the environment.
 - Customisable content*.
 - Vertical or horizontal format*.
 - Display or hide*.
 - Normal or large size*.
- Status icons**: Confirm status of DSM, GPS, AIS and scanner.
- Data base lists**:
 - Contain information you have added to the display's memory e.g. waypoints.
 - Highlight an entry using trackpad or rotary control to display related information.
 - Editable using soft keys.
- Pop-up messages**:
 - Alert you to a situation e.g. alarm, function not available.
 - Not editable.
 - May require a response e.g. press ACKNOWLEDGE to silence alarms.
- Dialog boxes**: Enable data to be edited or entered into a store/list e.g. editing a waypoint.

The interface also displays a **Waypoint List** and an **Edit Waypoint** dialog box. A **MARPA ALARM** pop-up message is shown with the text "Target lost (on screen)". The bottom of the screen features an **ACKNOWLEDGE** button.

* For details of how to adjust and edit the data bar, see [page 188](#)

Note: To change the size of the text on screen, see [page 191](#).

2.5 Simulator mode

The G-Series Display includes a simulator mode which allows you to practice operating the display without data from a GPS antenna, radar scanner, fishfinder (DSM) unit or an AIS receiver.

Once enabled, you can use the simulator:

- **Before installation:** connect the system to a 12V DC power supply, fused at 1 amp by attaching the red core from the power lead to positive (+) and the black core to negative (-).
- **After installation** while in a marina or at anchor.

Settings made in simulator mode are not transmitted to other equipment.

Incoming AIS safety messages are not displayed in simulator mode.

To switch simulator mode on

1. Press the **MENU** button to open the Setup menu.
2. Select **Simulator**.
3. Select **ON**.
4. Press **OK**.

2.6 Emergencies and warnings

You can use your G-Series system to mark the position of a man overboard, or to sound warning alarms in particular situations.

Man overboard

If you lose a person or object overboard and need to return to the spot, activate the Man Overboard (MOB) function **immediately**.

The MOB function is available at all times, whatever application is running on the G-Series system.

To activate the Man Overboard function

1. Press and hold the **WPTS/MOB** key for three seconds.

The G-Series can also receive a MOB message from other equipment on the SeaTalk system.

Placing a MOB marker initiates a set of actions on the G-Series system:

- **Waypoint placed** at your current position.
- **Alarm sounds** in morse, repeated every 30 seconds.
- **Positional information** including bearing, range and position are displayed in the databar. These are calculated according to the MOB configuration specified in the System Setup Menu. Assuming that your boat and the MOB are subject to the same tide and wind effects, dead-reckoning normally gives a more accurate course.
- **Radar range** set to $1/8$ nm if in transmit mode.
- **Navigation functions are suspended** and no new GOTO or route functions are selectable.
- **Motion mode set to autorange** if radar/chart synchronization is set to OFF (see [page 64](#)). The chart application changes the motion mode to Autorange to display the largest possible scale of chart that will include both the MOB waypoint and your vessel.
- **MOB message transmitted** to other Raymarine equipment.
- **Current position to MOB position** is represented on screen by a dotted line.

Note: To obtain a MOB position, you need either position or heading and speed data from a GPS (or equivalent) device.

To pause a MOB alarm

1. Press any key on any instrument on the SeaTalk system. After approximately 10 seconds the alarm will sound again if the MOB function is still active.

Pausing an alarm **does not** deactivate or clear the MOB state.

labelling a MOB alarm

Clearing a man overboard alarm has the following effects:

- The motion mode in the chart and radar applications is reset.

- The databar mode is reset.
- GOTO and route functions return.

Note: If you have a MOB keypad fitted, you can also press and hold the MOB key.

To cancel a MOB alarm

1. Press and hold the **WPTS/MOB** key for four seconds.

Warning alarms

You can configure the G-Series system to sound an alarm when it detects a hazard or a particular situation. When the alarm sounds, a message box is displayed to explain the reason for the alarm.

For a full list of alarms available, see *Alarm Setup Menu* on page 194.

To set up alarms

1. Open the **Alarms** setup menu.
2. Make your desired settings using the appropriate menu options.
3. Press **OK** to save your settings.

Cancelling alarms

There are two kinds of alarm: **system** and **external**.

System alarms are triggered by G-Series applications, like the chart or radar. When you cancel a system alarm, the G-Series cancels the alarm and makes appropriate changes to the application that triggered it. For example, if the chart application sounds an arrival alarm, navigation to the next waypoint in the route starts when you cancel the alarm.

External alarms are triggered by equipment that is connected to the G-Series system, but which is not part of the G-Series system. When you cancel an external alarm, the alarm stops but no further action is taken.

You cancel both types of alarm in the same way.

To cancel an alarm

1. Press the **ACKNOWLEDGE** softkey.
- If an anchor alarm is silenced but the alarm condition persists, the alarm is repeated every 30 seconds.

Chapter 3: Nav Station Setup

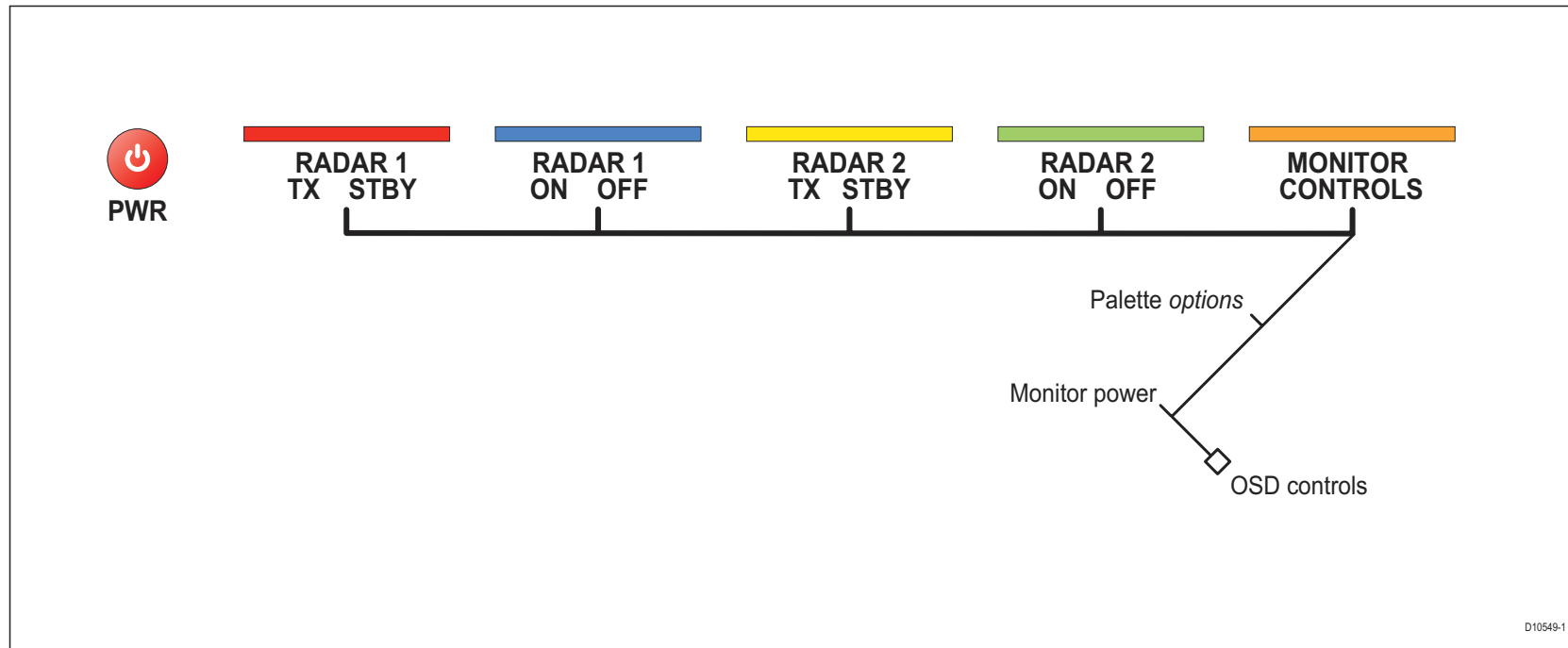
This chapter describes initial power-on and system setup procedures.

Chapter contents

- [3.1 Controlling system power on page 32](#)
- [3.2 Monitor settings on page 32](#)
- [3.3 Keyboard settings on page 33](#)
- [3.4 Setting language, date and time, and units of measurement on page 33](#)
- [3.5 Local settings on page 33](#)

3.1 Controlling system power

The power button on the keyboard controls power to G-Series keyboards and displays. It also controls power to the radar scanners.



To open the power control screen

1. With the system powered on, press the **power** button once.

Note: The power button does not control power to the GPM400 unit.

The power control screen

Once power is applied to the system, pressing the power button opens the power control screen which gives you access to:

- Power and transmit settings for two radar systems.
- Brightness and power settings for the monitors.
- Monitor palette selection.

3.2 Monitor settings

If you are using a Raymarine monitor, the power control screen allows you to set the monitor brightness level and color palette. You can also control monitor power states.

To adjust monitor brightness

1. Open the power control screen.
2. Use the rotary controller to set the brightness level you require.
3. To change the brightness of a monitor in a different Nav Station, press the rotary controller once and select the appropriate Nav Station from the list.
4. To accept your changes, press **OK**.

To select a different color palette

1. On the power control toolbar, press **MONITOR CONTROLS**.
2. Toggle to the palette you want to use on the **PALETTE** softkey.
3. Press **OK**.

3.3 Keyboard settings

When a system is commissioned, settings are made which associate keyboards with Nav Stations and displays. This allows you to use one keyboard to control different Nav Stations or monitors (but only one at a time).

To use the keyboard at a different monitor

1. Press the **left/right arrows** on the keyboard to select the name of the display you want to use.

To use the keyboard at a different Nav Station

1. Press the **up/down arrows** on the keyboard to select the name of the Nav Station at which you want to use keyboard.

3.4 Setting language, date and time, and units of measurement

All these settings are configured from the system Setup menu.

To configure language, units, date and time format

1. Open the system **Setup Menu**.
2. Select the settings you want to configure.
3. Make the appropriate changes.
4. Press **OK**.

Note: For information about to change menu settings, see *Setup menus* on page 23.

3.5 Local settings

The majority of functions, settings, and changes that you make on a Nav Station are detected by all the Nav Stations in the system. There are, however, some local settings that affect only the monitor on which you are working (and its repeater if there is one).

These local settings are:

- Page set: selecting a set, name and applications configuration.
- The active window.
- The displayed panel in the digital data or engine monitoring application.
- Radar and Fishfinder presentation settings.
- Radar VRM, EBL and wakes.
- Chart presentation settings when chart view is set to local.
- Show/hide waypoints, routes and tracks.
- Display Setup Menus.
- Databar on/off and configuration.
- Chart ruler settings.

Chapter 4: Using Waypoints

This chapter introduces waypoints and explains how to use them for navigation with the G-Series system.

Chapter contents

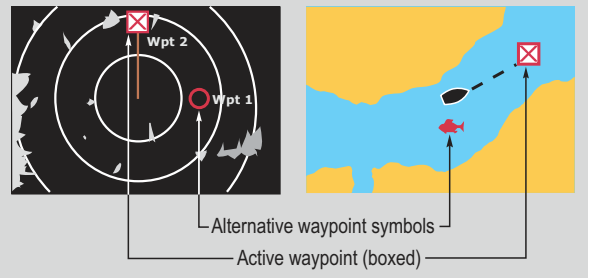
- [4.1 Introducing waypoints on page 36](#)
- [4.2 The waypoint toolbar on page 37](#)
- [4.3 Waypoint list on page 38](#)
- [4.4 Placing waypoints on page 38](#)
- [4.5 Navigating to waypoints on page 39](#)
- [4.6 Waypoint information on page 39](#)
- [4.7 Editing waypoints on page 39](#)
- [4.8 Sorting the waypoint list on page 41](#)
- [4.9 Waypoint groups on page 41](#)

4.1 Introducing waypoints

Waypoints are used to mark points to navigate to, for marking locations for fishing and diving, and as building-blocks in routes.

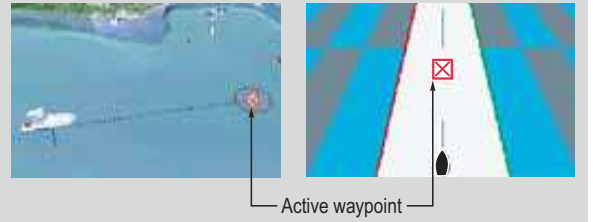
Waypoints can be created in any application and displayed on the radar, chart and fishfinder windows. They can be viewed on all the displays in a G-Series system.

Radar and 2D chart windows
A waypoint is represented on a radar or chart window when it is inactive or active (i.e. you are navigating to it). The waypoint symbol can be changed if required.



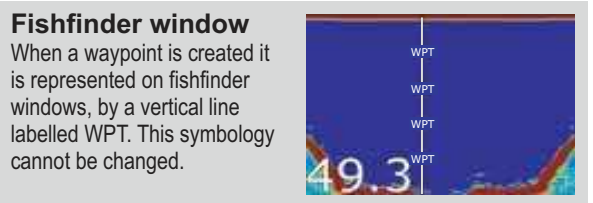
Alternative waypoint symbols
Active waypoint (boxed)

3D chart and CDI windows
A waypoint is represented only when it is active i.e. you are navigating to it.



Active waypoint

Fishfinder window
When a waypoint is created it is represented on fishfinder windows, by a vertical line labelled WPT. This symbology cannot be changed.



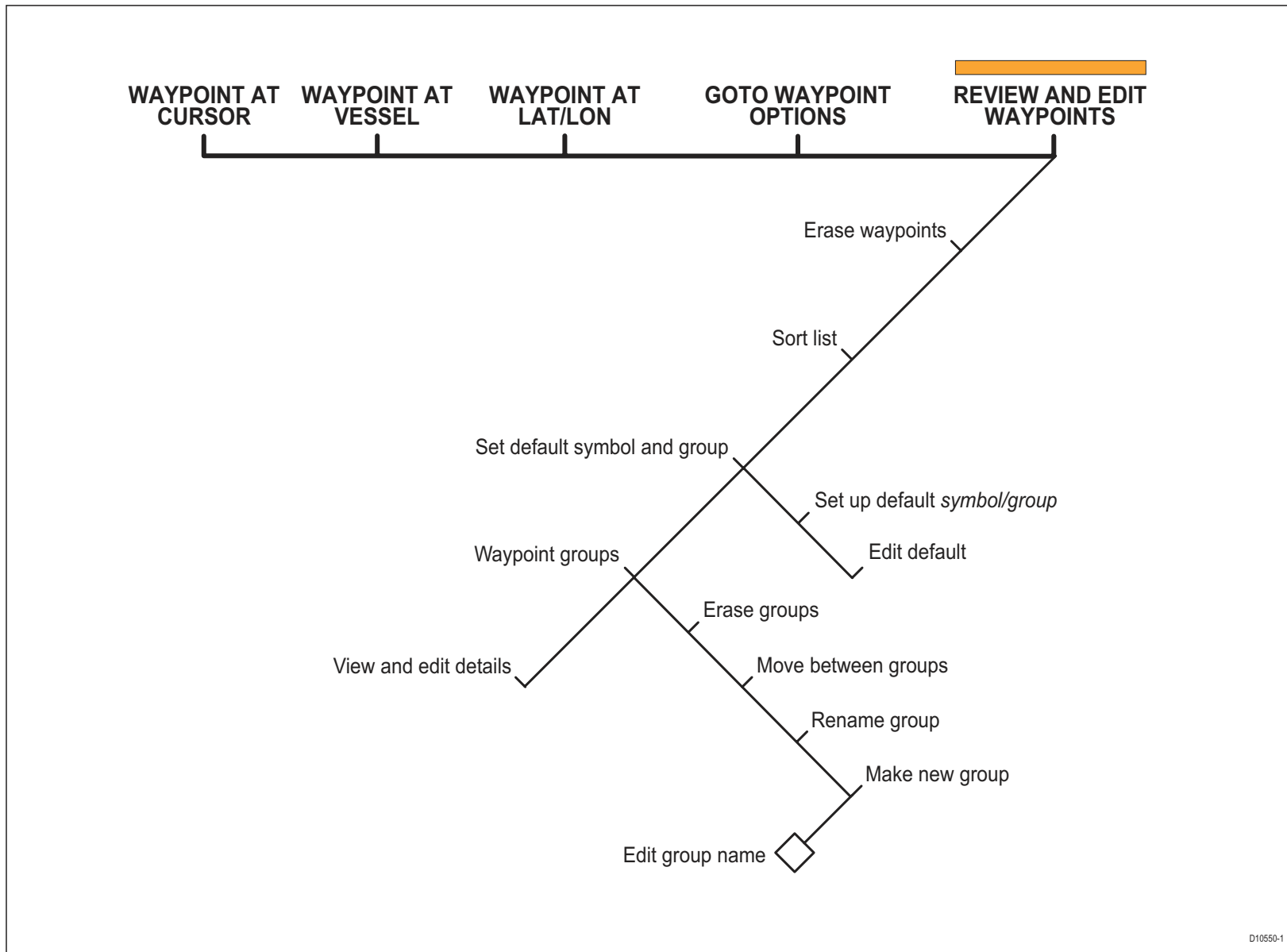
WPT
WPT
WPT
WPT
49.3

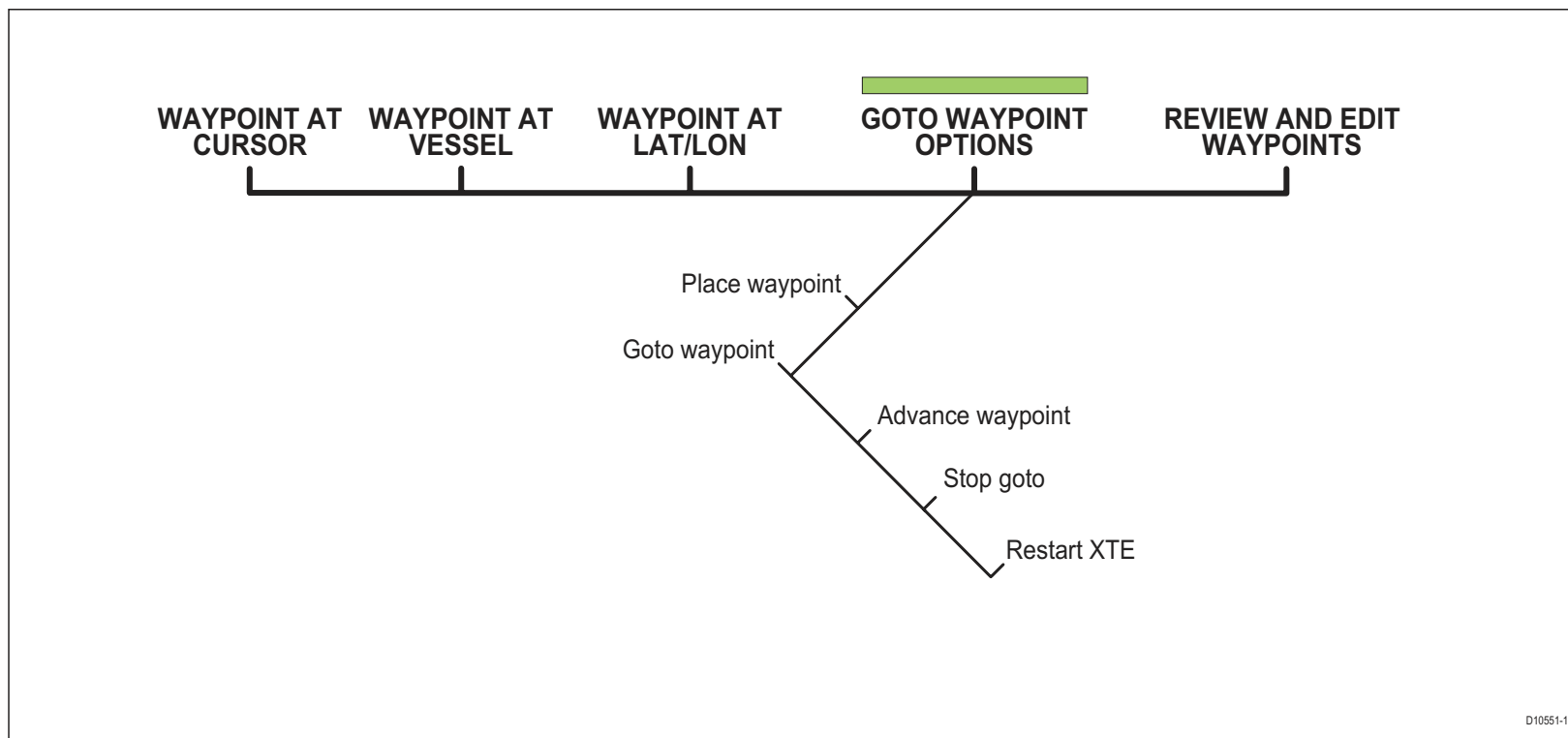
Weather window
A waypoint can be placed when a Weather application window is active but it will not be seen in the weather window.

D9496.1

4.2 The waypoint toolbar

Pressing the WPTS/MOB button opens the toolbars shown below:





4.3 Waypoint list

The details of all waypoints, irrespective of the application they were created in, are stored in a dedicated waypoint list which holds up to 3000 waypoints. All waypoints are placed in the MY WAYPOINTS group by default. You can create new groups and change the default group.

You can store waypoints on a CompactFlash card or transfer them to other NMEA-compatible instruments. If the G-Series system receives an active waypoint over SeaTalk or NMEA, it is displayed but cannot be edited.

Waypoint lists can be password protected.

4.4 Placing waypoints

You can place a waypoint at:

- The cursor position
- Your vessel's position
- A point specified by latitude and longitude or Loran TD coordinates.

To place a waypoint at the cursor

1. Press the **WPTS/MOB** button.
2. Move the cursor to the waypoint position.
3. Press the **WAYPOINT AT CURSOR** softkey.
4. Press **OK**.

To place a waypoint at your vessel's position

1. Press the **WPTS/MOB** button.
2. **Either** Press the **WAYPOINT AT VESSEL** softkey **or** press the **WPTS/MOB** button a second time.
3. Press **OK**.

Note: If the system cannot determine your position, a warning is displayed and the waypoint is not placed.

To place a waypoint by latitude and longitude

1. Press the **WPTS/MOB** button.
2. Press the **WAYPOINT AT LAT/LON** softkey.
3. Set the position for the new waypoint.
4. Press **OK**.

4.5 Navigating to waypoints

This section explains how to start and stop navigating to a waypoint. When you navigate to a waypoint, the data is sent over the network and can be used by an attached autopilot. A waypoint being navigated to is known as an *active waypoint*.

For detailed information on navigating with waypoints, see [page 43](#).

To navigate to a waypoint

1. Highlight the waypoint.
2. Press the **GOTO WAYPOINT** softkey.

or

1. Press either the **WPTS/MOB** button or **GOTO** softkey.
2. Press the **GOTO WAYPOINT OPTIONS** softkey.
3. Select the appropriate waypoint from the list.
4. Press **GOTO WAYPOINT**.

To stop navigating to a waypoint

1. Highlight the waypoint.
2. Press the **STOP GOTO** softkey.

or

1. Press the **WPTS/MOB** button.
2. Press the **GOTO WAYPOINT OPTIONS** softkey.
3. Press the **STOP GOTO** softkey.

4.6 Waypoint information

Waypoints have information associated with them. You can view the details of any waypoint by either highlighting it with the cursor (in radar and chart windows) or selecting it from the waypoint list.

With the waypoint details open, you can edit the data and change its management options.

You can also display navigation details for the active waypoint in the databar (see [page 188](#)).

To view waypoint information

1. Highlight a waypoint with the cursor.
2. Press the **EDIT WAYPOINT** softkey.

or

1. Press the **WPTS/MOB** button.
2. Press the **REVIEW AND EDIT WAYPOINTS** softkey.

Note: Use the second method to view details for an active waypoint.

4.7 Editing waypoints

The G-Series system allows you to edit and modify the followings aspects of a waypoint's details.

- Change the waypoint name.
- Change the waypoint symbol.

- Change the waypoint group.
- Add a comment.
- Move a waypoint.
- Erase a waypoint.
- Change the default symbol and group of newly placed waypoints.

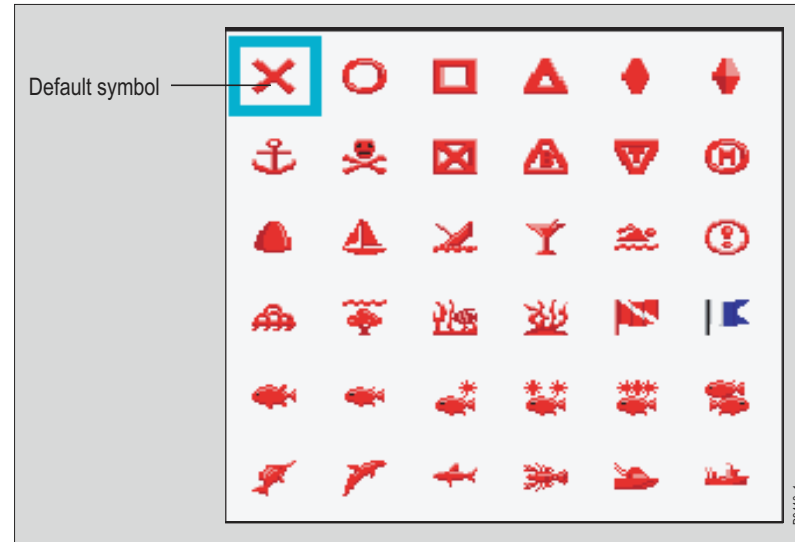
Changing the waypoint name, symbol or group

When you create a waypoint, the system automatically assigns it a name, symbol and group. You can change these details and add a comment if required. This is particularly useful if you are managing a large quantity of waypoints.

The default waypoint symbol is **X**.

You can select different waypoint symbols to mark different types of position (fish or dive locations, for example). When a waypoint is active (being navigated to), the system highlights it by placing a red box around it.

Alternative waypoint symbols available are shown below.



To edit waypoint details

1. Highlight the waypoint or select it in the waypoint list.
2. Press the **VIEW AND EDIT DETAILS** softkey.
3. Select the field you want to change and press the appropriate softkey.
4. Make changes as required.
5. Press **OK** to save your changes.

Moving waypoints



Caution

Moving waypoints

If you move a waypoint that is used in a route, the new position will be updated within that route. Ensure that this does not present a navigation hazard.

You can move any waypoint except the active one. There are two methods of moving a waypoint: by entering a new set of coordinates for it (under the VIEW AND EDIT DETAILS softkey), or by selecting and dragging it to a new position.

To drag a waypoint to a new position

1. Highlight the waypoint.
2. Press the **MOVE WAYPOINT** softkey.
3. Use the trackpad to drag the waypoint to its new location.
4. Press the **PLACE WAYPOINT** softkey.

Deleting waypoints

You can erase any waypoint **except** an active waypoint or one that is part of a saved route.

Note: If a route is hidden, its waypoints can still be displayed. If you attempt to erase a waypoint from a hidden route, a warning message will be displayed.

To erase an individual waypoint

1. Highlight the waypoint.
2. Press the **ERASE WAYPOINT** softkey.
3. Confirm the deletion.

or

1. Open the waypoint list.
2. Press the **REVIEW AND EDIT WAYPOINTS** softkey.
3. Select the waypoint from the list.
4. Press the **ERASE WAYPOINT** softkey.
5. Confirm the deletion.

To erase all waypoints

1. Press the **DATA** button.
2. Press the **ARCHIVE AND TRANSFER** softkey.
3. Press the **ERASE FROM SYSTEM** softkey.
4. Highlight **WPT** on the **SELECT LIST** softkey.
5. Select **ERASE ALL WAYPOINTS**.

6. Confirm the deletion.

4.8 Sorting the waypoint list

You can sort the waypoint list to make it easier to manage. This feature is particularly useful when you have a large number of waypoints.

You can sort the waypoint list by:

- Name (default)
- Range (closest first)
- Symbol
- Group name
- Date
- Comment
- Depth

To sort the waypoint list

1. Press the **SORT LIST** softkey.
2. Press the **SELECT SORT OPTION** softkey.
3. Choose a sort method from the list.
4. Press **OK**.

4.9 Waypoint groups

All new waypoints are automatically placed in a group called “My Waypoints”. To make waypoints easier to manage, you can organize them into different groups. When fishing, for example, you can choose to see only the waypoints in a fishing group that includes all your good fishing sites.

A waypoint can belong to one group only.

Waypoint groups are managed from the waypoint group list.

To open the waypoint group list

1. Press the **WPTS/MOB** button.
2. Press the **REVIEW AND EDIT WAYPOINTS** softkey.
3. Press the **WAYPOINT GROUPS** softkey.

You can now:

- Make a new group
- Move waypoints between groups
- Rename groups
- Delete groups

To make a new waypoint group

1. Open the waypoint group list.
2. Press the **MAKE NEW GROUP** softkey.
3. If you want to give the group a name other than the default, press **EDIT GROUP NAME** and set the name.
4. Press **OK**.

To move waypoints between groups

1. Open the waypoint group list.
2. Press the **MOVE BETWEEN GROUPS** softkey.
3. Press **SELECT GROUP A** and select the group to move the waypoint from.
4. Press **SELECT GROUP B** and select the group to move the waypoint to.
5. Highlight the waypoint you want to move.
6. Press **MOVE WAYPOINT FROM A TO B**.
7. Press **OK** when done.

To rename a group

1. Open the waypoint group list.
2. Highlight the group you want to rename.
3. Press the **RENAME GROUP** softkey.
4. Press the **EDIT GROUP NAME** softkey.
5. Enter the new name.
6. Press **OK**.

Deleting groups

When you erase a group, the group name and all the associated waypoints are removed from the system. If a group contains one or more waypoints that you want to keep, move those waypoints out of the group before you delete it.

You can erase any waypoint group, with the following exceptions:

- You cannot erase the “My Waypoints” group.
- You cannot erase a group containing an active waypoint.
- You cannot erase a group containing waypoints that are part of a stored route.

To delete a group

1. Open the waypoint group list.
2. Select the group you want to delete.
3. Press the **ERASE GROUP** softkey.
4. Confirm the deletion.

Chapter 5: The Chart Application

The chart application provides navigation, hazard awareness and planning features. Use the chart application to establish your position; navigate using waypoints and routes; record your progress; measure distance and bearing; overlay chart and radar data; view AIS data, and view aerial photography.

For information about autopilot integration, see [page 85](#).

Chapter contents

- [5.1 Warnings and cautions on page 44](#)
- [5.2 Supplied cartography on page 44](#)
- [5.3 Chart Overview on page 45](#)
- [5.4 Chart setup on page 46](#)

Navigation

- [5.5 Quick waypoints on page 50](#)
- [5.6 Building a route on page 52](#)
- [5.7 Tracking your progress on page 60](#)
- [5.8 Heading and course information on page 62](#)
- [5.9 Presentation options on page 63](#)
- [5.10 Showing and hiding waypoints on page 64](#)

Hazard awareness

- [5.11 Chart layers on page 64](#)
- [5.12 Chart mode and orientation on page 66](#)
- [5.13 Chart view on page 68](#)
- [5.14 Chart detail on page 68](#)

Planning

- [5.15 Journey planning on page 69](#)
- [5.16 Measuring distance, range and bearing on page 73](#)

5.1 Warnings and cautions

Always check that your route is safe. Use the Range key to zoom in to check for hazards that may not be visible on a larger scale view.

Until you are familiar with interpreting the chart display, take every opportunity to compare what's on the chart display with your actual surroundings. Practice harbour and coastal navigation during daylight hours and in clear weather conditions.

You can also use simulator mode to help you gain experience with the unit.

Before you use the chart application, make sure you have read and understood *Chapter 4: Using Waypoints* on page 35.

CAUTION:

The Chart application is not a substitute for good navigational practice, nor does it remove the need for official government paper charts. Do not use the G-Series Chart application before you have read this chapter.

Requirements

1. For full functionality, the chart application needs to be receiving position and heading data from your vessel's Global Positioning System (GPS).
2. For your GPS and chart to correlate accurately with your paper charts, they all need to use the same datum. The default datum for the G-Series system is WGS84. If this is not suitable, you can change the setting in the Chart Setup menu (see [page 46](#)). When you adjust the datum of the G-Series system, a Raymarine GPS will automatically correlate. If you have a third-party GPS, you need to adjust it separately. Refer to the instructions that came with your GPS for more information.
3. For the Automatic Identification System (AIS) to function you must have a suitable AIS receiver connected.
4. For full autopilot functionality, you must have a compatible autopilot attached to your G-Series system.

5.2 Supplied cartography

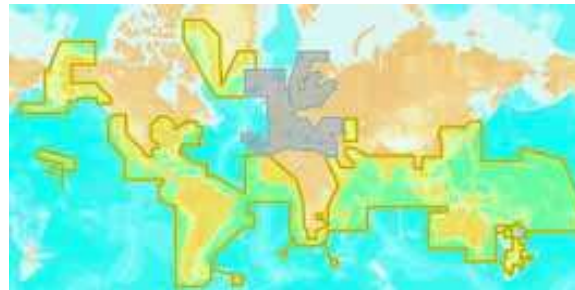
The G-Series system comes preloaded with Navionics cartography. Depending on your region, different levels of cartography (Platinum or Gold) are available in different areas.

You can also use Navionics chart cards. When chart cards are present, the system selects the latest cartography to display.

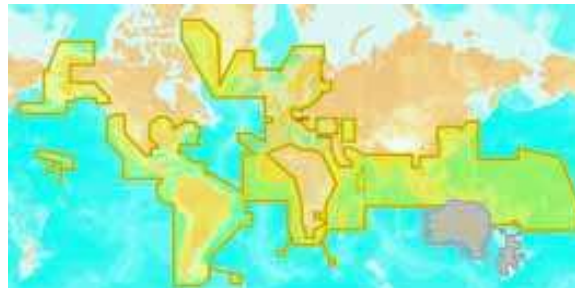
US



Europe

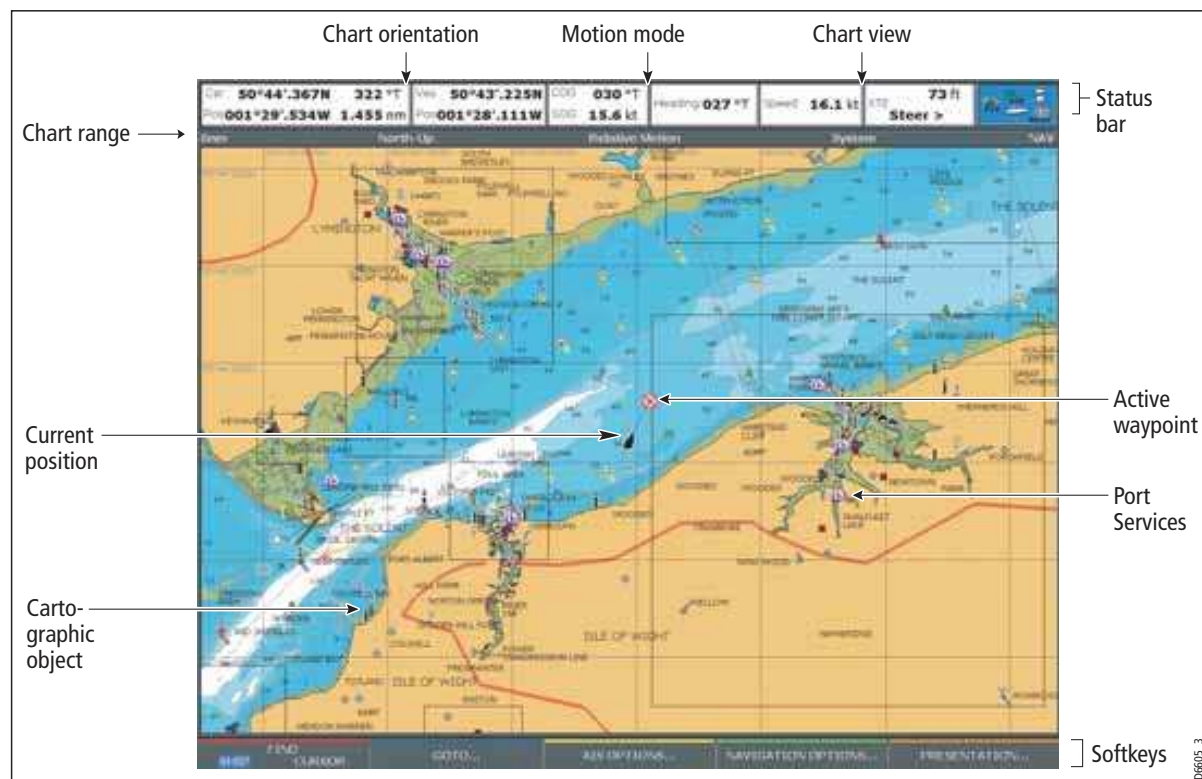


Rest of world



5.3 Chart Overview

The illustration below shows the components of a typical chart view.



Your position

Your position is displayed in the data bar under VES POS. If heading or COG data is available, your position is represented on screen by a boat symbol; if heading or COG data is not available, your position is represented by a solid circle.

The display tells you which orientation and motion mode you are in. For more details, see [page 66](#).

If your position is outside the area of chart currently shown in the chart window, the vessel symbol will not be visible. You can tell the system to locate your vessel and centre the chart display about it.

To locate your vessel

1. Toggle to **SHIP** using the **FIND** softkey.

This puts your vessel on screen, as long as the system has a fix for your location.

5.4 Chart setup

Navionics cartography comes pre-installed on your system. You can also use Navionics chart cards: in that case, the system uses whichever cartography is the latest.

To suit your particular requirements, you can configure how the Chart application displays cartographic data.

There are three ways you can change chart settings:

- Chart Setup Menu.
- Cartography Setup Menu.
- Presentation softkey (see [page 63](#)).

Changes are retained when you power off.

To open the Chart Setup Menu

1. Press the **MENU** key on the display unit.
2. Highlight **Chart Setup**.
3. Press the right-arrow on the trackpad.

FUNCTION	OPTIONS
Object Information	<p>OFF No info pop-up is displayed but detailed data can still be displayed by pressing OK.</p> <p>All ON Displays an information pop-up for all objects.</p> <p>Points ON Displays an information pop-up for objects selected with the cursor only.</p>
Vector Length	<p>Specify a time period for drawing COG and heading vectors.</p> <p>3 Mins 6 Mins Infinite</p>

FUNCTION	OPTIONS
Vector Width	<p>Sets the width of the COG and HEADING chart vector lines.</p> <p>Thin Normal Wide</p>
Record Vessel Track By	<p>Auto System automatically creates track points.</p> <p>Time For track point creation by a specified time.</p> <p>Distance For track point creation by a specified distance.</p>
Track Interval	<p>Option availability depends upon Record Vessel Track By setting.</p> <p>Time Specify time between track points. 2/5/10/30 seconds 1/3/5/10/30 minutes</p> <p>Distance Specify distance between track points. 0.02/0.05/0.1/0.2/0.5/1.0 nm</p>
Datum	<p>See additional information below.</p> <p>WGS 84. List of datum provided.</p>
Chart Offset	<p>Corrects positional errors in cartography.</p> <p>ON OFF</p>

Datum

The Chart application and your paper charts must use the same datum to correlate accurately. The default datum for the display is WGS1984. If that is not suitable, you can change it to one from the set provided under the Datum option on the Chart Setup menu.

If you have a Raymarine GPS attached, it will automatically update when you adjust the datum. If you use a third-party GPS, you need to update its datum separately.

CAUTION: Changing the chart datum does not cause any waypoints or routes stored in the chartplotter to move on the display, although their latitude and longitude changes to reflect the new datum. When you add waypoints to the waypoint list, make sure they are referenced to the same datum.

Chart offset and cartography setup

This feature allows you to move the position of the chart to correct positional errors in the cartography. The adjustment is indicated as a distance north/west (+ve) or south/east (-ve) from your vessel to a maximum of 1000m. An indicator in the chart window tells you when chart offset is enabled.

Restore chart offset to zero when you begin using a chart with the correct georeference.

Please report chart errors to Navionics (see [page 210](#)).

To change chart offset

1. Select **Chart Offset** in the Chart Setup Menu.
2. Toggle **OFFSET** to **ON**.
3. Press the **SET OFFSET** softkey.
4. Adjust the North/South and East/West offset values by pressing the corresponding softkey and using either the trackpad or rotary controller.

To restore chart offset to zero

1. Select **Chart Offset** in the Chart Setup Menu.
2. Press the **SET OFFSET** softkey.
3. Press **CLEAR OFFSET**.

To open the Cartography Setup Menu

1. Press the **MENU** button.

2. Highlight **Cartography Setup**.
3. Press the right-arrow on the trackpad.

FUNCTION	OPTIONS
Chart Display The level of detail shown on the chart.	Simple Detailed Extra detailed
Chart Grid Grid lines of latitude and longitude.	ON OFF
Chart Text Text appearing on the chart e.g. place names etc.	ON OFF
Chart Boundaries The line indicating the extent of the chart.	ON OFF
Spot Soundings Number on the chart indicating depth.	ON OFF
Safety Contour Areas with depths shallower than the specified value are shaded in a darker blue than those areas with depths greater than the specified value.	OFF 7ft 10ft 16ft 20ft 33ft 66ft (Contour always drawn at or deeper than the selected depth).
Depth Contour Set the interval for depth contours.	OFF 16ft 20ft 33ft 66ft ALL
Hide Rocks	ON / OFF

FUNCTION	OPTIONS
Nav. Marks	ON OFF
Nav. Marks Symbols The set of symbology used for navigation marks. Corresponds to paper charts.	International US
Light Sectors The sector of light cast by a fixed beacon.	ON OFF
Caution & Routing Data	ON OFF
Marine Features Cables, nature of seabed points, tide station, current stations and port information.	ON OFF
Land Features The cartographic features that are displayed on the land.	ON OFF
Colored Seabed Areas In available areas (e.g. Portugal) this gives greater definition of seabed.	ON OFF
Background Color The color of background water when there is no Navionics cartography.	White Blue
Business Services The symbols indicating the location of a business	ON OFF
Aerial Photo Overlay The area displaying the aerial photo overlay	On Land and Sea On Land

FUNCTION	OPTIONS
Roads Major coastal roads	ON OFF
Additional Wrecks Extended wrecks data for new wrecks	ON OFF

Chart scale

Use the Range key to change the scale of your chart view. When you zoom in, you see a smaller area of the chart in more detail (larger scale). When you zoom out, you see a greater area of the chart in less detail (smaller scale).

The level of cartographic detail available at different scales varies: some charts provide detail at smaller scales than others.

If you select a chart scale that does not provide cartographic detail for your chosen area, the chart will use the most detailed level available for the surrounding area and stretch it to fit the selected scale. This means that you will never have blank or hatched areas on your screen. However, there could be some misalignment of objects which cross the chart boundary in this area.

Alarms

With the appropriate equipment installed and powered up, the following alarms may be triggered in the chart application:

- System (anchor, timer, alarm clock and temperature)
- Navigation (arrival and off-track)
- Radar (guard zones)
- Fishfinder
- AIS
- Weather

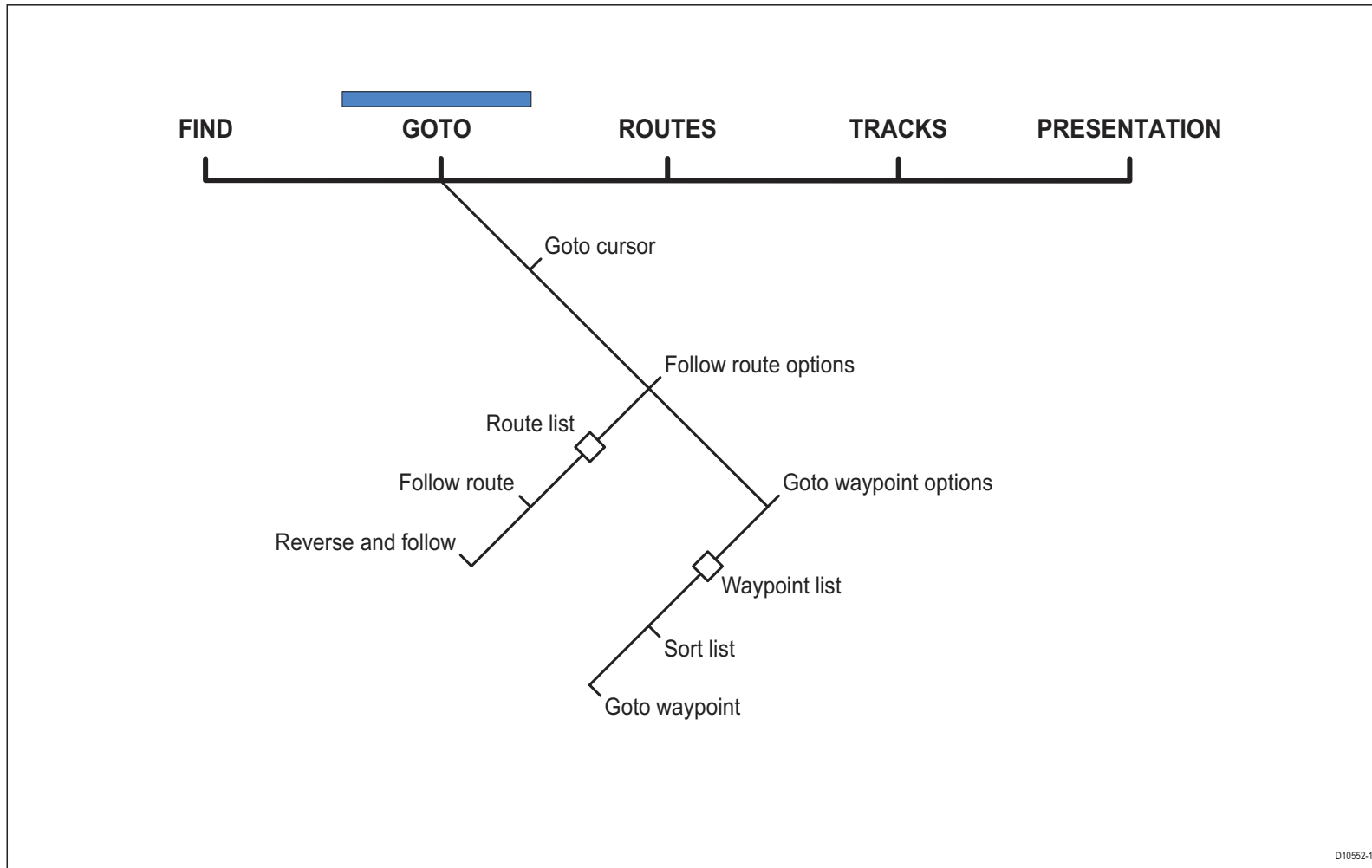
When an alarm is triggered, a buzzer sounds and a pop-up window describing the alarm and how to clear it is displayed. In some cases, appropriate action is taken automatically by the G-Series system. For example, following an arrival alarm, the next route leg is activated.

To configure alarms

1. Press the **MENU** button to open the Setup menu.
2. Select **Alarm Setup**.
3. Choose the appropriate sub-menu.
4. For detailed information about alarm configurations, see *Alarm Setup Menu* on page 194.

5.5 Quick waypoints

The GOTO softkey gives you access to simple navigation functions on the G-Series system and opens the toolbars shown below.



You can place quick waypoints to navigate to from the default chart toolbar using the GOTO softkey. This lets you set a temporary waypoint at the cursor position and track to it. When you reach the

waypoint, it is erased.

The waypoint you set is also visible on the radar display.

The WPTS/MOB button gives you access to more waypoint functions. For information about using it, see *Placing waypoints* on page 38.

Note: To set up and store a route consisting of more than one waypoint, use the ROUTES softkey.

To navigate to the cursor position

1. Move the cursor to the appropriate position.
2. Press the **GOTO** softkey.
3. Press **GOTO CURSOR**.

A waypoint is placed at the cursor's position and data sent to the autopilot (if attached). See [page 85](#) for more information.

Stored waypoints

You can navigate to a previously stored waypoint by selecting it either on the chart with the cursor or from within the waypoint list.

To use the cursor to select a waypoint

1. Move the cursor over the waypoint.
2. Press **GOTO WAYPOINT**.

To select a waypoint from the waypoint list

1. On the Chart application toolbar, press **GOTO**.
2. Press **GOTO WAYPOINT OPTIONS**.
3. In the waypoint list, select the waypoint you want to navigate to.
4. Press **GOTO WAYPOINT**.

To stop navigating to a waypoint

1. Press **STOP GOTO**. (You must press STOP GOTO before you start a new GOTO request.)

Resetting cross-track error

Restarting cross-track error (XTE) is useful if you find yourself off track and want to set a direct course to the target waypoint, rather than returning to your original track.

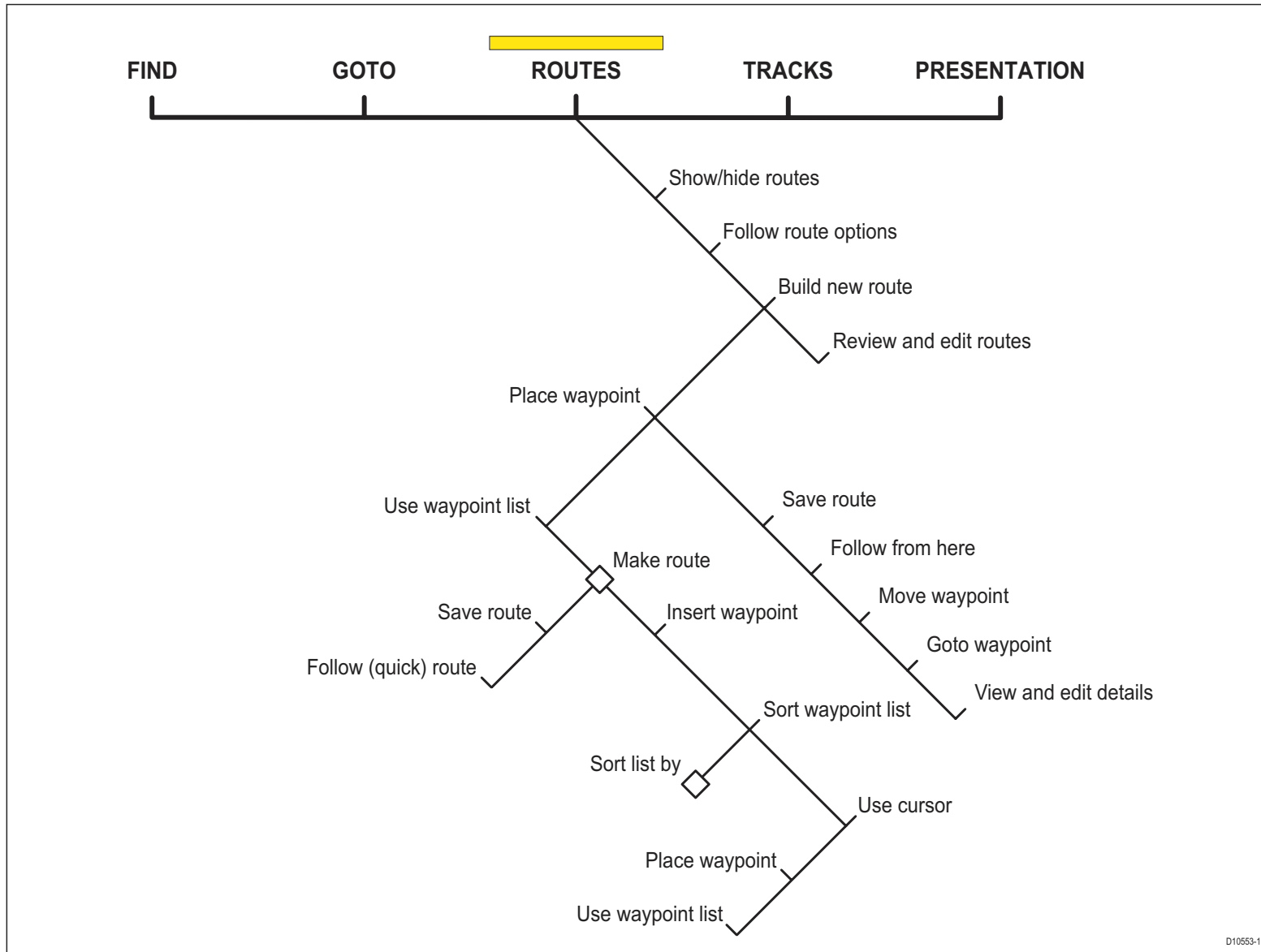
Resetting XTE sets a new course from your current position to the target waypoint.

To reset XTE

1. While you are following a route or navigating to a waypoint, press the RESTART XTE softkey.

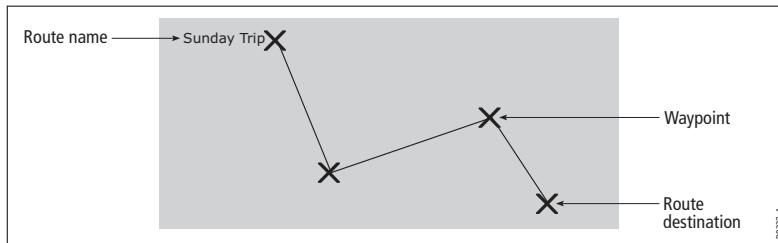
5.6 Building a route

Using routes gives you more flexibility and planning options than the goto feature.



Use the ROUTES softkey to create and manage waypoints that form part of a route. The ROUTES softkey gives you more flexibility than the GOTO softkey; you can build a route for immediate use or build and save a route for later use.

A route can consist of new waypoints, existing waypoints or a combination of both. You can build routes in Chart view, or by selecting waypoints from the waypoint list.



You can store up to 150 routes, each consisting of up to 50 waypoints. As you add each waypoint it is automatically assigned an index number corresponding to its position in the route. It is represented on the chart by whichever waypoint symbol you have specified.

- While a route is being built it is not active and does not affect any current navigation.
- You can include a waypoint more than once in a route.
- You can create a new route when the route list is full but, upon saving it, you will be prompted to choose an existing route to overwrite.
- You cannot save a new route if any of the waypoints within it are currently active: make an active route inactive if it contains a waypoint you want to re-use in a new route.
- The way in which the **OK** and **CANCEL** buttons operate is different when you are building and editing routes (see below).

Building a route in chart view

The chart view lets you build a route from existing waypoints or by placing new waypoints.

To build a route using new waypoints

1. Press the **ROUTES** softkey.
2. Select **BUILD NEW ROUTE**.
3. Position the cursor where you want to place a waypoint.
4. Press **PLACE WAYPOINT**.
5. Repeat steps 3-4 to build the set of waypoints needed for your route.
6. Press **SAVE ROUTE** or **FOLLOW (QUICK) ROUTE**.

To build a route using existing waypoints

1. Press the **ROUTES** softkey.
2. Select **BUILD NEW ROUTE**.
3. Highlight the waypoint you want to use in your route.
4. Press **USE THIS WAYPOINT**.
5. Repeat steps 3-4 to build up your set of waypoints.
6. Press **SAVE ROUTE** or **FOLLOW (QUICK) ROUTE**.

Building a route from the waypoint list

To build a route from the waypoint list, you first need to place the waypoints you will need.

To build a route using the waypoint list

1. Press the **ROUTES** softkey.
2. Select **BUILD NEW ROUTE**.
3. Press **USE WAYPOINT LIST**.
4. Select the waypoint you want to use in the route.
5. Continue to select waypoints until your route is complete.

Making changes to your route

If you make an error while building a route you can:

- Undo the last waypoint (chart view only).
- Delete a waypoint from the route list (waypoint list only).
- Abandon the route build.

To remove waypoints from a route in chart view

1. Highlight the waypoint you want to remove from your route.
2. Press the **UNDO WAYPOINT** softkey.

The waypoint and the route to it are removed from the screen and the cursor moves back to the previous waypoint.

To remove waypoints from a route in waypoint list view

1. Highlight the waypoint you want to remove from a route.
2. Press **REMOVE WAYPOINT**.

To abandon the route build completely

1. In chart view or in waypoint list view, press **CANCEL**.
2. Confirm by pressing **YES**.

Saving your route

Once you have built your route, you can:

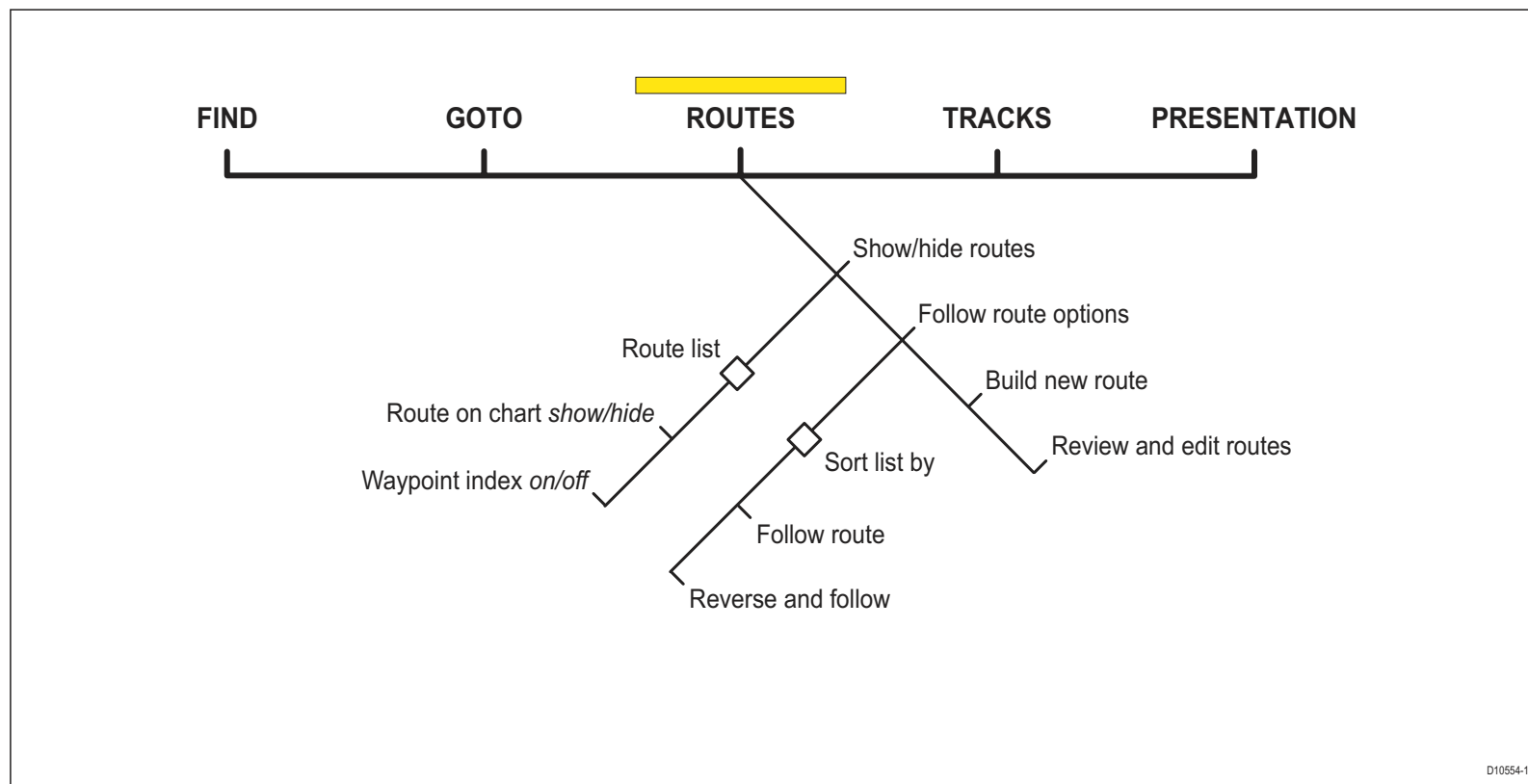
- Save and immediately follow the built route.
- Save the route for later use (and rename it if required).

A route that is saved and immediately followed is referred to as a Quick Route. If a Quick Route already exists, it is overwritten unless you rename it (see [page 58](#)).

To save a route

1. Press the **SAVE ROUTE** softkey.
2. To assign the route a name and color, press the appropriate softkey; press **OK** to accept the defaults.

Following routes



You select a route to follow either by highlighting it with the cursor or by selecting it within the routes list. When you begin to follow a route it becomes **active** and is shown on all chart windows and on all Nav Stations.

To select a route to follow with the cursor

1. Move the cursor over either the route line or waypoint symbol.
2. Press the **FOLLOW THIS ROUTE** or **FOLLOW FROM HERE** softkey.

To select a route to follow in the routes list

1. Press either the **GOTO** or **ROUTES** softkey.
2. Press the **FOLLOW ROUTE OPTIONS** softkey.
3. On the Route List menu, select the route you want to follow.
4. Press the **FOLLOW ROUTE** or **REVERSE AND FOLLOW** softkey.

To stop following a route

1. Press the **STOP FOLLOW** softkey.

Arriving at a waypoint

When the distance to the next waypoint in the route is less than that specified for the arrival alarm radius (see [page 194](#)), or your boat reaches the closest point of approach to the target (defined by a line passing through the waypoint and perpendicular to the route leg), a warning dialog is displayed and an alarm sounds (see [page 48](#)).

When you acknowledge the alarm, the system selects the next waypoint in the route and begins navigating to it.

Follow in reverse order

This option reverses the waypoint order (the last waypoint in the route becomes the first) and renumbers the waypoints accordingly. The route name moves to the reassigned first waypoint and then the system automatically activates the reverse-follow route function.

Advance waypoints

You can tell the system to ignore the next waypoint in your route, and advance directly to the waypoint after it.

To skip the next waypoint

1. Highlight the route with the cursor, or press the **GOTO** softkey.
2. Press the **ADVANCE WAYPOINT** softkey.

Note: If the next waypoint is also the last in the route, pressing **ADVANCE WAYPOINT** takes you to the first waypoint in the route.

Cross-track error

Resetting the cross-track error (XTE) produces a new course from your position to the target waypoint.

This is useful if you find yourself off course and want to go straight to your target, rather than get back onto the original track.

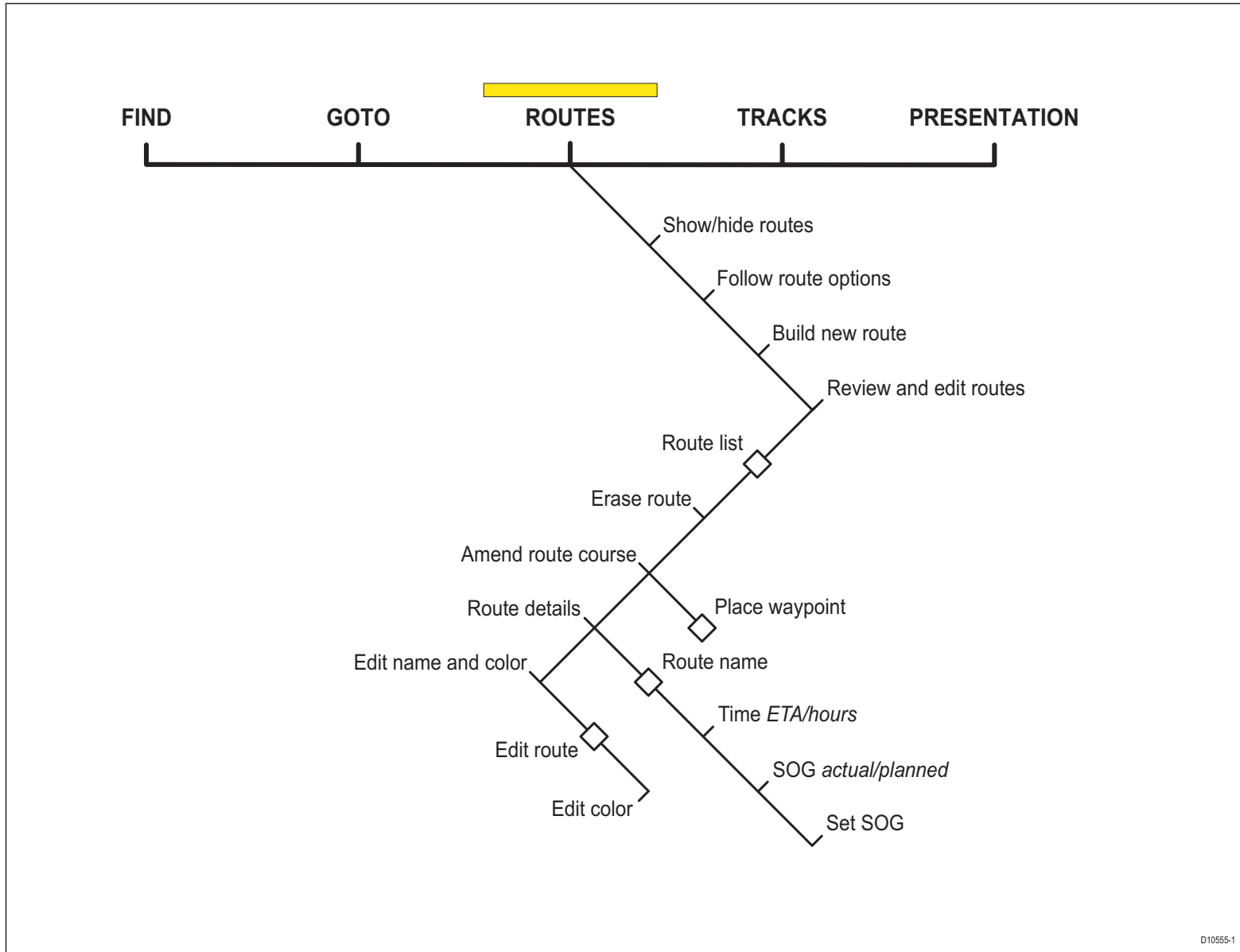
Although **RESTART XTE** causes your vessel to change course, it does not affect the saved route.

To restart cross-track error

1. With a route active, press the **RESTART XTE** softkey.

Editing routes

When you have built and saved a route, you can make updates or changes to it if necessary.



You can edit a route in a variety of ways. You can:

- Change the course of a route.
- Change the name of a route.
- Change the color of a route.
- Erase a route.

To select the route to edit

1. Highlight the route on the chart display using the cursor.
2. Press the **REVIEW AND EDIT THIS ROUTE** softkey.

or

1. Open the Routes List by pressing **ROUTES** followed by the **REVIEW AND EDIT ROUTES** softkey.

Editing active routes

An active route is one that the system is currently following.

All parts of an active route can be edited, except for the current target waypoint. If a waypoint becomes active (becomes the waypoint you are navigating to) while you are editing it, the system cancels the edit and the waypoint's details remain as originally set.

Adding waypoints

You can add existing waypoints to the route, or set up new waypoints and add them to the route.

To add an existing waypoint to the route

1. Press the **AMEND ROUTE COURSE** softkey.
2. Press the **USE WAYPOINT LIST** softkey.
3. In the right-hand column, highlight the position for the added waypoint.
4. In the left-hand column, highlight the waypoint you want to add to the list.
5. Press the **INSERT WAYPOINT** softkey.
6. Press the **SAVE ROUTE** softkey.

To create and add a new waypoint

1. Highlight the route you want to add a waypoint to.
2. Press the **INSERT WAYPOINT** softkey.
3. Move the cursor to the position of the new waypoint.
4. Press **PLACE WAYPOINT**.

Moving waypoints

When you move a waypoint, its new position is updated in all routes that use it.

To move a waypoint

1. Highlight the waypoint you want to move.
2. Press the **MOVE WAYPOINT** softkey.
3. Drag the waypoint to its new position.
4. Press **OK**.

Removing waypoints

You can remove a waypoint from a route, as long as it is not part of another route. If you try to remove a waypoint that is used in another route, the system will warn you that it cannot be removed.

To remove a waypoint

1. Highlight the waypoint you want to remove.
2. Press the **REMOVE WAYPOINT** softkey.

Changing a route's name or color

If you have many routes stored in your system, it can be useful to give them individual names or mark them with a color of your choice.

If the route was saved by the G-Series system with the name Quick Route, changing its name will prevent it being overwritten by your next quick route.

To change a route's name or color

1. Select the route you want to edit.
2. Press the **EDIT NAME AND COLOR** softkey.
3. Select **EDIT NAME** or **EDIT COLOR**.
4. Make your desired changes to the route's details.
5. Press **OK**.

Erasing a route

You can delete any route in your system except for the one that you are following. When you erase a route the system deletes waypoints that are used by that route only. Waypoints that are used by other routes are not deleted.

To erase a route

1. Select the route you want to delete.
2. Press the **ERASE ROUTE** softkey.

You can also erase all or selected routes, using the **ARCHIVE & TRANSFER** function.

Timed routes

Details of all the routes you create are held in the Route List.

You can use the route list, in conjunction with the **TIME** and **SOG** options, to display journey time in hours or as an ETA, and the **SOG** as actual or planned.

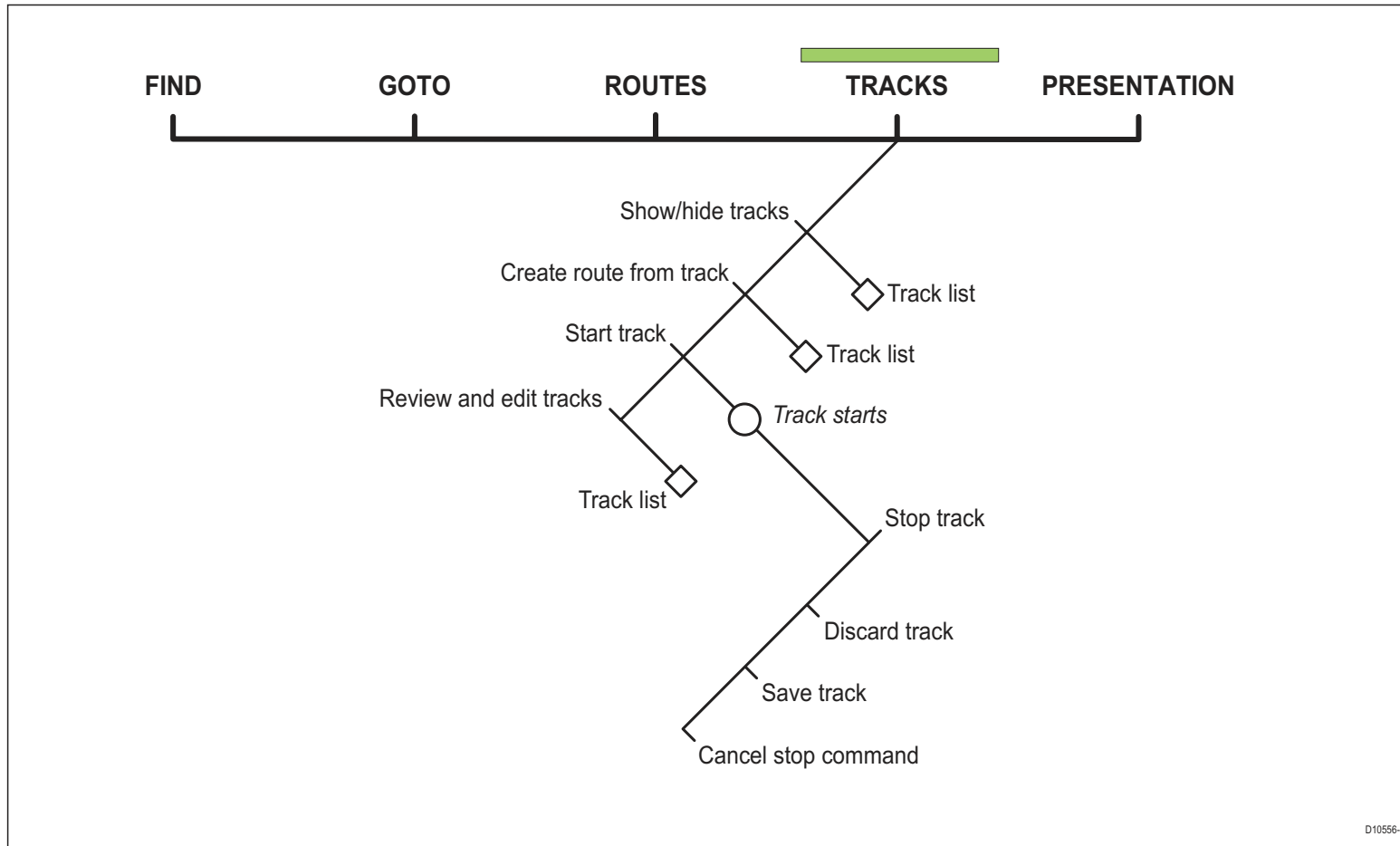
If the route is active, the data is updated to show bearing, distance and time from your current position.

To view TIME and SOG data

1. Select a route with the cursor or from the Routes List.
2. Press the **ROUTE DETAILS** softkey.
3. Toggle the **TIME** and **SOG** settings as required on the appropriate softkeys.

5.7 Tracking your progress

The TRACKS softkey opens the toolbars shown below.



About tracks

A track is a line that shows the course of your journey. With tracks enabled, the G-Series system stores track points as you progress and automatically joins them up on screen to create the track.

You can save the track to review your journey at a later date or to retrace it. You can convert a track to a route, enabling its use with the navigation options of the chart application. You can save up to 15 tracks in the system, with 3000 track points in each.

You can personalize track options to suit your requirements:

- Rename a track.
- Change the color of a track.
- Specify the time between track points.
- Specify the distance between track points.

Note: The smaller the track interval, the more points a track will use.

Creating a track

There is a maximum number of tracking points that can be stored by the G-Series system. It will warn you if your track uses the maximum number of track points and, if you continue to record your track, start to overwrite the earliest track points with newer ones.

To start recording a track

1. Press the **TRACKS** softkey.
2. Press the **START TRACK** softkey.

To stop recording a track

1. Press the **TRACKS** softkey.
2. Press **STOP TRACK**.
3. Choose between **SAVE TRACK** and **DISCARD TRACK**.

Creating a route from a track

When a track is converted to a route, the system recreates the course of your recorded journey using the minimum number of waypoints.

Each waypoint created is saved with the depth and temperature data (if applicable) for that position.

On completion, the maximum deviation of the route from the recorded track is displayed and the new route is added to the route list. You can use it in the same way as all your other routes.

Note: If the power fails while a track is being recorded, or if the position fix is lost, a break will occur in the track. Only the last contiguous segment of a track can be converted into a route.

CAUTION: Before following the route, ensure that it is safe for navigation, noting that it may deviate from your actual path travelled.

To create a route from the current track

This method will take a 'snapshot' of the track to date, convert it to a route and then continue laying the track:

1. Highlight the track with the cursor.
2. Press the **CREATE ROUTE FROM TRACK** softkey.
3. Press **YES** to give the route a name or **NO** to store the route with the next default route number.

To create a route from a saved track

1. Press the **TRACKS** softkey.
2. Press the **CREATE ROUTE FROM TRACK** softkey to open the Track List.
3. Select the track you want to convert.
4. Press **CREATE ROUTE FROM TRACK** again.

Editing and deleting tracks

To change the name and color of a track, or to delete a stored track, you need to use the Review and Edit Tracks function. First you select the track to edit or delete, then you make the changes you want.

To select a track for editing

1. Highlight the track to edit on screen.
2. Press the **REVIEW AND EDIT TRACKS** softkey.

or

1. Open the Track List by pressing the **TRACKS** softkey followed by the **REVIEW AND EDIT TRACKS** softkey.

You can now choose to edit the name and color of the track, or to delete it from the system.

5.8 Heading and course information

You can display a variety of graphical indicators to help monitor your progress:

- HDG vector
- COG vector
- Wind arrow
- Tide arrow
- Course deviation indicator

Heading and course-over-ground vectors

Your vessel's heading (HDG) is displayed as a line with an open arrow head. It does not take account of winds or tides. The course over ground (COG) indicator shows your vessel's actual course. It is displayed as a line with two open arrow heads.

The length of these lines is determined by the distance your boat will travel in the time you have specified (3 mins, 6 mins or infinite) in the Chart Setup Menu (see [page 46](#)) at the current speed.

Any times that you specify apply to all chart views and if INFINITE is selected the vector will extend to the edge of the chart window.

Note: If either the speed over ground or heading data are unavailable, vectors cannot be displayed.

Wind and tide arrows

Wind and tides are displayed as lines with solid arrow heads in the direction of the wind or tidal set. Wind arrows point into your boat and tidal arrows point away. The width of the arrow indicates strength.

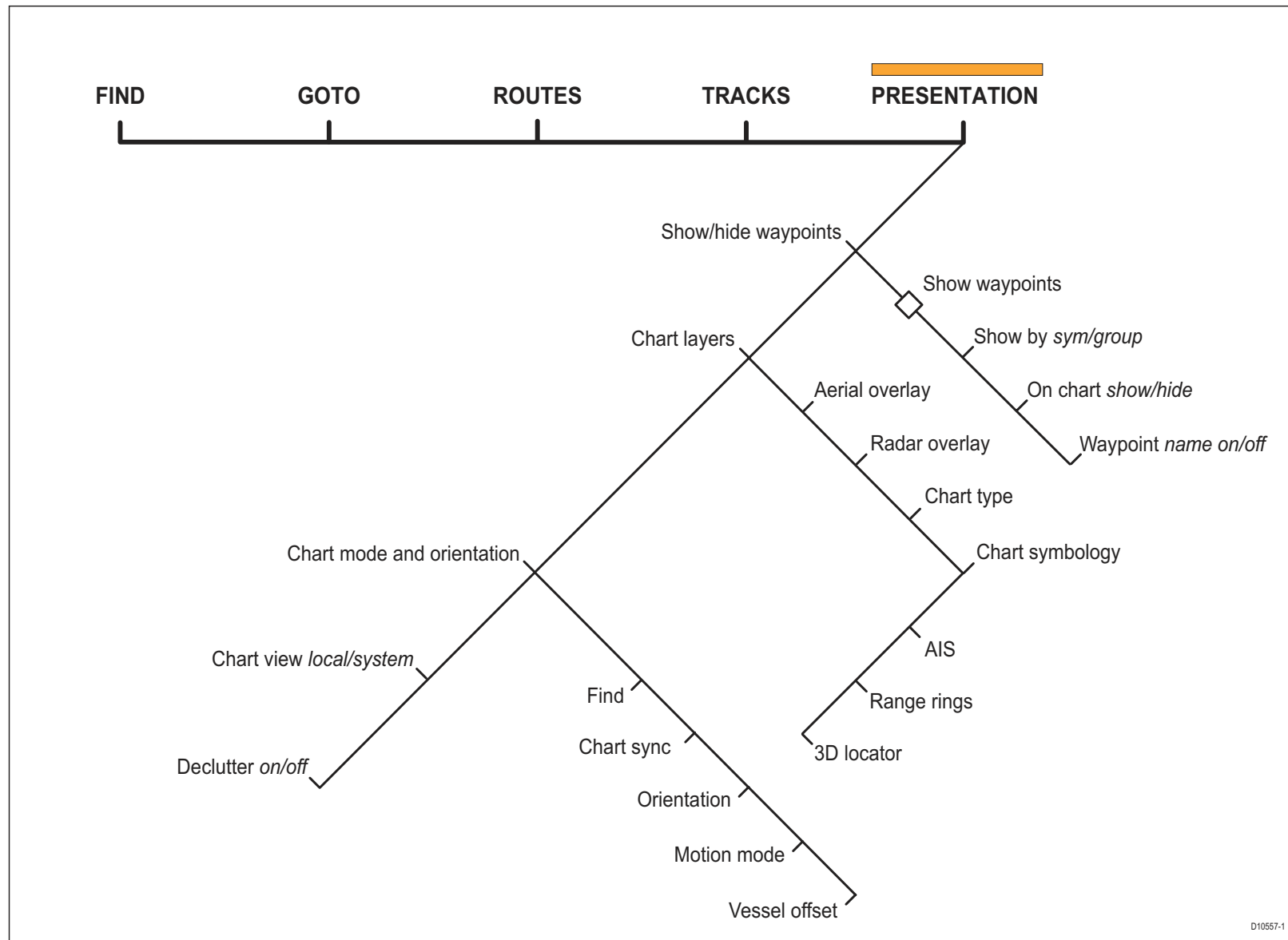
For the wind arrows feature to work, you must have a wind instrument enabled. For tide arrows, you need a GPS and speed through water instrument.

To use graphical indicators (arrows)

1. Press the **DATA** button.
2. Press the **CHART VECTORS** softkey.
3. Toggle graphical indicators to the required setting on the appropriate softkeys.

5.9 Presentation options

The PRESENTATION softkey gives you control over how data is displayed on a chart window. It opens the toolbars shown below.



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5.10 Showing and hiding waypoints

This option lets you specify which waypoints are displayed on the screen. You can show all waypoints, or display them by symbol or group.

The latter options are useful if you have many waypoints placed in a small area, which can clutter the chart.

Note: The show/hide status of a waypoint is a local setting and will therefore only affect the individual display on which you are working.

To show or hide waypoints by group or symbol

1. Press the **PRESENTATION** softkey.
2. Press **SHOW/HIDE WAYPOINTS**.
3. Toggle between **SYM** and **GROUP** on the **SHOW BY** softkey.
4. Select the relevant group and toggle its setting to **SHOW** or **HIDE** on the **ON CHART** softkey.

To show or hide waypoint names

1. Press the **PRESENTATION** softkey.
2. Press **SHOW/HIDE WAYPOINTS**.
3. Toggle to the required setting with the **WAYPOINT NAME** softkey.

To show or hide waypoint index numbers

1. Press the **ROUTES** softkey.
2. Press **SHOW/HIDE ROUTES**.
3. Toggle settings with the **WAYPOINT INDEX** softkey.

5.11 Chart layers

You can overlay data onto a chart window to give greater depth of information. You can overlay radar, AIS or range rings.

Radar overlay

Overlaying the chart image with radar data allows for better distinction between stationary and moving objects. For best results, switch on radar-chart synchronization.

You can customize the opacity setting for the overlaid image by twisting the rotary controller.

If you have two radar scanners installed, select which one you want to use for the overlay in the setup menu.

Note: A radar image cannot be overlaid onto a chart window if dual-range is enabled in the radar application.

To switch radar overlay on or off

1. Press the **PRESENTATION** softkey.
2. Press **CHART LAYERS**.
3. Toggle radar overlay on or off with the **RADAR OVERLAY** softkey.

To access radar and navigation options from the chart application

1. Press **OK** twice.
2. Select **RADAR** options or **NAVIGATION OPTIONS** with the appropriate softkey.

Using radar with the chart

You can combine the chart view with the following radar features:

- Radar range synchronization
- MARPA
- Radar overlay

Synchronizing chart scale with radar range

When synchronization is switched on:

- The radar range changes to match the chart scale.

- 'Sync' is indicated in the top left-hand corner of the chart window.
- If you change the radar range in any radar window, all synchronized chart views change scale to match.
- If you change the scale of a chart window, all radar windows change range to match.

To set radar range synchronization

1. Press the **PRESENTATION** softkey.
2. Press the **CHART MODE AND ORIENTATION** softkey.
3. Select the appropriate synchronization mode on the **CHART SYNC** softkey.

Note: Radar range synchronization is not available when the chart motion mode is set to Autorange. The chart can be synchronized with either the 3D chart or the radar but not both. You cannot sync with radar if dual range is enabled in the radar application.

Viewing MARPA targets on the chart

The Mini Automatic Radar Plotting Aid (MARPA) function is used for target tracking and risk analysis. Although set up in radar mode or radar overlay, all MARPA targets are displayed in the chart window, from which you can also access MARPA functions.

For detailed information about MARPA, see [page 152](#).

To access MARPA controls from the chart application

1. Highlight a MARPA target with the cursor.

or

1. If radar overlay is switched on, press the **RADAR OPTIONS** softkey.
2. Press the **TARGET TRACKING** softkey.

Radar options:

- Target tracking
- Gain

- Target display
- Change range (using the Range button)

Navigation options:

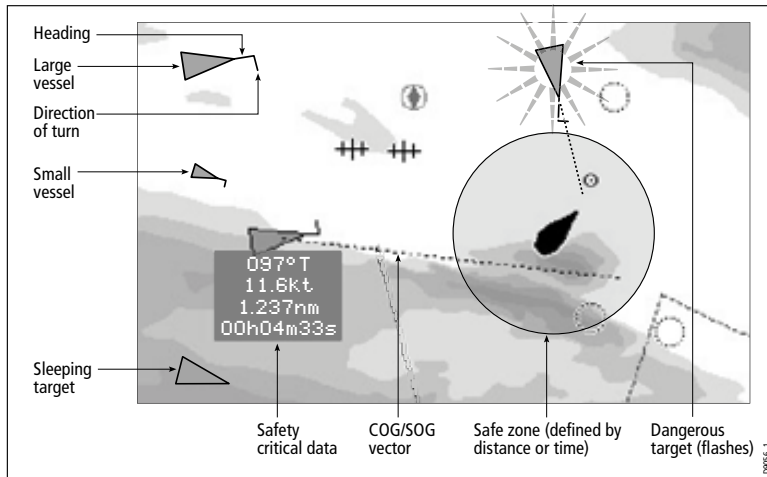
- Route
- Track

AIS

If you have an automatic identification system (AIS) fitted to your vessel, you can use it to:

- Display the position of other craft which are appropriately enabled with AIS.
- Display broadcast AIS information from appropriately-equipped vessels including position, course, speed, rate of turn and other safety-critical data.
- Set up a safe zone around your vessel.
- Receive AIS alarms and safety-related messages.

This information is displayed in an overlay. Additional data, when available, is displayed in a dialog box.



For more information about how to use AIS, see *Chapter 12:Automatic Identification System* on page 157.

To switch AIS overlay on or off

1. Press the **PRESENTATION** softkey.
2. Press **CHART LAYERS**.
3. Toggle the **AIS LAYER** setting to **ON** or **OFF**.

Range rings

Range rings give you an incremental representation of distance from your vessel to help you judge distances at a glance. The rings are always centred on your vessel, and the scale varies to suit your current zoom setting. Each ring is labelled with the distance from your vessel.

To turn range rings on or off

1. Press the **PRESENTATION** softkey.
2. Press the **CHART LAYERS** softkey.
3. Select **RANGE RINGS ON/OFF**.

5.12 Chart mode and orientation

Mode settings control how the chart displays information. You can synchronize the chart display with the radar application; set how movement is represented; set the position of your vessel's representation on-screen, and choose your preferred chart orientation.

Find

This is a shortcut softkey that has the same effect as the FIND key on the default toolbar. It centers the chart display on either the cursor or your vessel.

Orientation

Orientation settings control the way the chart is drawn in relation to your vessel's position and course.

North Up (N-up)

In North Up mode, the chart is static and oriented with true north upwards. As your heading changes, the boat symbol rotates accordingly. This is the default mode.

Heading Up (H-up)

In Heading Up mode, the on-screen representation of your vessel remains static, with your current heading facing upwards. When you change heading, the chart rotates accordingly.

You cannot select Head Up when the motion mode is set to True.

To prevent continual chart rotations as the boat yaws, the chart will only update when your heading changes by at least 10 degrees.

Course Up (C-UP)

In Course Up mode, the chart is static and oriented with your current course upwards. When you change heading, the ship symbol moves accordingly. If you select a new course, the chart will reset to display the new course upwards.

The reference used for Course Up depends upon the data available at a given time. The system prioritizes data in the following order:

1. Bearing from origin to destination, i.e. intended course.
2. Locked heading from an autopilot.
3. Bearing to waypoint.
4. Instantaneous heading.

If heading data becomes unavailable while in this mode, a warning message is shown and the chart shows 0° heading in relative motion mode.

To set the chart orientation

1. Press the **PRESENTATION** softkey.
2. Select **CHART MODE AND ORIENTATION**.
3. Toggle to your preferred option on the **ORIENTATION** softkey.

Motion mode

The motion mode controls how your vessel's progress relative to the chart is represented on screen. There are three options on the motion mode softkey:

- Relative motion (RM)
- True motion (TM)
- Autorange (AR)

When you pan the chart or use Find Cursor, the motion mode is suspended. This is indicated in the status bar by putting the motion name in parentheses. Manually changing the range in autorange also suspends motion mode.

When a chart window is set to SYSTEM view the motion mode will be set but not synchronized across other system view windows.

Relative motion

The default motion mode is **relative motion**. In this mode, the chart is redrawn relative to your position as you make progress, so that your vessel is always shown in the same place on the screen. The position in which your boat is shown on-screen can be altered with the vessel offset option.

True motion (TM)

When the motion mode is set to **true motion**, the chart view remains static and your vessel is shown moving across it as you make progress. As your position approaches the edge of the screen, the chart display is redrawn to include the area ahead of you.

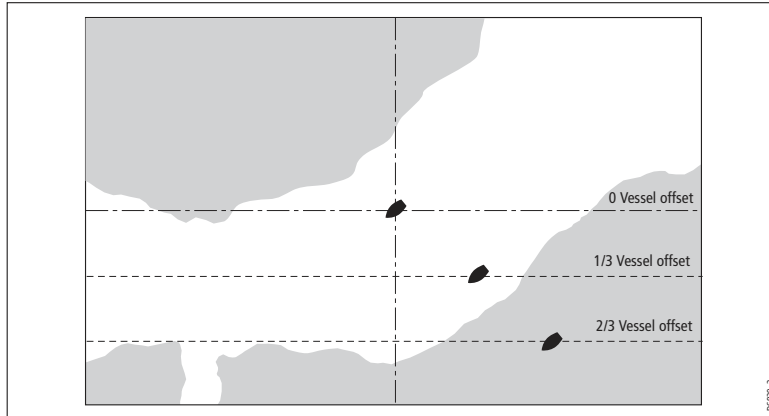
You cannot select True Motion when the orientation is set to Head Up.

Autorange

Autorange selects and maintains the largest possible scale of chart that will display both your vessel and your target waypoint. Autorange is not available if radar-chart synchronization is on.

Relative motion with optional vessel offset

In relative motion mode you can specify whether the boat is fixed in the centre of the window (0 offset, default) or offset by 1/3 or 2/3. The latter options give you a greater view ahead of your position.



5.13 Chart view

The chart application defaults to system view which means the following settings apply to all nav stations in your system:

- Chart mode and orientation
- Chart layers (aerial, radar, 3D locator and AIS)
- Synchronization (radar/chart and 3D/chart)
- Show/hide waypoints, routes and tracks
- Declutter
- Vectors

If you change any of these options in one window, ALL system windows will update.

When local chart view is selected the presentation for each window is set independently.

To define how the chart windows are presented

1. Toggle between **LOCAL** and **SYSTEM** on the **CHART VIEW** softkey.

5.14 Chart detail

You can adjust the level of detail shown on the chart by choosing to show or hide certain features.

To show or hide routes and tracks

1. Highlight a route or track and press the **HIDE** softkey.

or

1. Open the Route or Track list.
2. Highlight a route or track in the list.
3. Toggle between **SHOW** and **HIDE** settings with the **ROUTE ON CHART** or **TRACK ON CHART** softkey.

Note: The active route is always displayed irrespective of the display status.

Decluttering the chart view

Sometimes a large number of cartographic objects in a particular area can render the chart view difficult to read. You can reduce the amount of detail by de-cluttering the chart display. Turning declutter on hides the following cartographic objects:

- Text
- Chart boundaries
- Spot soundings
- Depth contours
- Light sectors
- Caution and routing data
- Land and marine features
- Business services (if available on your cartography)

To turn declutter on or off

1. Press the **PRESENTATION** softkey.
2. Toggle between **ON** and **OFF** with the **DECLUTTER** softkey.

If decluttering does not hide a particular feature, you can hide features individually from the Cartography Setup menu.

5.15 Journey planning

Navionics chart data is preinstalled on the GPM400. The data provides you with some or all of the following information:

- Details for cartographic objects, including source data for structures, lines, open sea areas etc.
- Details of ports, port and business services.
- Tide and current information.
- Wrecks and obstructions.
- Panoramic photos.
- Aerial photographs.
- Pilot books.
- Coastal roads.
- For full details of the features available, refer to the Navionics website at www.navionics.com or www.navionics.it

Some Navionics data provide detailed bathymetric information in addition to standard chart information. You can choose between the standard chart view, or the view displaying bathymetric contours.

To display bathymetric information

1. Press the **PRESENTATION** softkey.
 2. Press the **CHART LAYERS** softkey.
 3. Press the **CHART TYPE** softkey to toggle between **FISH** and **NAV** options.
- The **FISH** option displays bathymetric information.
 - The **NAV** option displays the standard chart view.

If you select **FISH** and no data is available for your current position, the databar displays (FISH) to indicate that you are in that mode but without data.

Displaying details for objects and features

Many objects shown on the chart have detailed information associated with them. Some of this information displays automatically whenever you highlight the object with the cursor.

Depending on the object type, its additional information might allow you to:

- Locate the nearest waypoint, port, port service, tidal and current stations, wreck or obstruction, to the selected position.
- Search for a named port.
- View detailed data for the selected port, tidal station or current station.
- View panoramic photographs.

To view detailed object information

1. Move the cursor over an object. If basic information exists for the object, it will be displayed (unless deactivated in the setup menu).
2. Press **OK**.
3. Detailed information for the object is displayed.

To change the set-up options for object information, see [page 46](#).

Finding nearby features and services

You can locate the nearest waypoint, port, port service, tidal and current stations, wreck or obstruction, to the cursor position.

To find nearby features and services

1. Move the cursor to the relevant position.
2. Press **OK**.
3. Press the **FIND NEAREST** softkey.
4. Select the appropriate options from the on-screen lists.

Once located, you can use the softkeys and trackpad to:

- Display detailed data for services at the listed ports.
- Show the selected item on the chart.

- GOTO the selected waypoint.
- View tidal/current data for the selected tidal/current station.

Static tide and current data

You can display tide and current information using the FIND NEAREST function. Alternatively, you can display tide and current data by highlighting the appropriate diamond on screen.

This method provides information including tidal and current curves, and lets you select data by date and time.

To show data using tide and current diamonds

1. Highlight the appropriate diamond with the cursor.
2. Press **OK**.
3. Press the **DATA** softkey.

Animated tide and current data

Animated tide and current data is available. The animations provide a visual cue to the movement of currents and tides for times you specify.

You can set the date for the animation and choose to see the whole animation from the beginning or start it at any point within a 24-hour period. You can also choose to view the animation continuously or to step through it incrementally.



To view animated tide and current data

1. Highlight a tide or current diamond.
2. Press **OK**.
3. Press the **ANIMATE** softkey.

The Tide/Current Animation screen opens with animation paused.

- Press the **ANIMATION PLAY/PAUSE** softkey to start animation.

The time and date of the animated data are displayed on the status bar; the animation starts from the current time.

Controlling animation

When you open the Tide/Current Animation screen, the toolbar provides softkeys to stop and start the animation; step the animation forwards or backwards in time; set the size of the step, or select a date for the animation.

The animation plays in a loop: when it reaches the end of a 24-hour animation period, it starts again at the beginning.

To start or stop the animation

1. Press the **ANIMATION PLAY/PAUSE** softkey.

To view the animation in steps

1. Press either the **STEP BACK** or **STEP FWD** softkey.

To set the step interval

1. If the animation is playing, press **PAUSE**.
2. Press the **SET TIME INTERVAL** softkey.
3. Use the rotary controller to adjust the time interval (within the range of 15 to 120 minutes).
4. Press **OK** or **CANCEL** to save the new interval.

To set the animation date

1. Press the **SET DATE** softkey:

TODAY'S DATE	Set the animation date to the current date.
PREV DATE	Set the animation date to 24-hours previous to current date.
NEXT DATE	Set the animation date to 24-hours ahead of current date.
EDIT DATE	Opens the Edit Date pop-up screen: use the trackpad or rotary controller to enter the date you want to see an animation for.

2. Press **OK** to save the new date and return to the Tide/Current Animation screen, which will update to display the tide or current for the date you chose.

Press **CANCEL** to ignore the date change and go back to the Tide/Current Animation screen, leaving the date setting unchanged.

Port services

You can display details of port services by using the FIND NEAREST function. Alternatively, you can use either of the methods below.

To display port services

1. Highlight a port symbol.
2. Press **OK**.
3. Highlight a service.
4. Press the **VIEW DETAILS** softkey.

or

1. Press **OK**.
2. Press the **SEARCH BY NAME** softkey.
3. Press **EDIT NAME**.
4. Enter the port name (or the first few characters of the port name).
5. Press **SEARCH**.
6. If the search returns more than one port, select the port you are interested in.
7. Select your service.
8. Press the **VIEW DETAILS** softkey.

Pilot book information

The pilot book information option enables you to view detailed information normally contained in a nautical pilot book.

To view pilot book information

1. Highlight a port symbol.
2. Press **OK**.
3. Select Pilot Book and press **VIEW PILOT BOOK**.
4. Use the toolbar to navigate around the pilot book.

Panoramic photography

You can view panoramic photography of many ports and marinas. The availability of photography is indicated by a camera symbol on the chart, placed at the point the photograph was taken. The view-point is indicated by the angle of the camera symbol. You can also access photography from port services information.

To display panoramic photography

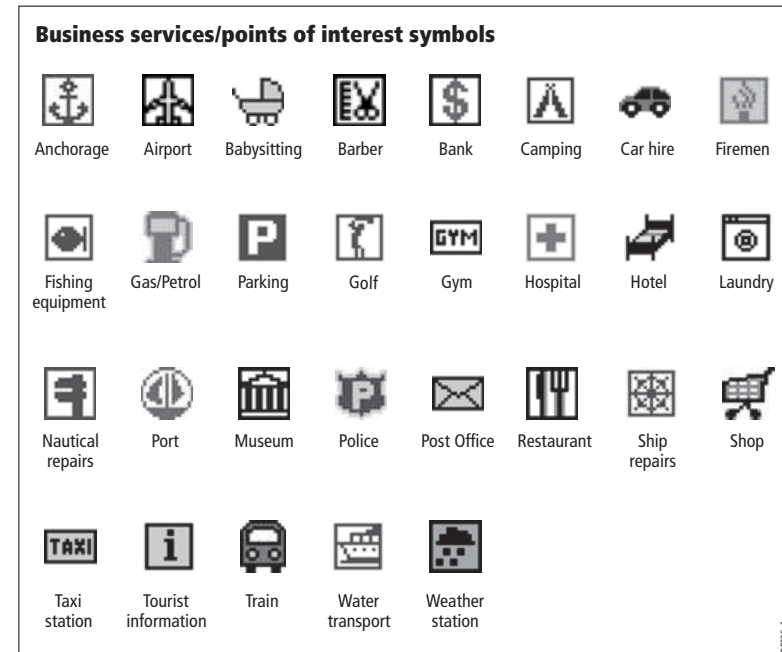
1. Highlight a port symbol.
2. Press **OK**.
3. In the Object Info popup, select **Photos**.
4. Select a numbered photograph from the list.
5. Press the **VIEW PHOTO** softkey.

or

1. Hotspot a camera symbol.

Business services and points of interest

The location of various business services and points of interest are indicated by the following symbols:



Highlighting any of the above service symbols gives you the following information about the business:

- Name
- Address
- Telephone number
- Type of business

You can switch off the business services symbols from the Cartography Setup Menu, or by switching on chart declutter.

Aerial photography

Aerial photography is available for navigable waters up to three miles inland. Beyond that, land is shown in green (on color charts) and in gray (on black-and-white charts).

To overlay aerial photography

1. Press the **PRESENTATION** softkey.
2. Press **CHART LAYERS**.
3. Toggle **AERIAL OVERLAY** to **ON** or **OFF** as appropriate.
4. Use the rotary controller to adjust overlay opacity.

Overlay opacity

The opacity level controls how visible the underlying chart view is with photography overlaid. The higher the setting, the stronger the overlay.

Overlay area

You can specify whether the aerial photographic overlay is displayed for land areas only, or for land and sea areas.

- **On Land** displays a normal chart view for sea areas and overlays aerial photography on areas of land. This can help you interpret your surroundings while keeping important navigational data visible.
- **On Land and Sea** displays aerial photography of both land and sea areas. This can help you distinguish between deep and shallow water (dark blue and light blue, respectively), and to view land features simultaneously.

To specify the overlay area

1. Open the **Cartography Setup Menu**.
2. Select **Aerial Photo Overlay**.
3. Choose your preferred setting.

5.16 Measuring distance, range and bearing

Options for measuring distance, range and bearing are outlined in the table below.

Functions	Distance between points	Range from vessel	Bearing
Range Rings	Yes (approx.)	Yes (approx.)	-
Cursor position	-	Yes	Yes
Ruler	Yes		Yes

Cursor position

You can determine the exact position, distance and bearing to the position of the cursor by referring to the cursor position (Csr Pos) data in the databar.

Ruler

The chart application includes a ruler which accurately measures the distance and bearing between two points.

To use the ruler

1. Position the cursor at the start-point of the measured distance.
2. Press the **DATA** button.
3. Press the **RULER** softkey.
4. Move the cursor to the end-point of the measured distance.
5. Press **OK**.

To move the ruler

1. To move the **start-point**, press **ADJUST A**.
2. To move the **end-point**, press **ADJUST B**.

To clear the ruler

1. Press **DATA**.
2. Press the **RULER** softkey.
3. Press **CLEAR RULER**.

Chapter 6: 3D Chart

The 3D chart gives you an accurate, three-dimensional view of the area around your vessel. This can help you navigate more confidently if the area is new to you or if visibility is poor.

Navigation functions are available in the 3D chart.

Chapter contents

- [6.1 Safety notice on page 76](#)
- [6.2 3D chart requirements on page 76](#)
- [6.3 Setting up the 3D chart on page 76](#)
- [6.4 The 3D chart view on page 76](#)
- [6.5 Operation modes on page 77](#)
- [6.6 Using the 3D chart on page 78](#)
- [6.7 Presentation options on page 80](#)
- [6.8 Tuning the view on page 81](#)
- [6.9 Using the standard and 3D charts together on page 83](#)
- [6.10 Aerial photography overlay on page 84](#)

See also...

- [The Chart Application on page 43](#)
- [Using Waypoints on page 35](#)


6.1 Safety notice

The 3D chart is an aid to visualization only. Always check your normal charts to ensure your route is safe.

Until you are familiar with interpreting the 3D chart display, take every opportunity to compare what you see on-screen with your actual surroundings. Practice harbour and coastal navigation during daylight hours and in clear weather conditions.

You can use the 3D chart in simulator mode to help you gain experience.

Before you use the 3D chart, read *Chapter 4:Using Waypoints* on page 35 and *Chapter 5:The Chart Application* on page 43 for information about reading chart information and using the G-Series system navigation functions.

	CAUTION
The 3D chart is not a substitute for good navigational practice, nor does it remove the need to use official government paper charts. Do not use the 3D chart before you have read this chapter.	

6.2 3D chart requirements

For the 3D chart application to operate correctly, the G-Series system requires heading and position data.

6.3 Setting up the 3D chart

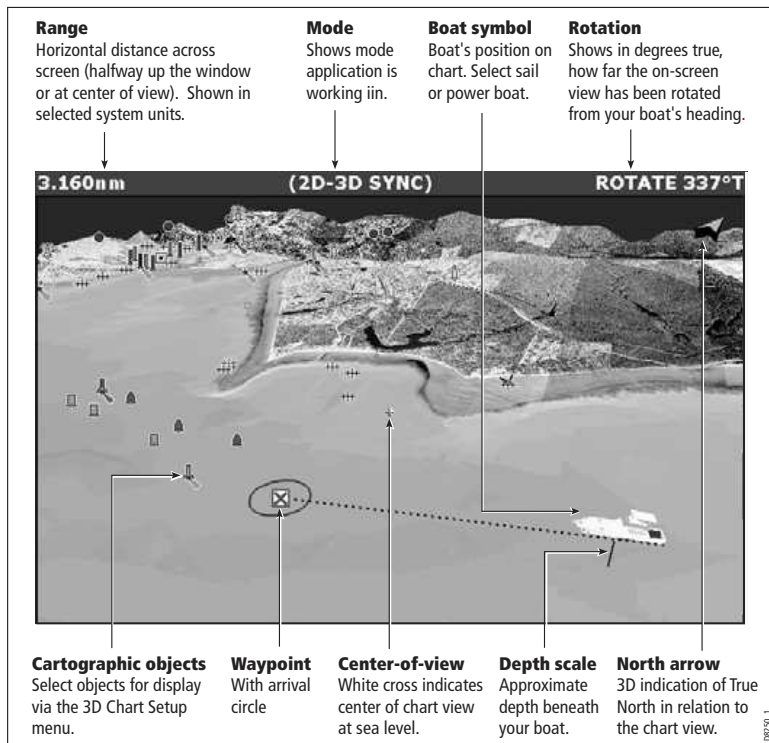
The 3D chart setup menu is available from the system setup menu. For information on using the system setup menu, see *To change a menu setting* on page 23.

The 3D chart setup menu gives you the following options:

FUNCTION Description	OPTIONS (Default in bold)
Centre-of-view indicator Centre-of-view indicator (marked with a white cross)	ON OFF
Vessel symbol Style of boat symbol displayed on-screen	Sail Power
Vessel Size Size of boat symbol displayed on-screen	Tiny Small Medium Large Huge
Aerial Photo Overlay Overlay an aerial photograph on the 3D chart	ON OFF
Chart Text Text viewed on the 3Dchart	ON OFF
Nav Marks Navigation marks viewed on the 3D chart	ON OFF

6.4 The 3D chart view

An overview of the 3D chart window is given below.



The 3D chart view includes the same cartographic objects and navigation features, like waypoints, as the standard chart. To move around the 3D chart, and to display your chosen area at the required scale, use pan and zoom as normal.

In the 3D chart, you can also adjust **rotate** and **pitch** settings.

- **Rotate** rotates the view between 0° and 359°.
- **Pitch** adjusts the vertical angle of view between 1° and 90°.

6.5 Operation modes

You can choose to view the chart in one of two modes:

- Active motion mode.

- Planning mode.

Active motion mode

This is the default mode. The screen shows an aerial view of the 3D chart with a viewpoint from above your boat, slightly behind it and looking forward. As your position changes, the chart view automatically updates.

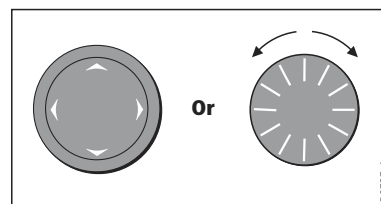
You can set different viewpoints: see *View options* on page 81.

Rotating or panning the chart puts it into planning mode.

Planning mode

If you move the view away from your current location, the system enters planning mode. You can view areas from different angles, bearings and ranges but your vessel is no longer kept on screen automatically.

The same controls and functions are available in both modes.



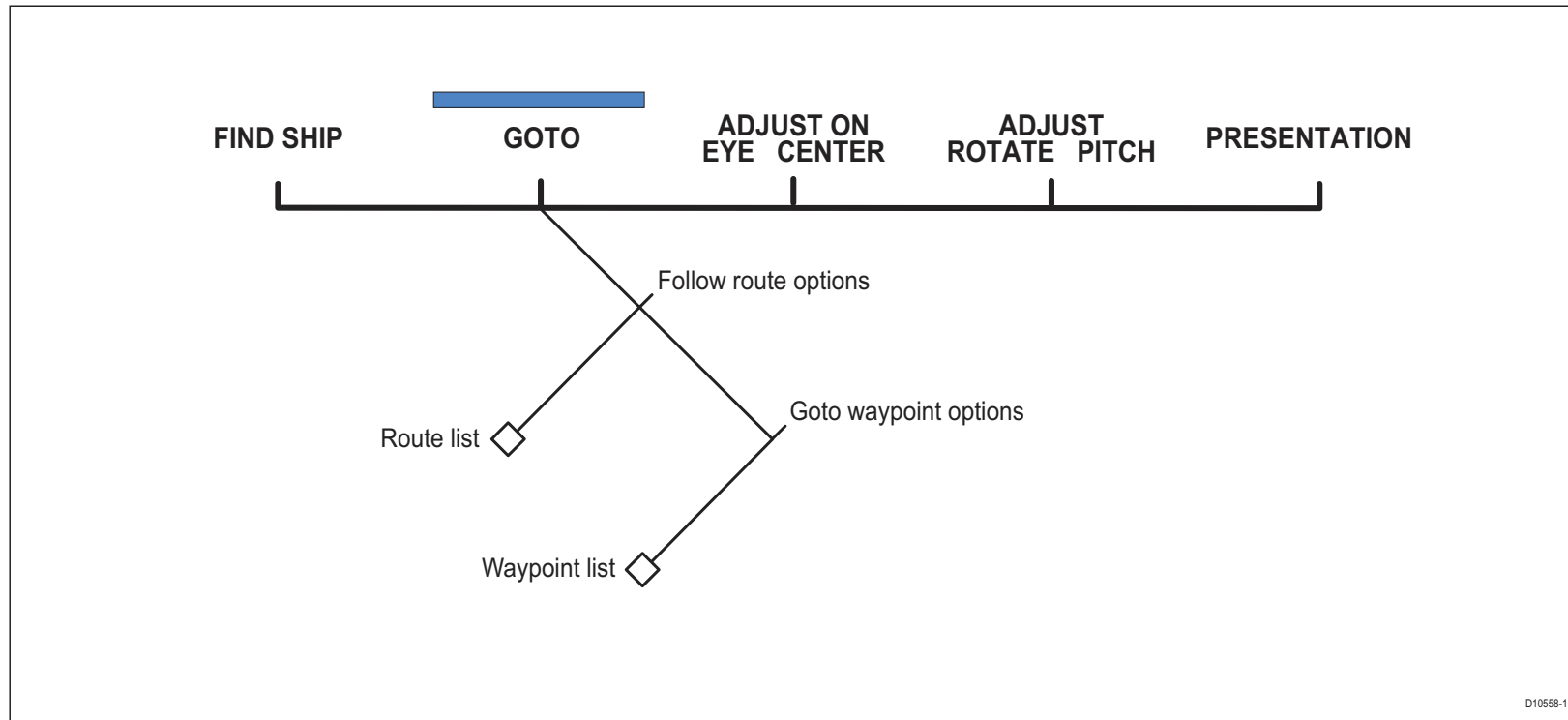
To enter planning mode:

- Pan to the area of the chart that you want to view or
- Turn the rotary control (except if set to CENTRE and ADJUST PITCH).

Planning mode is indicated in the status bar by brackets around the mode: (FWD).

6.6 Using the 3D chart

The default toolbar on the 3D chart gives you access to navigation and presentation options.



Find Ship

Pressing the FIND SHIP softkey redraws the chart about your current location, with your vessel in view and facing forwards.

Adjusting the chart view

The default toolbar includes two softkeys dedicated to adjusting the view of the 3D chart application. ADJUST lets you rotate the view and adjust the angle (pitch). ADJUST ON sets the reference point for view settings: either on the center of the image, or on the virtual-eye position.

To adjust rotate and pitch settings

1. Press the **ADJUST** softkey.

2. Toggle to the setting you want to adjust.
3. Make the adjustment with the rotary controller.
4. Press **OK**.

Note: The rotary controller is always active to adjust pitch and rotation. This is different to most other uses of the rotary controller, which require you to press a softkey to enable adjustment.

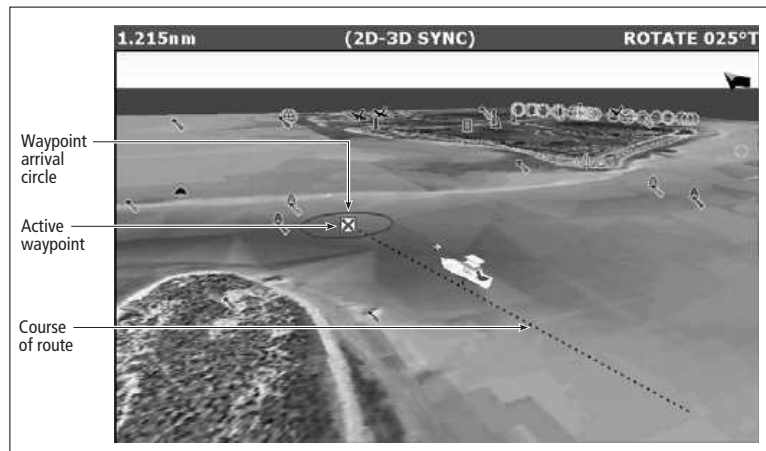
To set the adjustment reference point

1. Press the **ADJUST ON** softkey.
2. Toggle to **EYE** or **CENTER** as required.
3. Press **OK**.

Navigation options

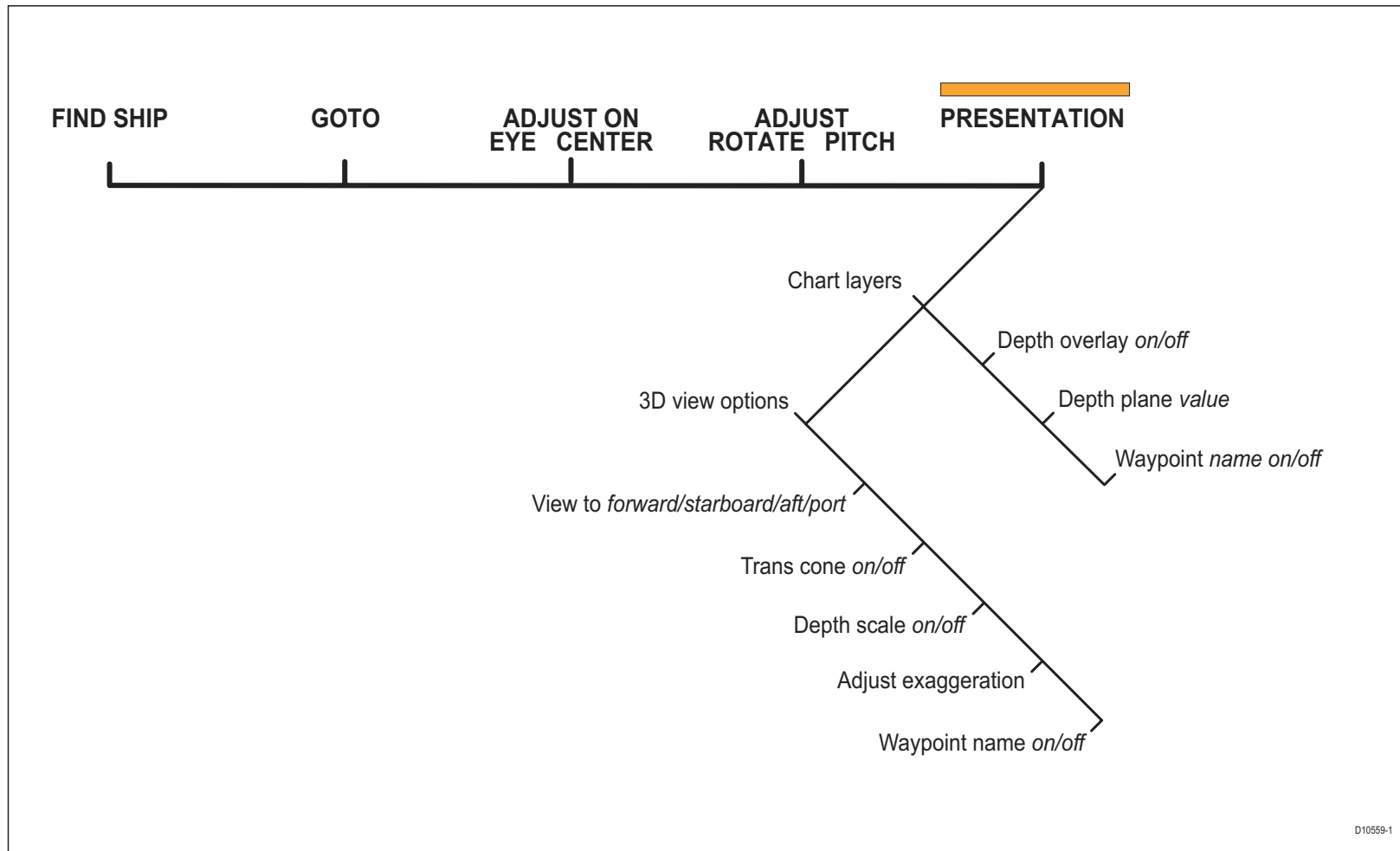
Shortcuts to the Route List and Waypoint List are available under the GOTO softkey. For information about using them, see [page 50](#).

Routes and waypoints can only be edited from within the standard chart application, but changes made on the standard chart are reflected on the 3D chart.



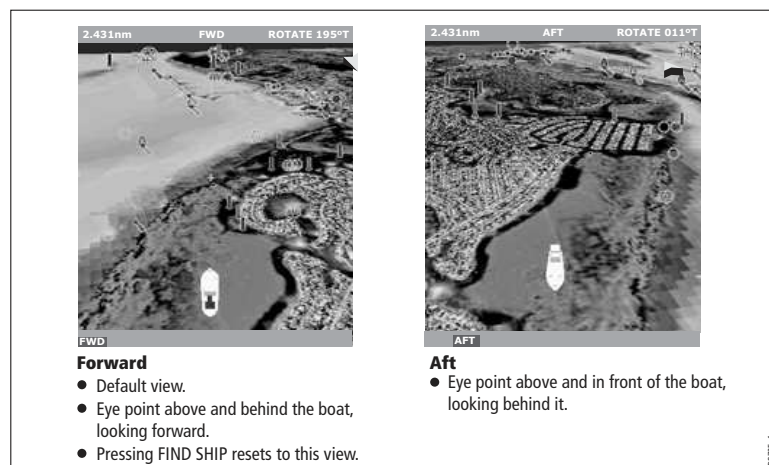
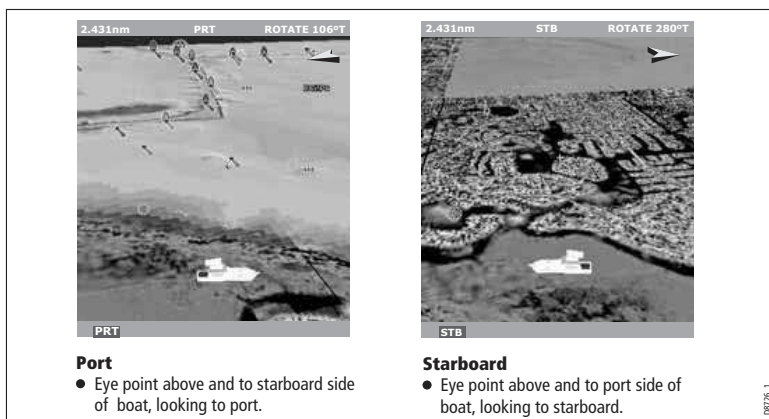
6.7 Presentation options

The PRESENTATION softkey opens the toolbars shown below:



View options

There are four view options to choose from: forward, aft, port and starboard.



The current option is highlighted on the toolbar and displayed in the status bar.

To select the view option

1. Press the **PRESENTATION** softkey.
2. Press the **3D VIEW OPTIONS** softkey.

3. Toggle to your preferred view on the **VIEW TO** softkey.
4. Press **OK**.

Multiple views

You can display multiple 3D chart views by creating a page that contains up to four windows. Each window could contain a view of:

- The same area from a different angle.
- Up to four different areas of the chart.

For information about setting up application windows, see *Selecting application windows* on page 26.

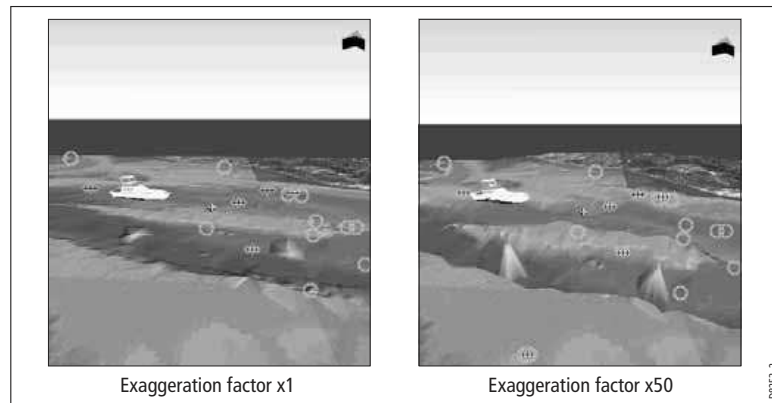
6.8 Tuning the view

You can tune the 3D chart view using the following features:

- Exaggeration
- Declutter

Exaggeration

Sometimes it is easier to see certain topographical features if they are exaggerated. Adjusting the exaggeration has the effect of vertically stretching objects on the chart, making it easier to see their shape and position. This could be particularly helpful if you are fishing, for example.



To adjust exaggeration

1. Press the **PRESENTATION** softkey.
2. Press the **3D VIEW OPTIONS** softkey.
3. Press **ADJUST EXAGGERATION**.
4. Use the rotary controller to set your level of exaggeration.
5. Press **OK**.

Press **CANCEL** at any time to return to the previous exaggeration setting.

Declutter

In some circumstances, the quantity of information displayed on the chart can render its interpretation difficult.

The declutter feature removes some chart objects from view to make the chart clearer to read and navigation simpler.

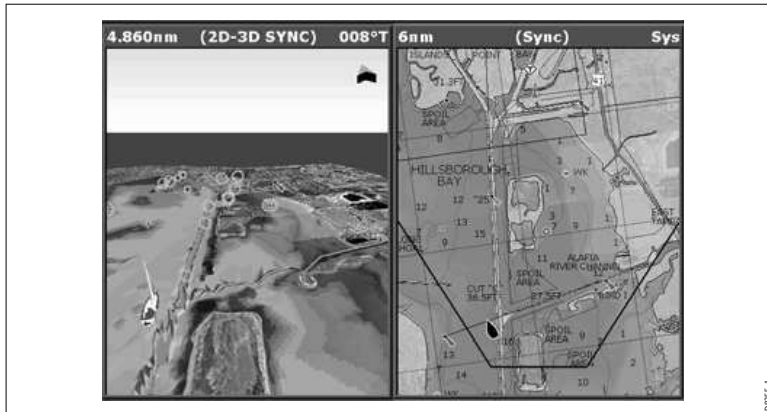


To turn declutter on or off

1. Press the **PRESENTATION** softkey.
2. Toggle to **ON** or **OFF** using the **DECLUTTER** softkey.

6.9 Using the standard and 3D charts together

If the area in which you are navigating is unfamiliar, or visibility is poor, working with standard and 3D chart windows side-by-side can give you extra confidence and information. With the charts displayed side by side, a comprehensive view of the surrounding area is available.

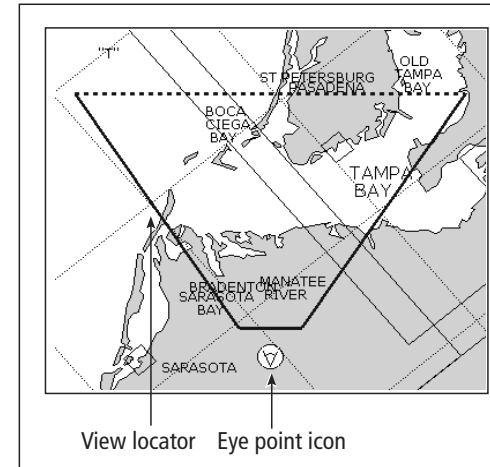


As with all multiple page sets, the active window is indicated by a red border. To make changes to an application it must be in the active window.

For information about setting up a page set to view two applications together, see [page 25](#).

3D view locator

The view locator is a polygon displayed on the standard chart which outlines the boundaries of the area shown on the 3D chart. It is shown as a blue line extending from the virtual eye point icon.



As you rotate, adjust pitch, pan or zoom the 3D chart view, the locator updates on the standard chart.

To display the 3D view locator

1. Make a standard (two-dimensional) chart window active.
2. Press the **PRESENTATION** softkey.
3. Press the **CHART LAYERS** softkey.
4. Toggle the **3D LOCATOR** setting to **ON**.
5. Press **OK**.

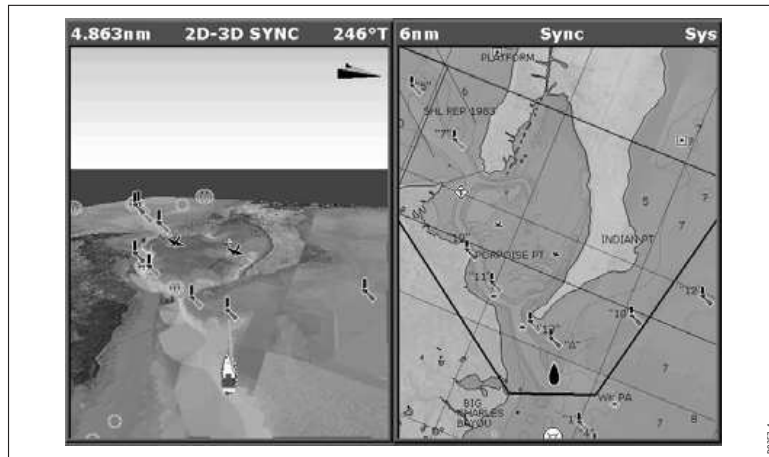
Chart synchronization

Chart synchronization enables you to synchronize heading, range and position information on the standard and 3D charts.

When chart synchronization is **ON**:

- 2D/3D synchronization is flagged in the status bars.

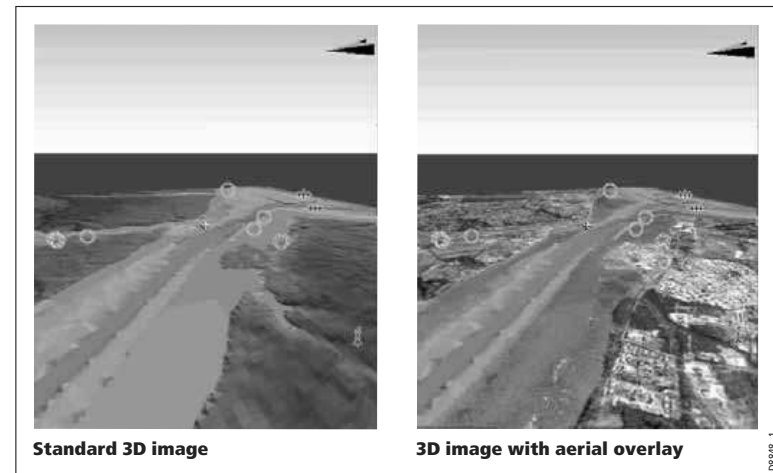
- Pressing FIND SHIP from any synchronized application returns the 3D chart to the default view and synchronizes the 2D chart to the same view.
- Changes made to heading, range or position in **either 2D or 3D** charts are reflected in both windows.
- If the 2D chart view for the current window is set to SYSTEM, any changes made in a chart window will be reflected in all windows on all displays.
- If the 2D chart view for the current window is set to LOCAL, no other windows will be affected.
- You can synchronize the 2D chart with the 3D chart **or** the radar but not both.



6.10 Aerial photography overlay

You can overlay aerial photography onto the 3D image. This can help you interpret the chart view of your surroundings. Aerial photography is available for the navigable waters up to three miles inside the coastline. Beyond these limits, land appears green (on color charts) or grey (on black-and-white charts).

- Aerial photo overlay is controlled from the 3D chart Setup Menu.



To synchronize the standard chart with the 3D chart

1. Make a 2D chart window active.
2. Press the **PRESENTATION** softkey.
3. Press **CHART MODE AND ORIENTATION**.
4. Toggle the **CHART SYNC** mode to **3D**.
5. Press **OK**.

Chapter 7: Autopilot Integration

If you have a Raymarine autopilot installed, you can access some of its functions from the G-Series keyboard.

The autopilot functions do not replace the autopilot control head. You must have a pilot control head installed before you enable or engage the autopilot.

Chapter contents

- [7.1 Emergency disengage on page 86](#)
- [7.2 Enabling and engaging the autopilot on page 86](#)
- [7.3 Autopilot Status Indicator on page 86](#)
- [7.4 The autopilot control screen on page 87](#)
- [7.5 Waypoint arrival on page 87](#)

7.1 Emergency disengage

To disable the autopilot

1. Press the **STANDBY** button.

7.2 Enabling and engaging the autopilot

To allow the system to control autopilot functions, first enable autopilot control on the setup menu. The default autopilot setting is **disabled**.

If you are navigating to a waypoint or following a route, you can see information for it on the Pilot Control pop-up window. This pop-up gives you softkeys to set the pilot to auto, track or standby.

Whenever you initiate a **GOTO** or **FOLLOW ROUTE**, the pilot pop-up gives you a softkey to engage pilot.

To enable autopilot control

1. Press the **MENU** button to open the **Setup** menu.
2. Select **System Setup > System Integration > Autopilot Control**.
3. Select **Enabled**.
4. Press the **OK** button.

To open the pilot control screen

1. Press the **PILOT** button.

If you press **OK** or **CANCEL** without engaging the autopilot, you go back to the navigation screen with the autopilot disengaged.

When the autopilot is engaged, or you hotspot an active route or waypoint, the toolbar gives you the following options:

STOP GOTO/FOLLOW	Opens the Pilot Control screen. If the autopilot is in track mode, the route complete alarm sounds.
ADVANCE WAYPOINT	Opens the Pilot Control screen and provides the AUTO and TRACK softkeys. The screen stays open until you choose either AUTO or TRACK.

Note: You can only perform individual advance waypoint operations: it is not possible to perform one track command for multiple advance waypoints.

To disengage the autopilot



1. Press the **STANDBY** button.




or

1. Use the softkeys provided with the Pilot Control pop-up screen.

7.3 Autopilot Status Indicator

An indicator in the top-right corner of the display gives you the current status of the autopilot.

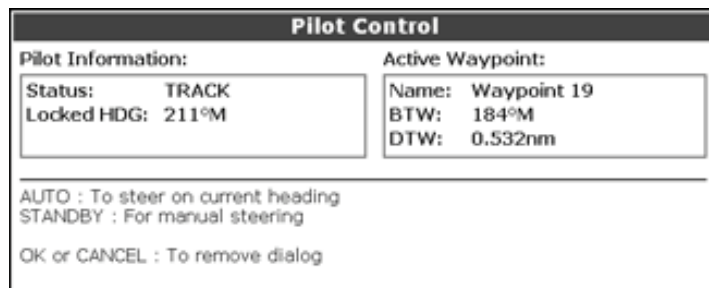
Icon	Autopilot mode
	Standby.
	Track.

Icon	Autopilot mode
	Auto.
	No autopilot detected.
	Autopilot alarm is active.

7.4 The autopilot control screen

The Pilot Control pop-up screen is displayed when you engage the autopilot in track mode, at waypoint arrival, or when you select it via the Pilot key or from the Setup Menu. It gives you:

- Autopilot status
- Live navigation information
- Toolbar with softkeys to control the autopilot



Autopilot toolbar

AUTO	Engage the autopilot and hold the current course (available when the autopilot is in Track or Standby mode).
ENGAGE PILOT -TRACK-	Engage the autopilot and track to the current target waypoint.
STANDBY	Disengages the autopilot (only available when the autopilot is engaged).

To close the Pilot Control pop-up without activating AUTO or TRACK, press **OK** or **CANCEL**.

7.5 Waypoint arrival

when there are more waypoints in your route, the system:

- sounds the waypoint arrival alarm
- displays the Pilot Control screen, with information about the next waypoint

The toolbar gives you four options:

Press the **ENGAGE PILOT -TRACK-** softkey to engage the autopilot and continue to the next waypoint in your route.

Press the **CLEAR ALARM** softkey to silence the alarm and keep the autopilot engaged in auto mode, continuing on the current heading.

Press the **STANDBY** softkey to cancel the alarm and disengage the autopilot.

Press the **AUTO** softkey to cancel the alarm and engage the autopilot in auto mode.

Note: If you make no selection within 30 seconds, the Next Waypoint alarm will sound.

When you reach the last waypoint in your route, the system:

- sounds the waypoint arrival alarm
- displays the Pilot Control screen with 'Last Waypoint' in the Next Waypoint field.

The toolbar gives you three options:

Press **CLEAR ALARM** to silence the alarm and keep the autopilot engaged in auto mode, continuing on the current heading.

Press **STANDBY** to silence the alarm and disengage the autopilot.

Press **AUTO** to silence the alarm and continue on the current locked heading with autopilot engaged.

Chapter 8: The Fishfinder

The fishfinder uses acoustic sounding to display fish, seabed structure, and underwater obstructions like wrecks.

Chapter contents

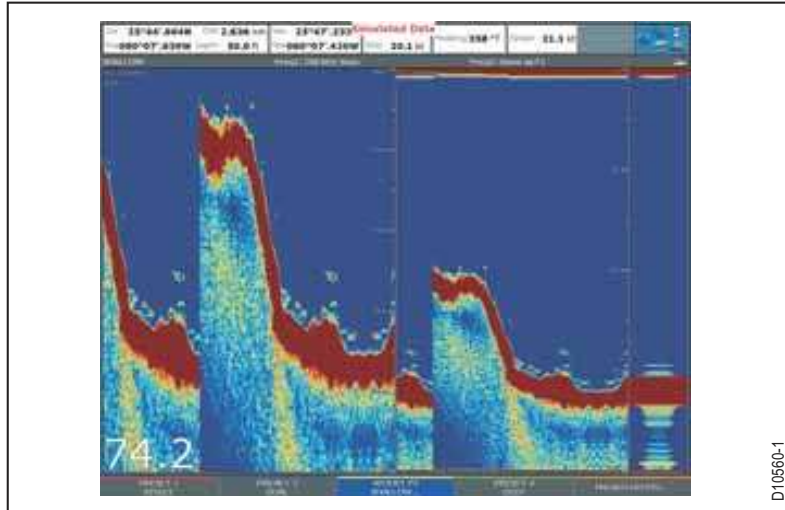
- [8.1 The fishfinder display on page 92](#)
- [8.2 Background information on page 92](#)
- [8.3 Operating the fishfinder on page 92](#)
- [8.4 Explaining the readout on page 93](#)
- [8.5 Factors influencing the readout on page 93](#)
- [8.6 Display mode settings on page 95](#)
- [8.7 Presentation toolbar on page 101](#)
- [8.8 Adjusting gain and power on page 102](#)
- [8.9 Measuring depth and distance on page 103](#)
- [8.10 Fishfinder alarms on page 105](#)
- [8.11 Editing presets on page 105](#)
- [8.12 Fishfinder configuration on page 107](#)

See also...

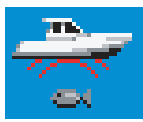
The G-Series System Installation Guide for fishfinder calibration information.

8.1 The fishfinder display

The fishfinder displays a scrolling image of the seabed, updating from the right as your vessel makes progress.



The fishfinder status icon is located in the top-right section of the monitor:



(animated icon)

Icon animated - connection to a DSM has been successful.

Icon static - the DSM is connected but not transmitting.

Icon greyed-out - no DSM is connected.

8.2 Background information

The fishfinder requires a Digital Sounder Module (DSM) to process acoustic signals and build up a detailed picture of the seabed.

A transducer on the bottom of the boat sends pulses of sound waves into the water and measures the time it takes for the sound wave to travel to the bottom and back. The returning echoes are affected by bottom structure and by any other objects in their path, for example reefs, wrecks, shoals or fish.

The strength of the echoes is indicated on the display by different colors. You can use this information to determine the shape and make-up of the seabed, or the size of shoals, or of other objects.

8.3 Operating the fishfinder

The fishfinder provides you with four preset configurations, available on the default toolbar. These are tailored to provide optimal operation in different circumstances - you should be able to find a preset that gives you excellent results in any situation.

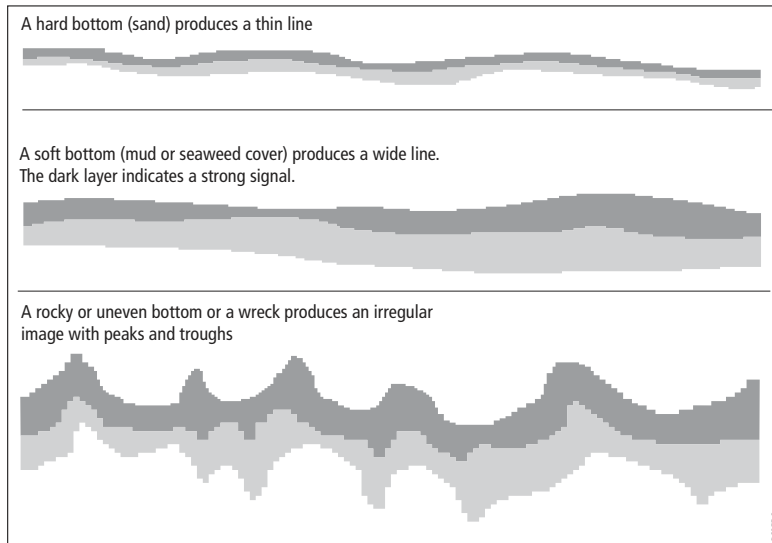
The presets are labelled single, dual, shallow and deep. When you make a fishfinder window active, the title bar shows you which preset is selected, along with its settings.

Each preset has been configured to provide the best operating parameters for the fishfinder. However, it is possible to adjust the presets if necessary.

To select a preset mode

1. Press the appropriate softkey.

8.4 Explaining the readout



The dark layers indicate a good echo; the lighter areas weaker echoes. This could mean that the upper layer is soft and therefore allowing sound waves to pass to the more solid layer below.

It is also possible that the sound waves are making two complete trips – hitting the bottom, bouncing off the boat, then reflecting off the bottom again. This can happen if the water is shallow, the bottom is hard, or gain is set too high.

8.5 Factors influencing the readout

The quality and accuracy of the display can be influenced by a number of factors including boat speed, depth, object size, background noise and transducer frequency.

Boat speed

The fishfinder's reading of the bottom changes as your speed changes. Slower speeds return flatter, more horizontal marks; as your speed increases, the image will tend to thicken and arch, until at high speeds the bottom resembles a double line on the fishfinder display.

Depth

As sea depth increases, signal strength decreases, resulting in a lighter on-screen image of the bottom.

Object size

The larger an object is, the stronger its return on the fishfinder display will be.

However, the strength of return from fish depends upon the species' swim bladder, rather than the body size.

Background noise

The fishfinder readout can be affected by weak echoes from floating or submerged debris, air bubbles, or by your boat's movements.

This background noise is also known as clutter, and the G-Series system automatically adjusts sensitivity to it based on sea depth and water conditions. You can, however, set the sensitivity manually by using the gain modes (gain, color gain and TVG).

Transducer frequency

- **Lower frequencies** scan a wide area and penetrate water well. Use these settings if you want a large coverage beneath your boat or if you are in deep water.

- **Higher frequencies** (200 Khz) scan a narrow area but produce more detail, especially at high boat speed. They are most useful in shallower waters (up to 1000 feet).

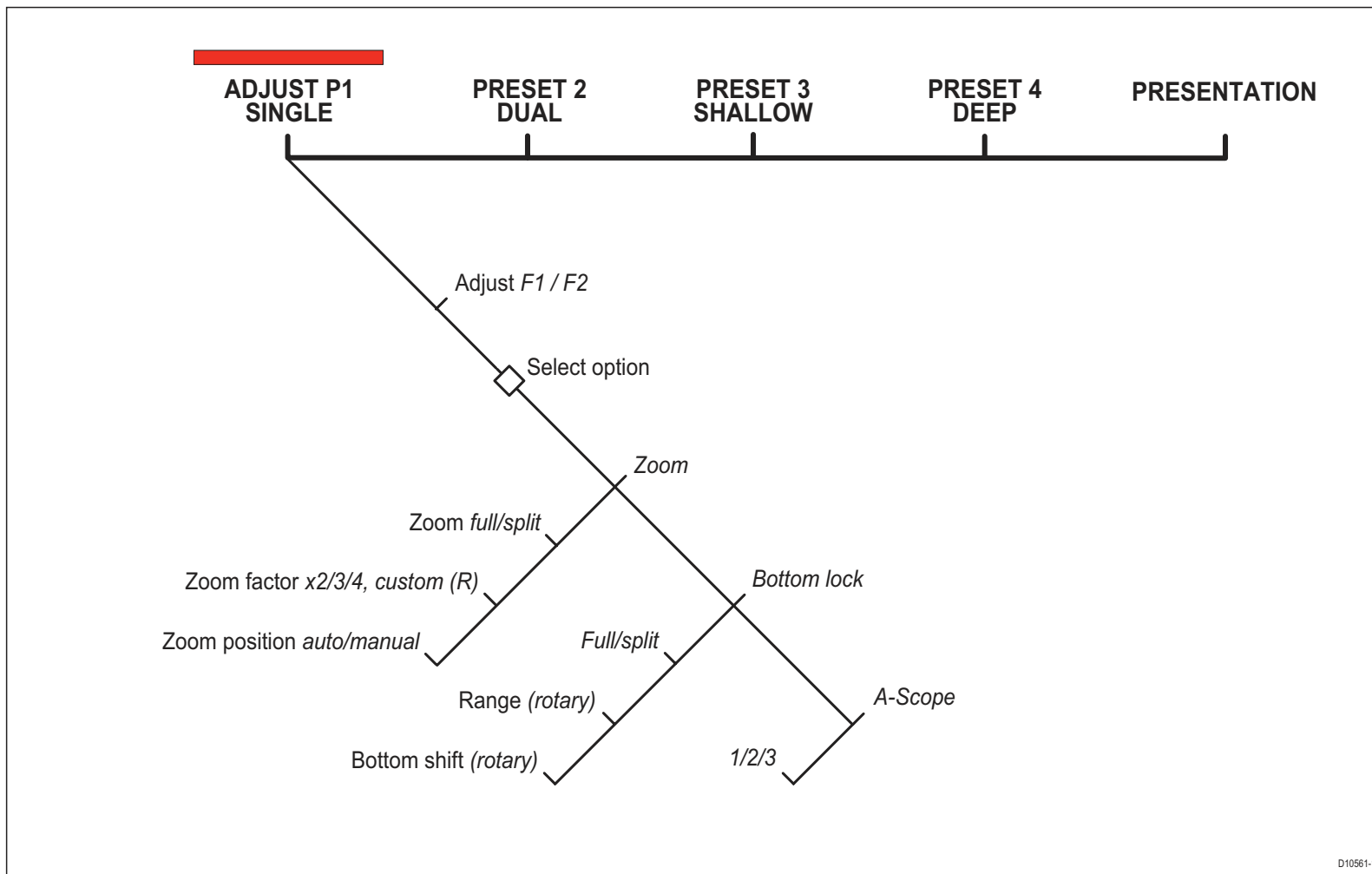
Various frequencies may be available on your system, depending on the transducers fitted to your vessel.

Viewing single or dual frequencies

If the preset you are using includes two frequencies, you can use one fishfinder window to view both frequencies or just one. You can then send the second frequency to a fishfinder window on a second monitor, enabling you to view both frequencies at full screen.

8.6 Display mode settings

When a fishfinder preset is selected, its softkey label changes to **ADJUST**. Pressing this key allows you to configure the display mode settings to suit your requirements. (Changes to the display mode are saved with the preset at power-off.)



For each preset (and for each frequency within the preset), you can change the following display mode settings:

- Zoom
- Bottom Lock
- A-Scope

To change the settings for a preset

1. Press the **ADJUST** <preset name> softkey.
2. Select **F1** or **F2**.
3. Select the mode you want to adjust.
4. Make changes using the trackpad or rotary controller.
5. Press **OK** when complete.

Zoom

If necessary you can zoom in on the bottom to display more detail.

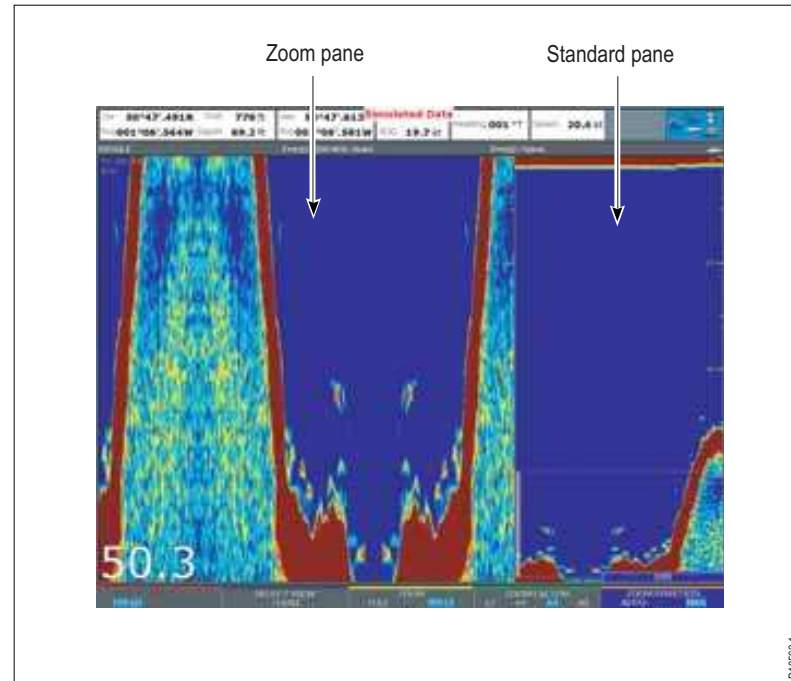
This zoom option lets you:

- Replace the standard fishfinder image with the zoomed image, or display the zoomed image alongside the standard fishfinder image.
- Set the zoom factor to a pre-defined level, or adjust it manually.
- Reposition the zoomed portion of the image to a different point in the display.

When the range increases, the area shown in the zoom window also increases.

Full or split screen

You can either replace the standard fishfinder image with the zoomed image or split the screen and display the zoomed image alongside the standard fishfinder image (ZOOM SPLIT). The zoomed section is indicated on the standard fishfinder screen by a zoom box (see illustration below).



To select split-screen or full-screen

1. Select **FULL** or **SPLIT** with the **ZOOM** softkey.

When the zoom function is active (ZOOM FULL or ZOOM SPLIT), you can either select a predefined zoom factor or adjust it manually.

To select the zoom factor

1. Press the **ZOOM** softkey.
2. On the **ZOOM FACTOR** key, toggle between pre-defined settings or select xR to set a factor manually. For manual settings, adjust the zoom factor with the rotary controller.
3. Press **OK** to accept your setting.

Adjusting the position of the zoomed area

When the zoom function is selected, the system automatically selects the zoom position so that the bottom details are always in the lower half of the display. If required you can reposition the portion of the image to be zoomed so that an alternative area is displayed.

To set the zoom position

1. Press the **ZOOM** softkey.
2. Select **MAN** with the **ZOOM POSITION** softkey.
3. Reposition the zoomed image using the rotary controller.
4. Press **OK**.

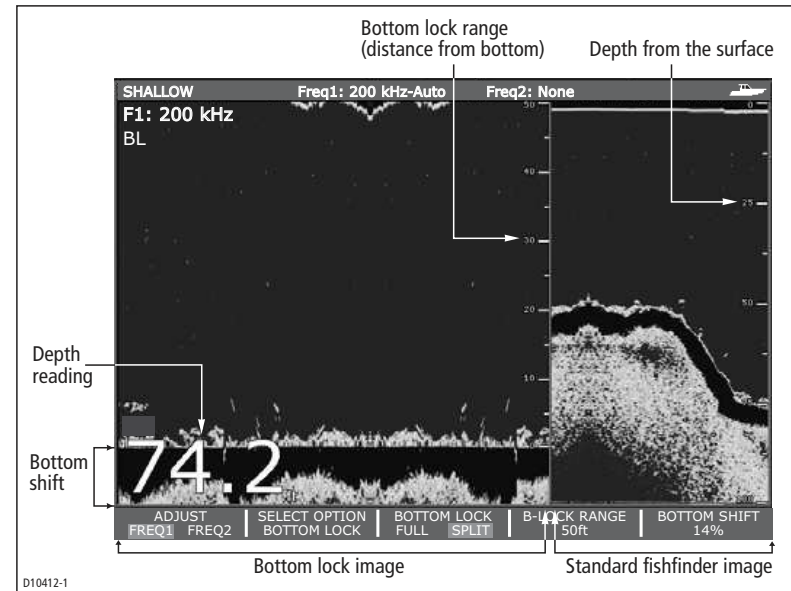
Bottom lock and bottom shift

The Bottom Lock function applies a filter to flatten the image of the seabed and make any objects on or just above it easier to discern.

This feature is particularly useful for finding fish that feed close to the bottom.

Bottom Lock is selected for individual fishfinder windows and can replace or appear alongside the standard fishfinder image.

Adjusting the range of the bottom lock image allows you to view more bottom details. You can also reposition the image on screen to anywhere between the bottom of the window (0%) and the middle of the window (50%) by using the Bottom Shift control.



To adjust bottom lock

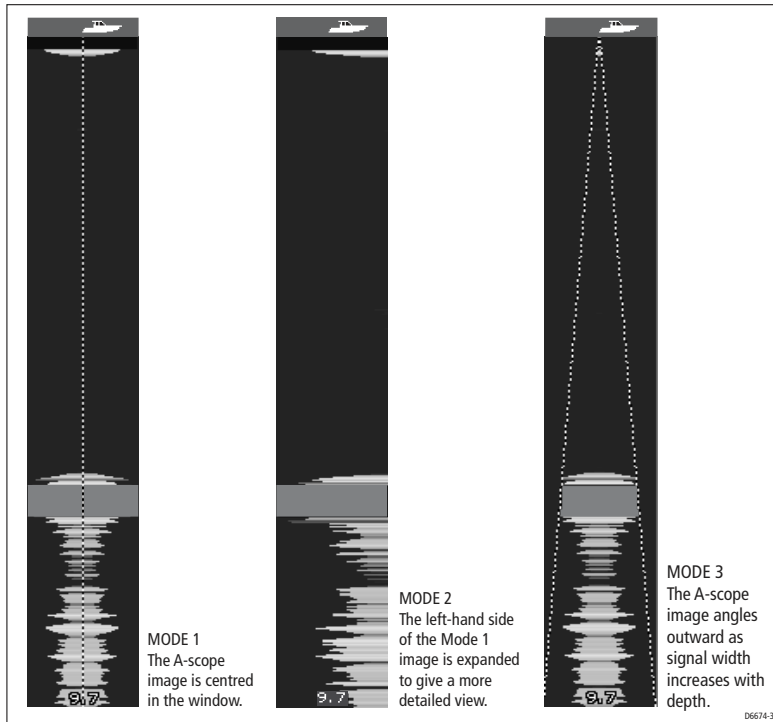
1. Toggle to **FULL** or **SPLIT**.
2. Use the appropriate softkeys and rotary controller to set the range and bottom-shift values.

Using A-Scope to view a live image

The standard fishfinder display shows a historical record of fishfinder echoes. If required, you can display a live image of the bottom structure and the fish directly below the transducer by using the A-Scope feature. The width of the bottom area covered by the A-Scope is indicated by the number at the bottom of the window.

The A-SCOPE softkey

When A-Scope is on you can select one of three display modes:

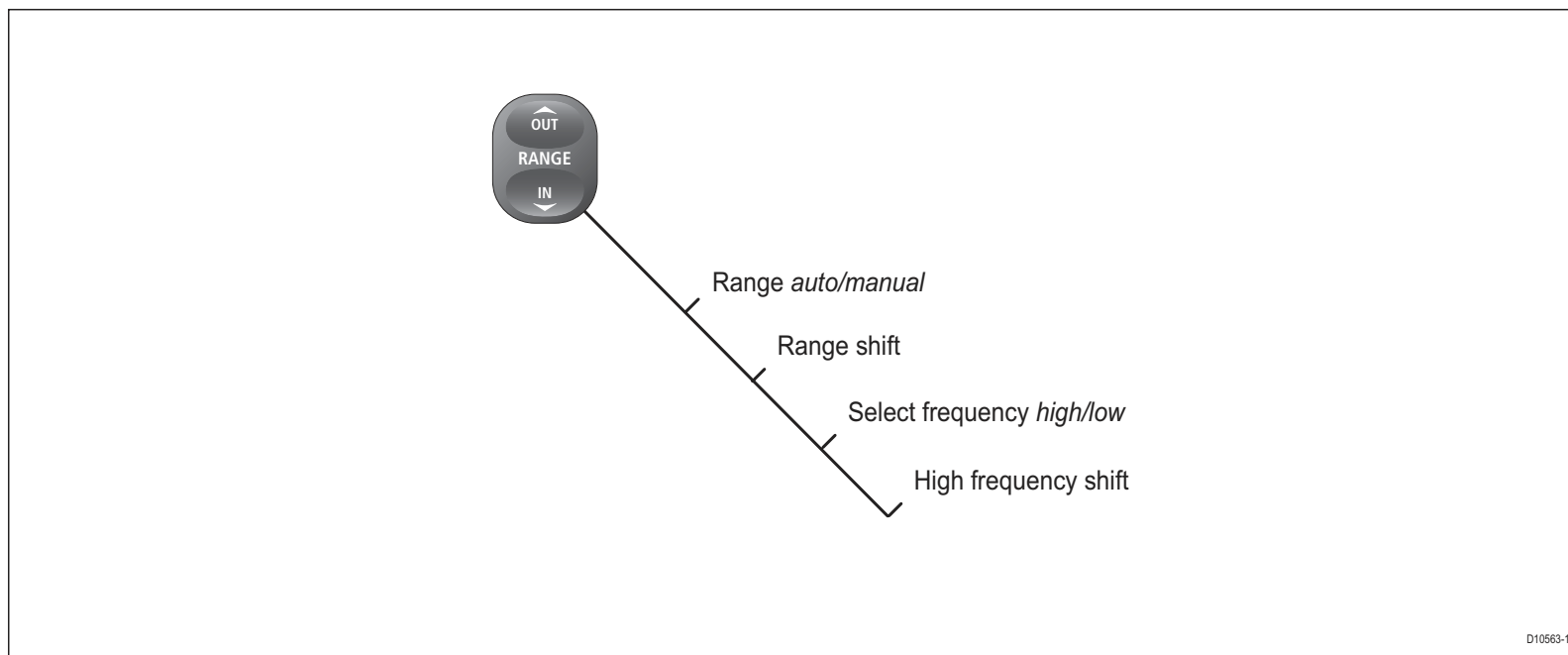


To display the A-Scope image

1. Select A-Scope on the **SELECT OPTION** softkey.
2. Choose your mode on the **A-SCOPE MODE** softkey.

Changing the range

You can change the range for each displayed frequency from the Range Adjust toolbar, which gives you control over the range and range-shift settings.



The DSM automatically adjusts the display to show the shallowest required range. Alternatively, you can range in or out on the image, up to the maximum depth displayed on the scrolling bottom and A-Scope images. Changes to the range affect all fishfinder windows.

To open the Range Adjust toolbar

1. Press the **RANGE** button on the G-Series keyboard.

To select manual or auto range mode

1. Open the **Range Adjust** toolbar.
2. Toggle to **AUTO** or **MAN** on the RANGE softkey.
3. Press **OK**.

Range shift

The DSM automatically adjusts the display to keep the bottom in the lower half of the display window. Alternatively, you can shift the image within the current range. Changes to the range shift are reflected in all Fishfinder windows.

To shift the range image

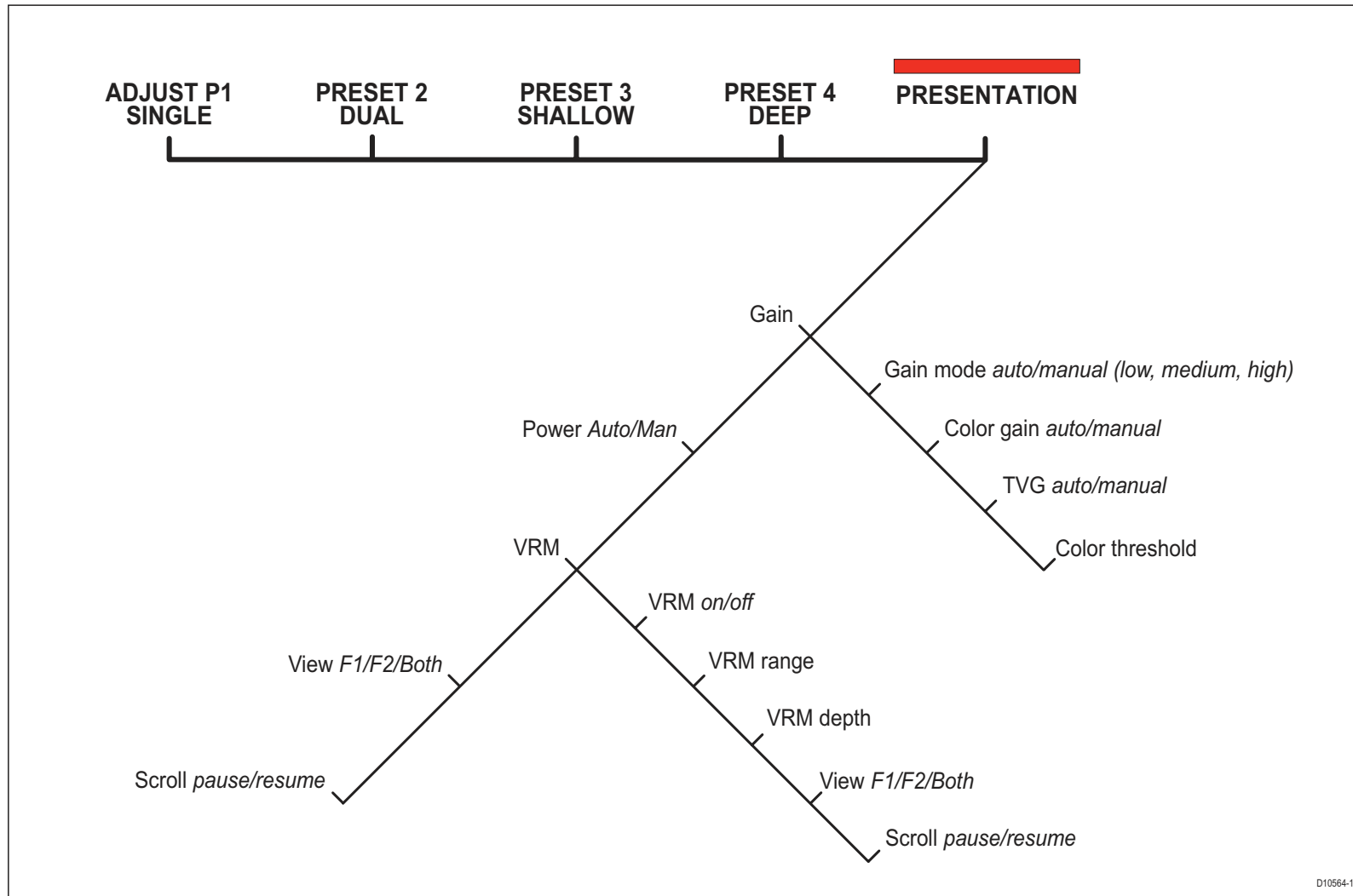
1. Open the **Range Adjust** toolbar.
2. Press the **RANGE SHIFT** softkey.
3. Select your desired setting using the rotary controller or trackpad.
4. Press **OK**.

To return to the standard fishfinder image

1. Toggle to **AUTO** on the **RANGE** softkey.
2. Press **OK**.

8.7 Presentation toolbar

The PRESENTATION softkey gives you access to VRM features (for measuring depth and distance), frequency view selection and a scroll control. These settings affect the monitor you are working on.



8.8 Adjusting gain and power

Changing the preset gain settings alters the way the fishfinder processes background noise (also called clutter), and can improve the readout on the monitor. You can adjust:

- Gain mode (choose from three auto-settings or manual control)
- Color gain
- TVG
- Color threshold

If you change settings for any of these modes (except auto gain), the fishfinder applies them to all transducer frequencies.

For optimum performance, use the auto settings.

Auto gain settings

The gain, or sensitivity, of the display adjusts background noise by varying the echo strength for display. The value of the GAIN control determines the strength above which echoes are displayed. There are three AUTO GAIN modes, which are saved with the preset if power is removed from the system:

- **Low** (the default setting) is ideal for viewing fishfinder images with a minimum of background noise while you cruise to your fishing spot. Only the strongest echoes are displayed.
- **Medium** is a slightly higher gain setting that displays more detail.
- **High** provides the most detail, but also displays the most background noise and surface clutter.

To select an auto gain setting

1. Press the **GAIN MODE** softkey.
2. Select the auto setting from the pop-up list.
3. Press **OK**.

Manually-set gain levels

If necessary you can set gain levels manually. Manually-set gain levels are applied to the active window and any other fishfinder windows displaying that frequency.

To set the gain level manually

1. Press the **GAIN MODE** softkey.
2. Toggle the setting to **MAN**.
3. Use the slider to set your required gain value.
4. Press **OK**.

Gain should be set high enough to see fish and bottom detail but without too much background noise. Generally, high gain is better in deep or clear water; low gain is better for shallow or murky water. The default setting for manual gain is 75%.

Color Gain

This sets the lower limit for the strongest echo color. All echoes with a signal strength above this value are displayed in the strongest color. Those with a weaker value are divided equally between the remaining colors. Setting a low value produces a wide band for the weakest color, but a small signal band for the other colors; setting a high value gives a wide band for the strongest color, but a small signal band for the other colors.

TVG (Time Varied Gain)

The TVG (Time Variable Gain) reduces clutter by varying the gain throughout the water column. This function is useful for reducing the appearance of 'noise'.

Increasing the TVG value increases the maximum depth to which TVG is applied; decreasing it reduces the maximum depth. A low TVG value has little effect on gain in shallow water; a high value decreases the gain in shallow water so that only the strongest echoes are displayed.

Power setting

The power setting controls the power level of the transducer.

Auto

This is the default setting. When it is selected the DSM automatically determines the required power setting based on the current depth, speed, and (bottom) signal strength.

Manual

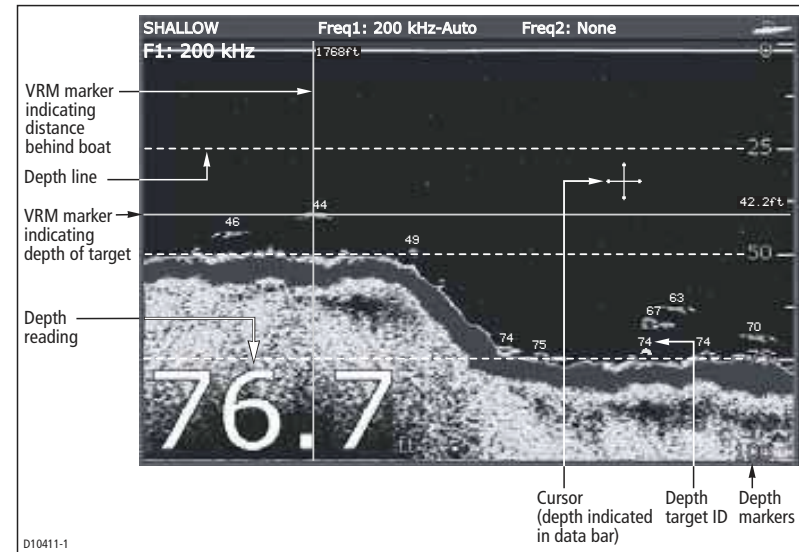
If you wish to manually adjust the power to suit current conditions, you can adjust the power level between 0% and 100%, in 10% increments. Lower power levels are normally used in depth ranges less than 8 ft. (2.4 m) and higher power levels are typically selected for depths greater than 12 ft. (3.7 m).

To change the power setting

1. Press the **ADJUST** softkey for the preset you are using.
2. Press to the manual or auto setting on the **POWER** softkey.
3. In manual mode, use the rotary controller or trackpad to choose the power setting you want to use.
4. Press **OK**.

8.9 Measuring depth and distance

The fishfinder display gives you various methods of measuring depth and distance:



- **Depth reading** - your current depth. The size and position of this readout can be changed in the Fishfinder display Setup menu (see [page 107](#)).
- **Depth lines** - horizontal dashed lines drawn at regular intervals to indicate the depth from the surface. These are switched on/off in the Fishfinder Display Setup menu (see [page 107](#)).
- **Depth Target ID** - depths noted against recognized targets. The sensitivity of these IDs is directly linked to the Fish Alarm sensitivity; the greater the fish alarm sensitivity, the greater the number of labelled returns. These targets are switched on/off in the Fishfinder Display Setup menu (see [page 107](#)).
- **Cursor depth** - the depth and the distance from your boat marked by the cursor, is indicated in the data bar at the top of the screen. This performs in a similar way to a VRM, but without lines.
- **VRMs** - to indicate the distance behind your boat and the depth below of selected objects.

Note: When multiple fishfinder windows are open, we recommend you have the depth reading displayed in at least one window.

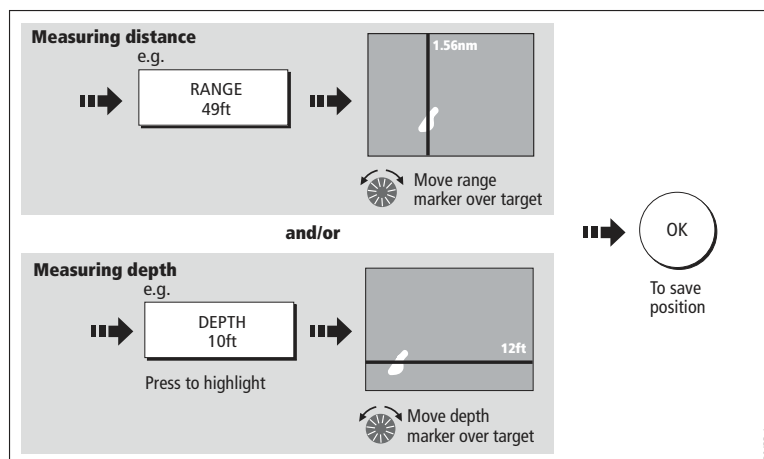
Measuring depth and distance with VRM

You can use a Variable Range Marker (VRM) to determine the depth and distance-behind-boat of an object. These markers consist of a horizontal (depth) line and a vertical (distance-behind-boat) line; each of which are marked with the appropriate measurement and are controlled individually.

Note: VRMs set up in Fishfinder are unrelated to those set up in Radar.

To make a measurement using VRM

1. Press the **PRESENTATION** softkey.
2. Press the **VRM** softkey.
3. Toggle to **ON**.
4. Pause the display to make it easier to position the VRM over the object.
5. Take your measurements:



To return the marker to its previous position, press **CANCEL**.

Adjusting the scroll mode and speed

You can adjust the speed at which the display scrolls, but the same section of the bottom is displayed regardless of scrolling speed. A faster speed displays more detail. This is useful when you are looking for fish. If you select a slower speed the information remains on the display for longer.

The following options are available:

- **Manual** - This allows you to set the scroll speed as a percentage of the maximum scroll rate for that depth. The lower the percentage, the slower the image will scroll. The default is manual adjustment with a full speed scroll (100%).

To select the scroll mode and speed

1. Open the **Fishfinder Setup Menu**.
2. Set your preferred values in the Manual Scroll Speed setting.

Pausing scroll

You can pause the display to see a 'snapshot' of the image. When a display is paused, scrolling stops but the depth indication continues to be updated. Scroll pause/resume affects the frequency showing on your display (both frequencies if two are selected) while other displays continue to scroll.

This allows you to inspect a paused image, place waypoints or VRMs, while the other frequency continues to scroll and detect fish.

To pause or resume scrolling

1. Press the **PRESENTATION** softkey.
2. Toggle settings on the **SCROLL** key.
3. Press **OK**.

Viewing frequencies within a preset

If the preset you are using has two frequencies, you can view either one or both of those frequencies in separate windows.

To set frequency views

1. Press the **PRESENTATION** softkey.
2. Toggle to **F1**, **F2** or **BOTH** on the **VIEW** softkey.
3. Press **OK**.

Placing waypoints

You can pause the scrolling image to place a waypoint at a position or target that you want to return to at a later date. When a waypoint is placed, its details are added to the Waypoint List and a vertical line labelled WPT is placed on screen. You can edit waypoints and navigate to them in an active fishfinder window.

8.10 Fishfinder alarms

In addition to the system alarms (see [page 194](#)), the following alarms can be set when you are connected to a DSM or when the simulator is on:

- **Fish Alarms** - sound when a target meets the specified sensitivity level and, is within the depth limits (if enabled). The greater the fish alarm sensitivity, the greater the number of target image depths displayed.
- **Shallow/Deep Alarms** - sound when the DSM detects that the depth is less than the shallow limit, or greater than the deep limit.

You can switch the alarms on, set the limits and specify the fish alarm sensitivity.

8.11 Editing presets

You can select frequencies for each preset from the Setup Frequency Preset screen. All available frequencies are detected by the system and made available on this menu. You can:

- Specify one or two frequencies for each of the four presets.
- Edit preset names (EDIT NAME softkey).
- Reset all presets to factory defaults (RESET ALL softkey).
- Reset a selected preset to factory defaults (RESET <PRESET> softkey).

The fishfinder can handle only one set of frequency presets across Nav Stations. It is not possible to set one Nav Station up with a different set of fishfinder frequencies to another.

To open the Setup Frequency Preset screen

1. With a fishfinder window active, press the **MENU** button .
2. Select **Configure Frequency Presets**.

Manual frequency selection

If you select a frequency manually, the fishfinder operates at that fixed frequency.

To set frequencies manually

1. Open the **Configure Frequency Presets** screen.
2. Select the frequency use wish to use from the list available.

Automatic frequency selection

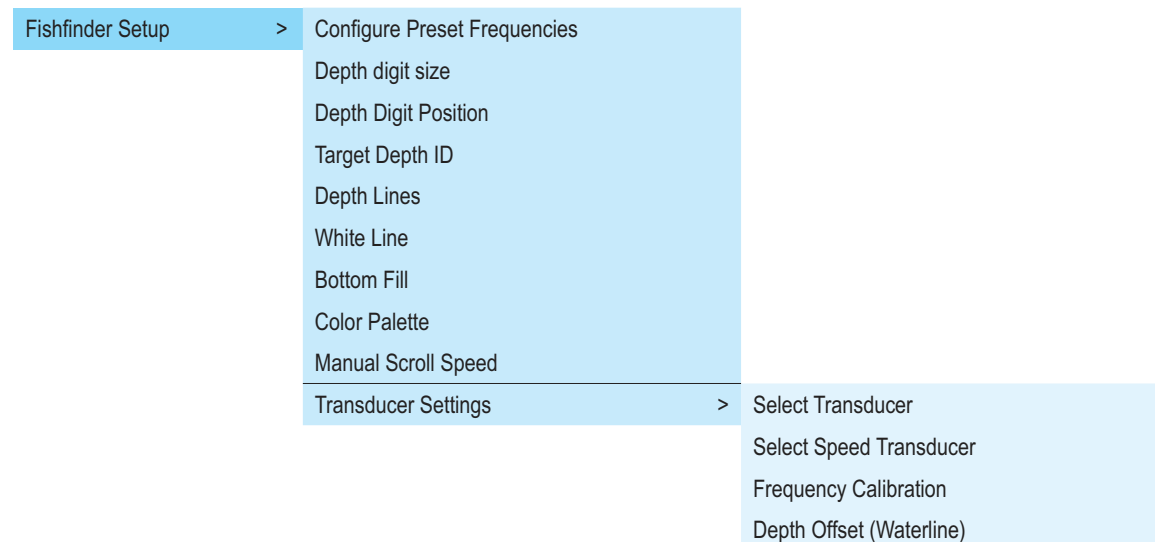
The behaviour of automatic frequency selection varies according to the configuration of your system and whether you are using a DSM300 or DSM400. The table below summarises this behaviour.

	Frequency 1	Behaviour	Frequency 2	Behaviour
DSM400	AUTO	Automatically adjusts to suit depth.	NONE/MAN	Manual setting is fixed.
	MANUAL	Fixed at selection.	NONE/MAN	Manual setting is fixed.
	AUTO	Automatically selects highest frequency and widest beam.	AUTO	Automatically adjusts to suit depth.
DSM300	AUTO	Changes with depth; alternate pings of 50 Khz and 200 Khz.	MANUAL	Fixed at selection.
	AUTO	Changes with depth; alternates between 50 Khz and 200 Khz.	NONE	-
	AUTO	Frequency set to 200 Khz.	AUTO	Frequency set to 50 Khz.

8.12 Fishfinder configuration

This section describes the settings you can change using the fishfinder setup menu. The setup menu contains settings that are likely to be changed infrequently.

For information on how to use setup menus, see *Setup menus* on page 23.



To open the fishfinder setup menu

1. Make a fishfinder window active.
2. Press the **MENU** button.
3. Select **Fishfinder Setup**.

DSM and transducer setup

Nearby vessels equipped with a fishfinder, or certain physical conditions (like hard seabeds), can affect the DSM. Its setup menus enable you to change settings to allow for this.

The system automatically adjusts the following settings to optimize the fishfinder image.

- Operating frequency.
- Gain modes (Gain, Color Gain, TVG).
- Power setting.

Note: The setup options available depend upon the DSM fitted to your vessel.

Fishfinder settings should not ordinarily require adjustment.

Configure preset frequencies

Change the settings for one or more of the fishfinder presets. The settings available depend upon the transducer fitted.

Target depth ID

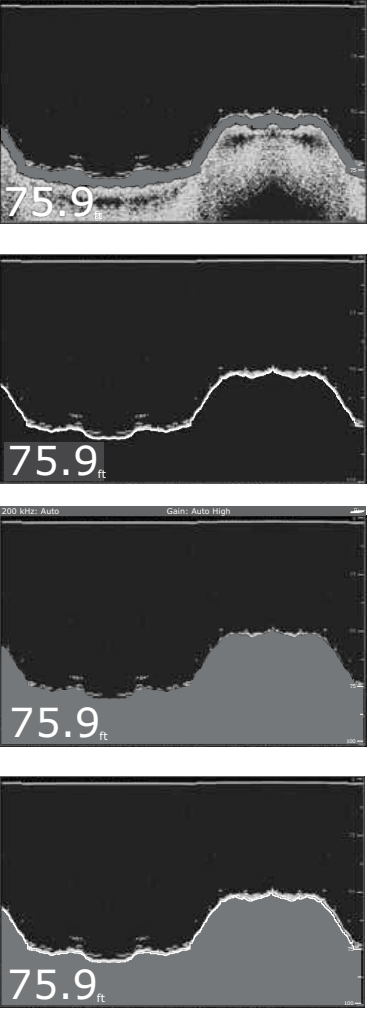
Depth readings for identified targets.

Depth lines

Horizontal lines indicating depth.

White line and bottom fill

Distinguish between echoes from fish near the bottom and from the bottom itself. (See illustration.)



The figure displays four vertical panels of fishfinder sonar images, each showing a depth reading of 75.9 ft. The top panel is the 'Standard fishfinder image', showing a noisy bottom profile. The second panel, 'White line', shows a clean white line tracing the bottom. The third panel, 'Bottom fill', shows the area below the bottom line filled with a solid grey color. The bottom panel, 'White line and bottom fill', combines both features, showing a white line and a grey-filled area below it.

Standard fishfinder image

The standard fishfinder image displays the bottom as a combination of features (mud, sand, fish targets etc) with various sonar signal strengths.

White line

When this feature is applied, a white line is drawn along the bottom (as defined by the digital depth value) and the detail below the bottom removed.

Fish near the bottom can now be seen more easily.

Bottom fill

When this feature is applied, the detail below the bottom is removed and replaced by a single contrasting color.

The bottom is now clearly defined and the fish near the bottom can be seen more easily.

White line and bottom fill

When both White Line and Bottom Fill are applied, the bottom is defined by a white line and the detail below it replaced by a single contrasting color.

Both the bottom and fish near the bottom are now clearly defined.

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Color Palette

Choose the color palette to suit your conditions or personal preference.

Manual Scroll Speed

Specify the speed at which the fishfinder view updates and scrolls.

Select Transducer

When selecting a transducer, the DSM reports to the G-Series whether it sees a 600W or 2kW transducer. This allows you to select an appropriate transducer from the list.

Select Speed Transducer

This option is only available if the selected transducer is one that does not include an integrated speed transducer.

Frequency Calibration

Hides the setup menu and brings up a set of soft keys to tune the transducer frequencies.

Depth Offset (waterline)

Offset represents the depth of the transducer (relative to the waterline)

Speed and temperature offsets

Calibrate the speed transducer and thermistor (if fitted).

DSM Reset

Restores all settings to factory default.

Trip Counter Reset

Zero the trip counter.

Interference Rejection

Removes spikes caused by interference from other fishfinder-enabled vessels.

2nd Echo Interference Rejection

Finely adjust the ping rate according to the 2nd echo level.

Ping Rate Limit (per sec)

Provides a speed limiter. It can be useful to adjust ping rate to suit local conditions, for example when you are over a hard seabed or in shallow water.

Ping Enable

Normally enabled, you can disable the ping when appropriate: to test other equipment, or if there is a diver beneath the vessel, for example.

Chapter 9: Sirius Weather (US only)

Overview

The weather application superimposes historical, live and forecast weather data onto a world map.

You can use the data to check the weather for your current position or for areas you are planning to visit.

For a basic weather glossary, see the appendix at the back of this manual. For types of warnings, watches and advisories, refer to the NOAA website at: www.nws.noaa.gov

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- [9.3 Weather application setup on page 112](#)
- [9.4 The weather display on page 113](#)
- [9.5 Moving around the weather map on page 113](#)
- [9.6 Placing waypoints on page 113](#)
- [9.7 Weather symbols on page 113](#)
- [9.8 Weather toolbar on page 118](#)
- [9.9 Viewing data for a specific position on page 119](#)
- [9.10 Animated weather graphics on page 120](#)
- [9.11 Viewing weather reports on page 120](#)
- [9.12 Troubleshooting on page 121](#)