

Viewing details of routes

Details of all routes that you create are held in the Route List. You can:

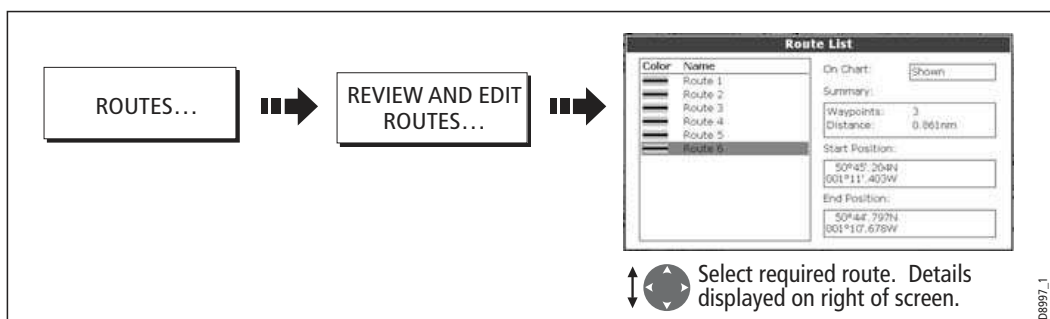
- View the route list and then select the required route, or
- Select the required route on-screen.

The TIME and SOG options can then be used to aid passage planning by displaying the time in hours or as an ETA and the SOG as actual or planned.

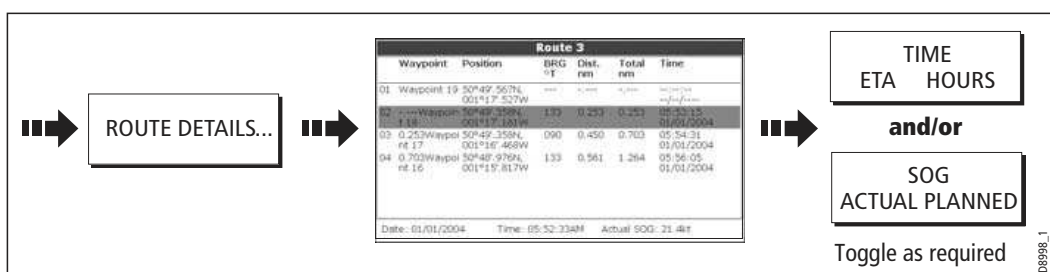
If the route is currently being navigated to (active), the data is updated to show bearing, distance and time from your current position.

... via the route list

1. Display the Route List:

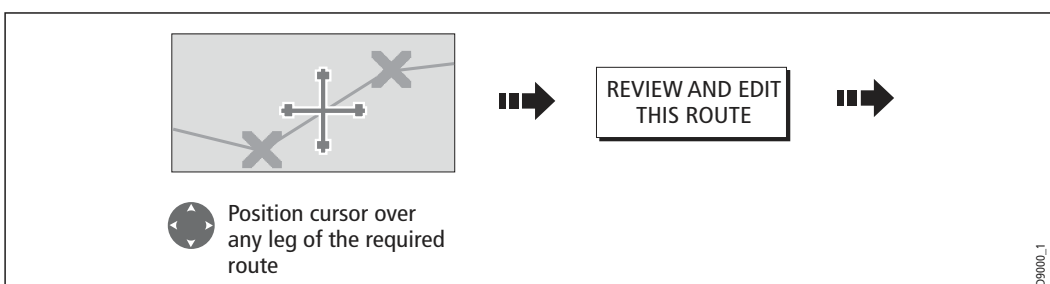


2. Display details of the selected route:

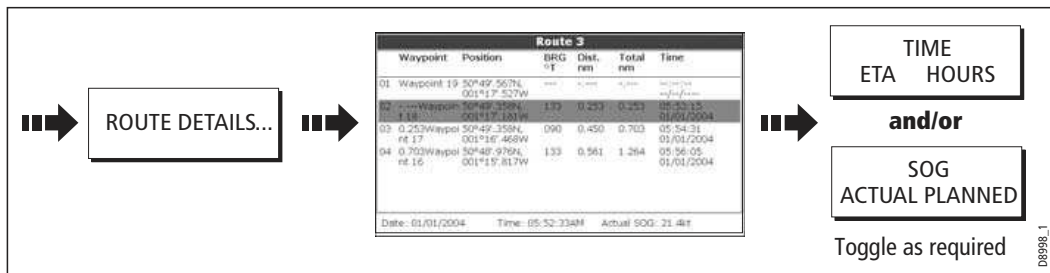


... with the cursor

1. Select route and the REVIEW AND EDIT THIS ROUTE option:



2. Display details of the selected route:



4.11 Editing routes

Once you have created a route, it can be edited in a variety of ways. You can:

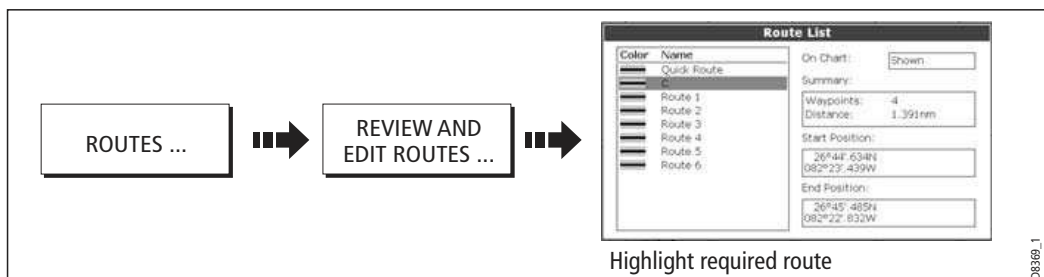
- Reverse a route (see [page 77](#))
- Amend the course of a route (see [page 81](#)).
- Change the name of a route (see [page 85](#)).
- Change the color of a route (see [page 85](#)).
- Erase a route (see [page 85](#)).

Note: An active route can be edited, with the exception of the target waypoint. If a waypoint being edited becomes the target, then the system shall cancel the edit; the waypoint shall remain in its original position.

Selecting a route for editing

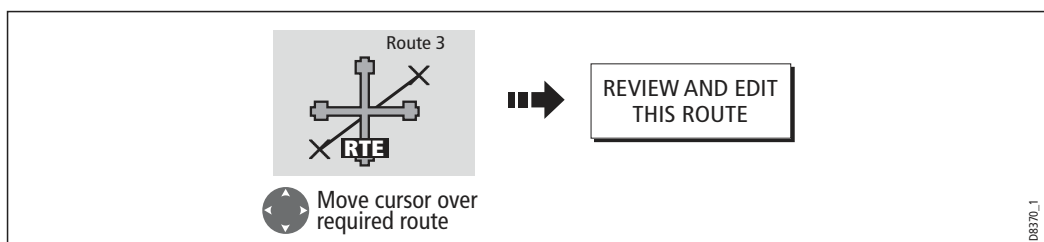
For a route to be edited it must first be selected either via the route list or by selecting the appropriate route on-screen.

... via the route list



You can now edit the route as described on [page 81](#).

... with the cursor



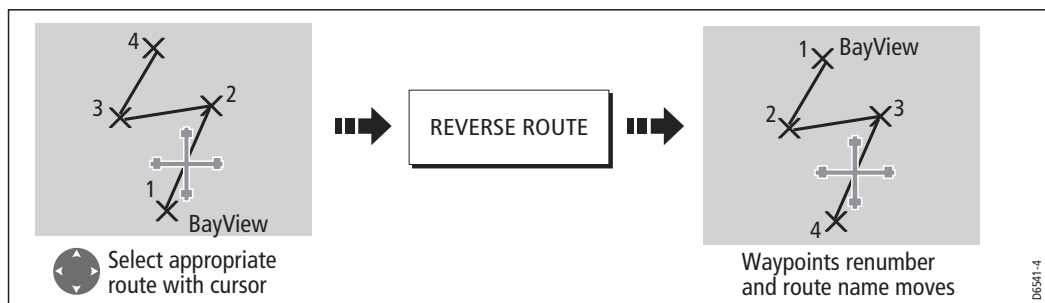
You can now edit the route as described on [page 81](#).

Editing the selected route

Once you have selected the appropriate route (see previous section) you can proceed to edit it.

Reversing a route

You can reverse the course of a route:



Note: For details of how to reverse and immediately follow a route, see page 77.

Changing the course of a route

You can amend the course of a route by:

- Adding a waypoint to the beginning or end of the route or between two existing waypoints.
- Moving a waypoint within a route.
- Removing a waypoint.

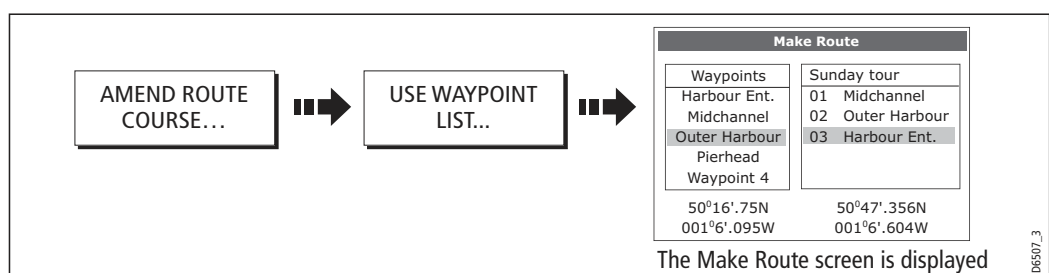
You can effect these changes either via the Make Route dialog box or by selecting the route on screen and then using the appropriate soft keys (not applicable when adding a waypoint at the beginning of a route).

Note: You will not be able to edit the waypoint that you are currently navigating to (target waypoint).

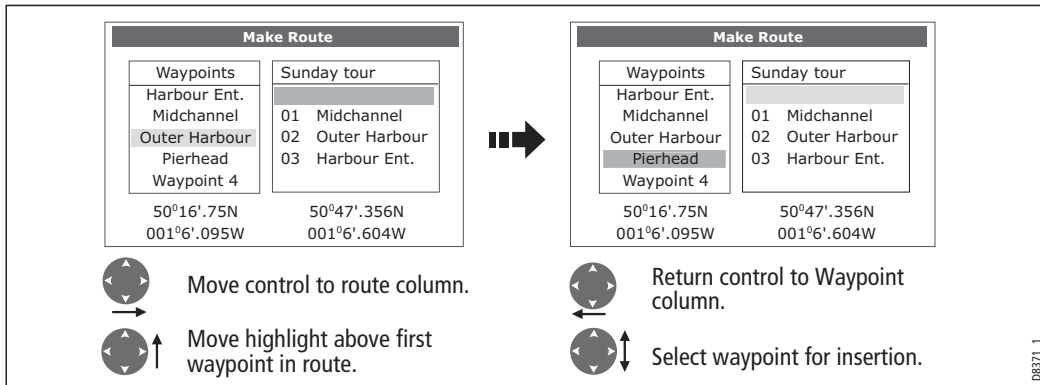
Add a waypoint at the beginning of a route

This option changes the course of a route by adding an existing waypoint to the start of the route:

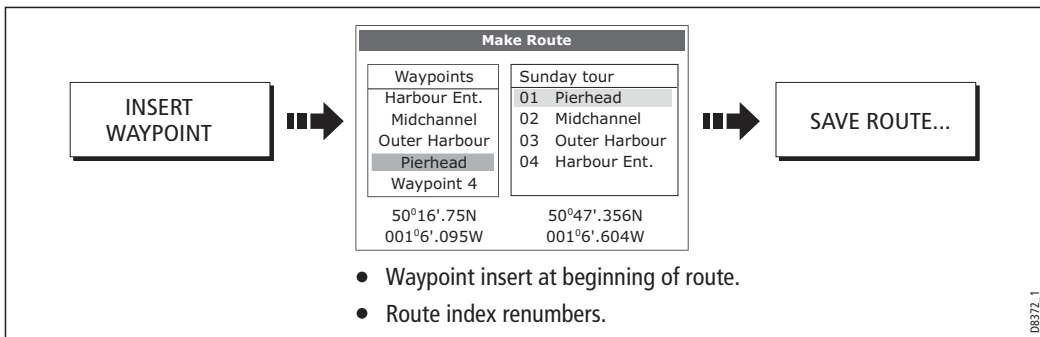
1. Select the appropriate route for editing (see page 80).
2. Display the Make Route screen:



3. Select the start of the route and the waypoint for insertion:

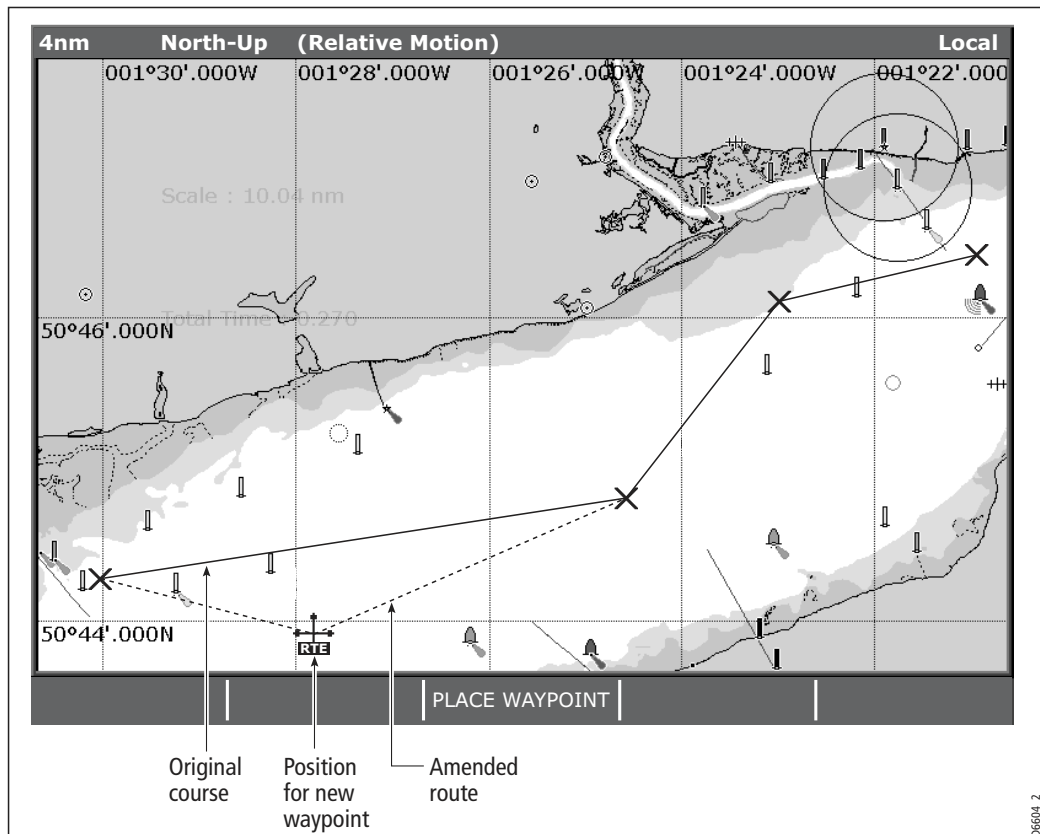


4. Insert waypoint and save route:

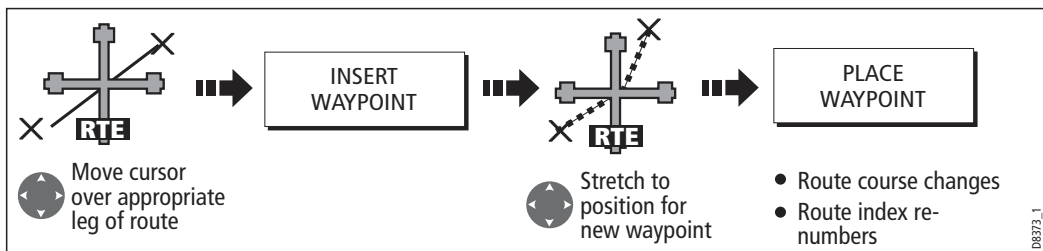


Add a waypoint within a route

This option inserts a waypoint within a route in order to change its course e.g.



To add a waypoint within a route:

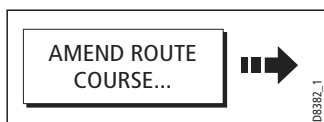


Note: You can also use the method described on page 81, to add a waypoint within a route.

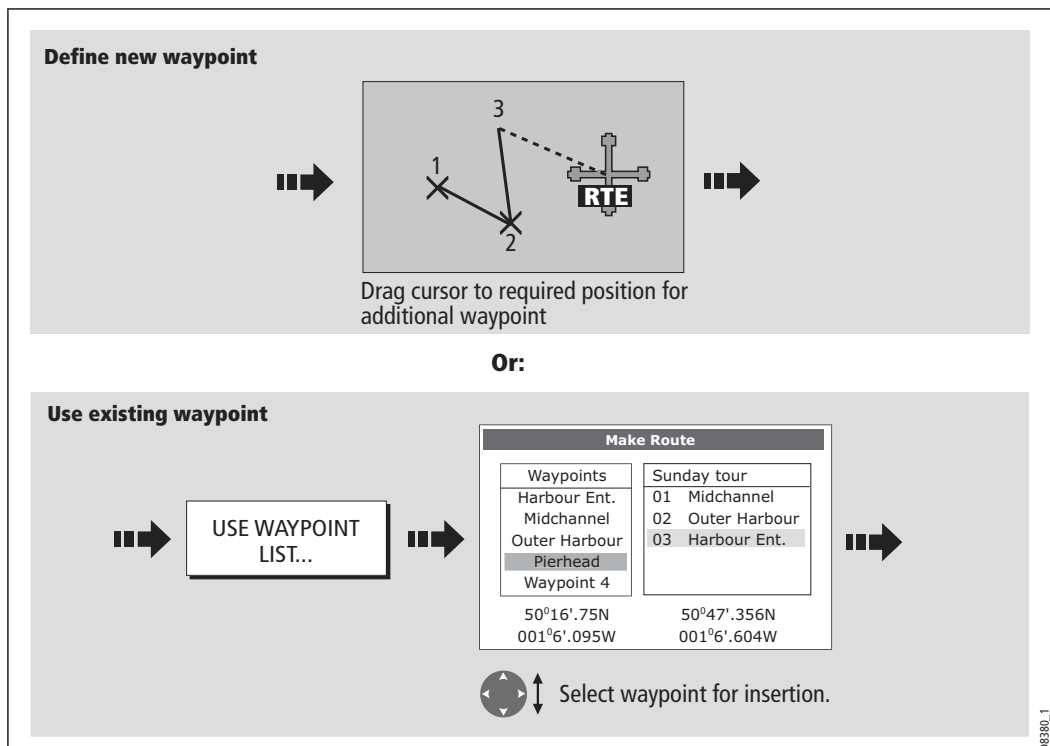
Add a waypoint(s) to the end of a route

This option inserts a waypoint (or series of waypoints) at the end of a route in order to extend its existing course. You can create new waypoints for this purpose and/or use a waypoint that already exists in the system.

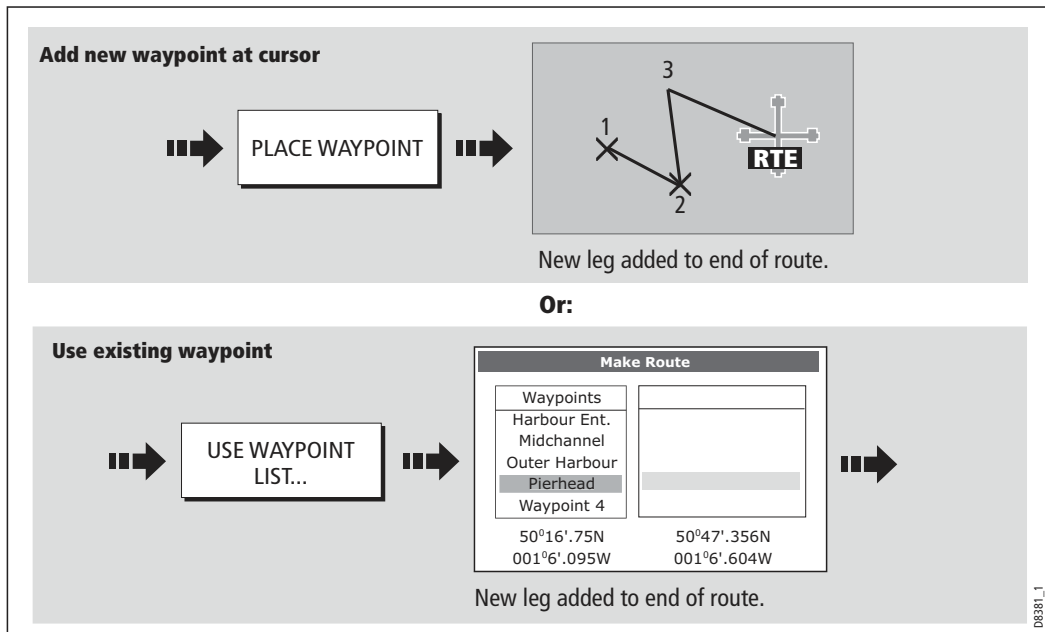
1. Select the appropriate route for editing (see page 80).
2. Select the amend route course option:



3. Define new or existing waypoint:



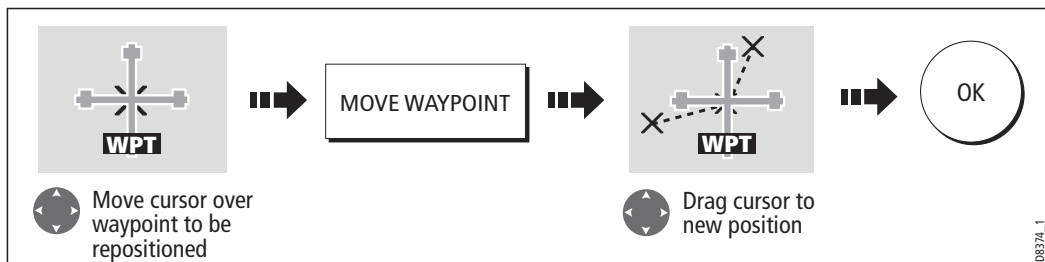
4. Select waypoint to be added:



5. If required, you can add further waypoints to the end of the route by repeating steps (3) and (4) above.

Note: If you wish to add a combination of existing and new waypoints to the end of a route, you will need to move control from/to the on-screen cursor/Make Route screen (see page 74).

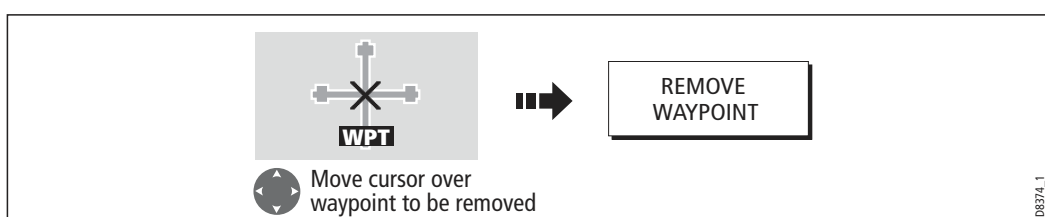
Move a waypoint within a route



Note: A waypoint's new position will be reflected in all other routes that make use of it.

Remove a waypoint from within a route

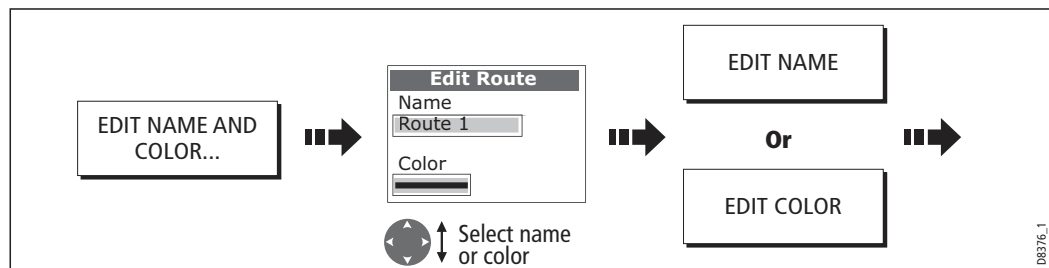
You can remove a waypoint from within a route provided that it has not been used in another route. If you try to remove a waypoint that is used in another route, the system will warn you that it cannot be removed.



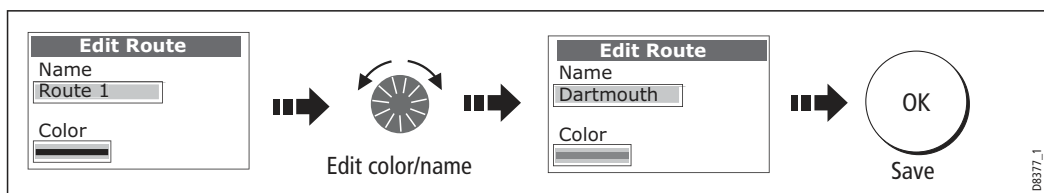
Changing the name or color of a route

You can change the name of a route from the default to a more meaningful one and/or change the color if required. This will make them easier to distinguish from one another, particularly if you have numerous routes in your system.

1. Select the appropriate route for editing (see *page 80*).
2. Select the Edit Name or Edit Color option:



3. Edit and save:



Note: *If the route has been saved by pressing FOLLOW (QUICK) ROUTE, the route is named 'Quick Route'. Changing its name prevents it being overwritten by a new Quick Route.*

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 only those waypoints created with this particular route. Waypoints that have been created separately or are used in other routes are not deleted.

To erase a route:

1. Select the appropriate route for editing (see *page 80*).
2. Erase the track or route:



You can also erase all or selected routes, using the ARCHIVE & TRANSFER function as described on *page 24*.

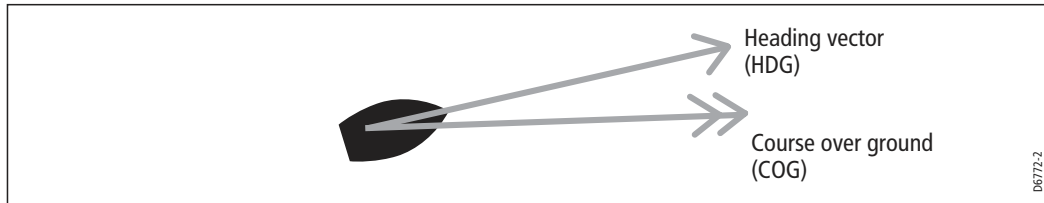
4.12 Monitoring where you are going

... using chart vectors

You can display a variety of graphical indicators to help monitor where you are going:

Note: Any vectors applied to a chart window that is set to system view, will be displayed in all other system view chart windows.

Heading (HDG) and course over ground (COG) vectors



The ship's heading (HDG) is displayed as a line with an open arrow head. It does not take account of winds or tides.

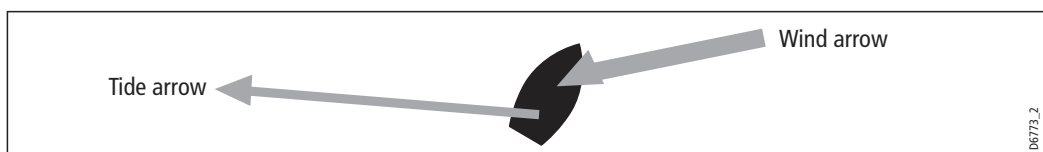
The course over ground (COG) indicates the boat's actual course and is displayed as a line with two open arrow heads.

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 103*) at the current speed.

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

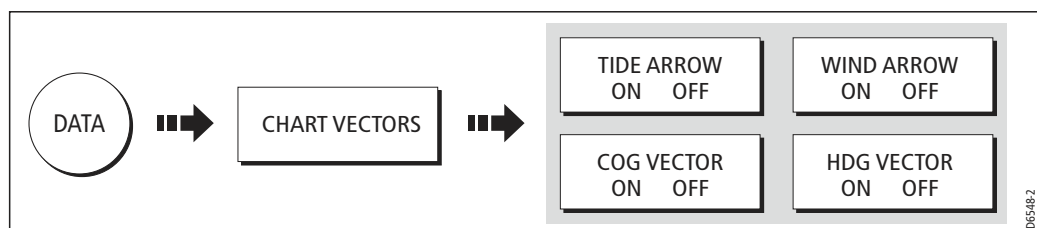
Note: If neither the speed over ground (SOG) or heading are available, vectors cannot be displayed.

Wind and tide arrows



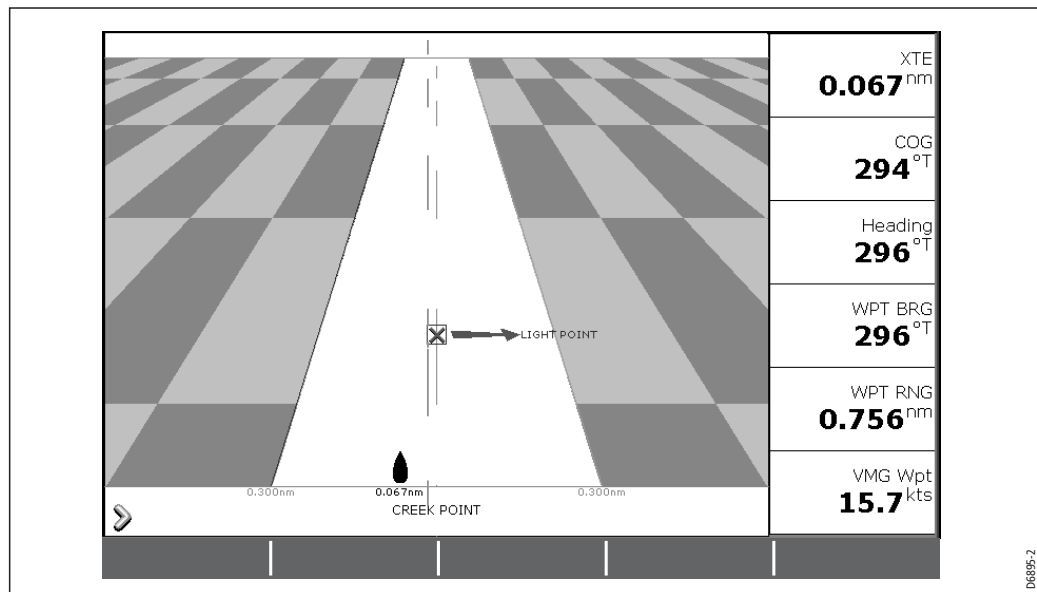
Winds and tides are displayed as lines with solid arrow heads in the direction of the wind or tidal set. Winds arrows point into your boat and tidal arrows point away. The width of the arrow indicates its strength.

To switch graphical indicators on/off:



... using the Course Deviation Indicator (CDI)

The CDI assists with accurately maintaining your course to your destination. A 'rolling road' in three dimensional perspective provides a real-time display of your boat's course. See *Chapter 12: Using the Course Deviation Indicator* for more information.



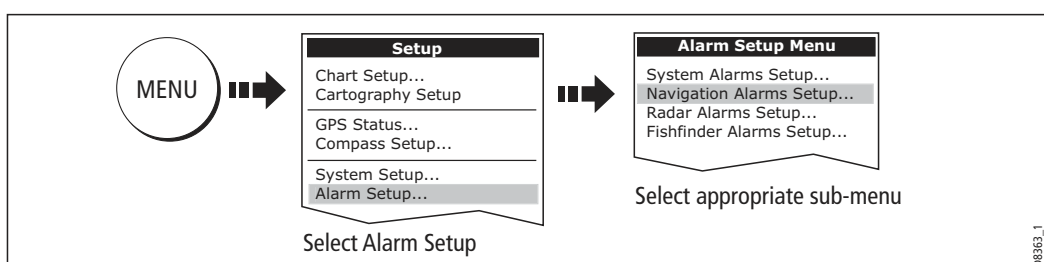
4.13 Warnings of potential dangers

When the appropriate equipment is installed and switched on, the following alarms will be triggered when you are in the chart application:

- System alarms - Anchor, Timer, Alarm clock and Temperature.
- Navigation alarms - Arrival and Off track.
- Radar alarms - Guard zones.
- Fishfinder alarms.
- AIS alarms.
- Weather alarms.

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, the appropriate action is taken by the Chart. For example, following an arrival alarm, the next route leg is activated.

To switch these alarms on/off and set the limits:



Note: For more details of alarms, see page 288.

4.14 Using the radar with the chart

You can enhance the use of your chart by combining it with the following radar features:

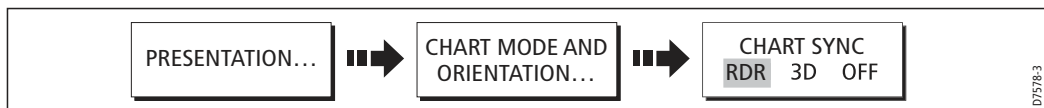
- Radar range synchronization
- MARPA.
- Radar overlay.

Synchronizing the chart with radar range

When synchronization is switched on:

- The radar range in all radar windows, 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 synchronized chart window, all radar windows change range to match.

To set the radar range synchronization:



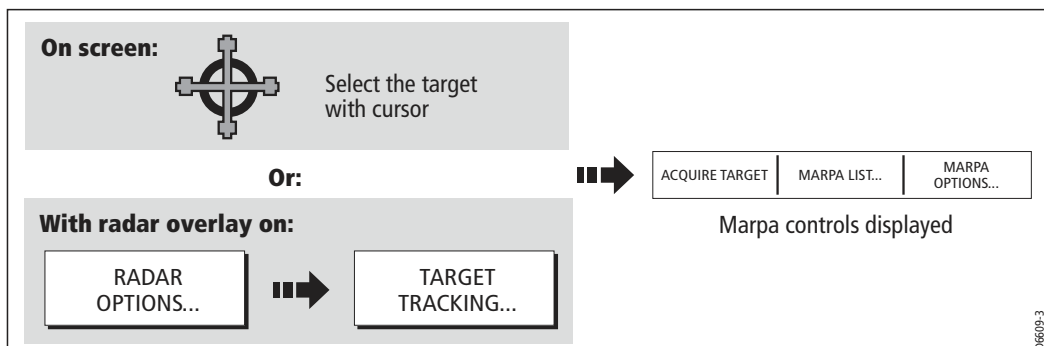
Notes: (1) *Radar range synchronization is not available when the chart motion mode is set to Autorange.*

(2) *The 2D chart can be synchronized with either the 3D chart (see page 121) or the radar but not both.*

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 and associated MARPA functions can be accessed via the chart. For detailed information on MARPA see *page 167*.

To access the MARPA controls when you are in a chart application:

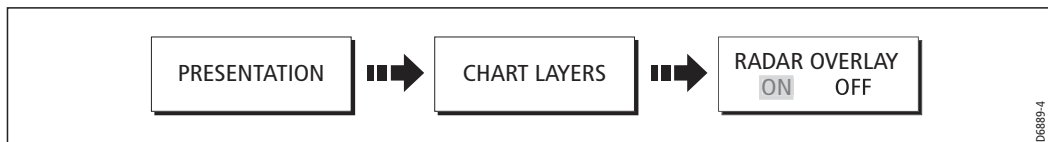


Distinguishing between fixed and moving objects

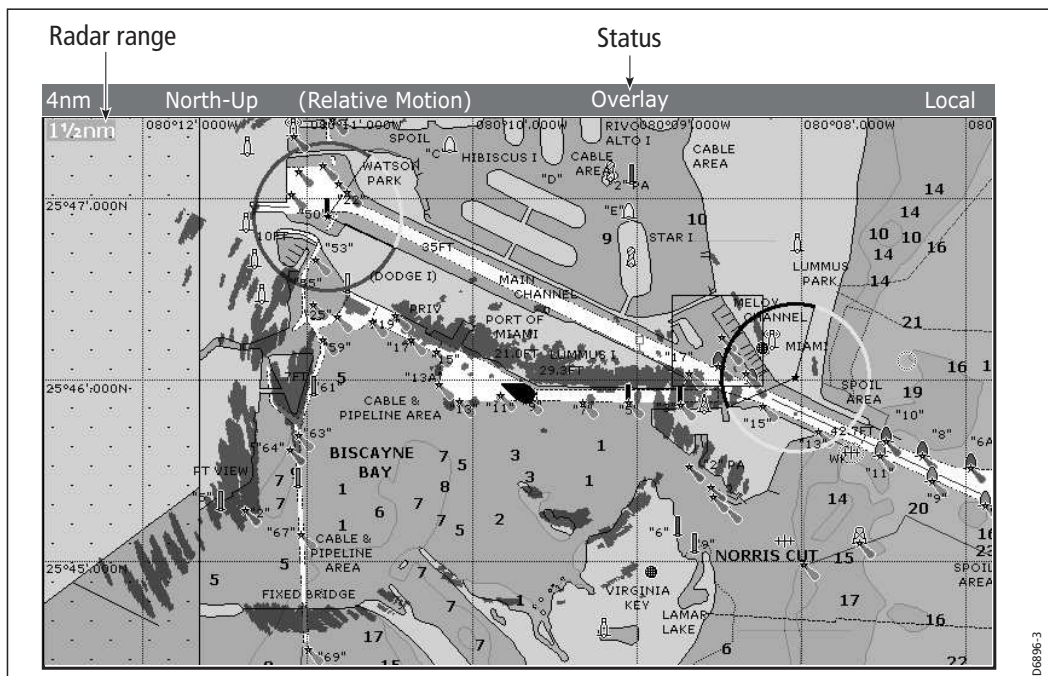
You can overlay radar image data over your chart image allowing better distinction between fixed objects and other marine traffic. For best results, switch on Radar-Chart synchronization (see page 88) to ensure radar range and chart scale are synchronized.

To switch radar overlay on:

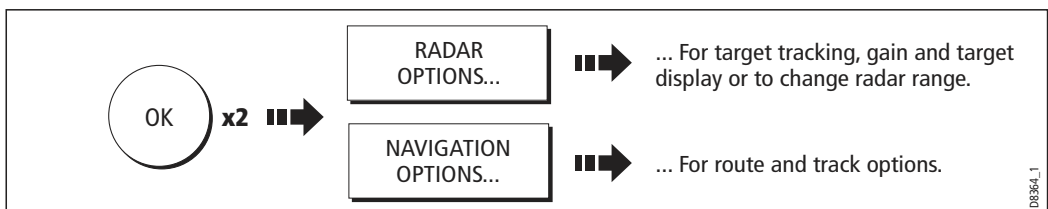
1. Select radar overlay:



The default soft keys change to give access to some of the radar options and if a radar is connected, the radar image will be overlaid on the chart e.g.

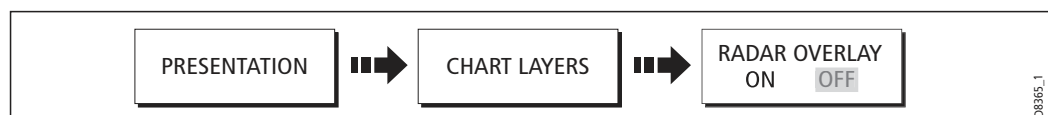


2. To access radar and navigation options:



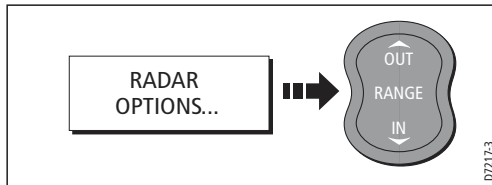
Note: If radar overlay is applied to a chart window that is set to system view, the overlay will be displayed in all other system view chart windows.

To turn off radar overlay:



Changing the radar range from the chart window

When the radar overlay is set to ON, the radar range is indicated in the top left-hand corner of the chart window in the same color as the overlay. You can now change the radar range:

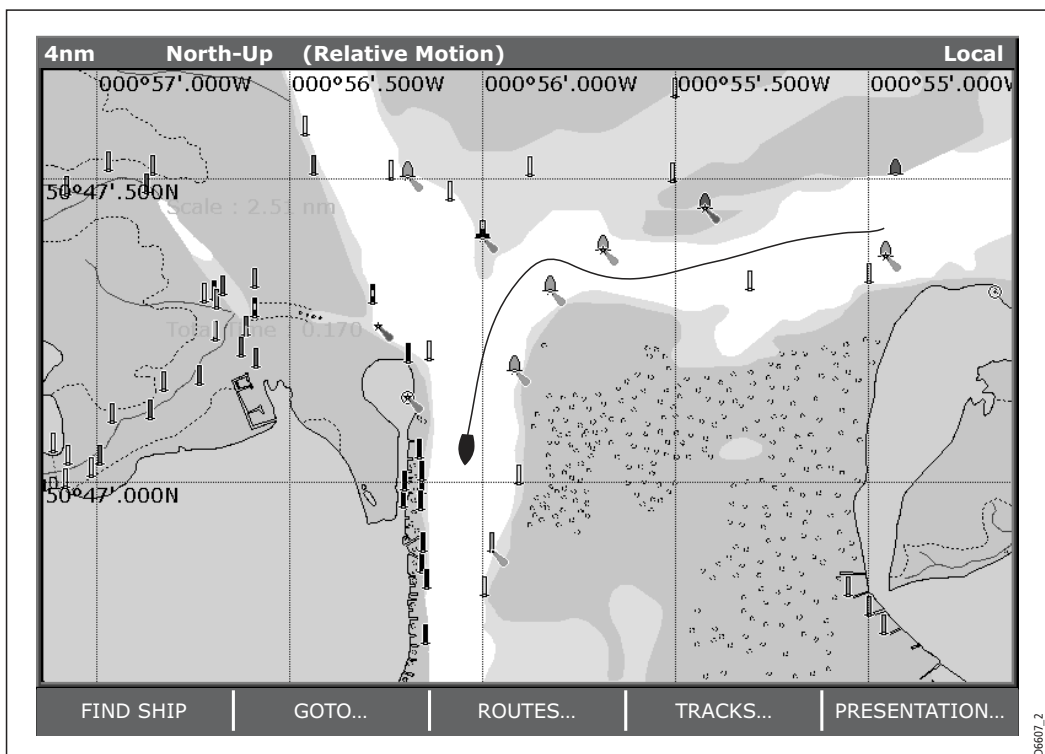


Note: If RDR RNG SYNC is set to ON (see page 88), the chart scale also changes

4.15 Recording where you have been

What is a track?

A track is an on-screen trail that represents the course you have taken. This trail is made up of a series of track points which are created automatically. You can save the track to create a permanent record of where you have been.



How can I use tracks?

Tracks can be used to:

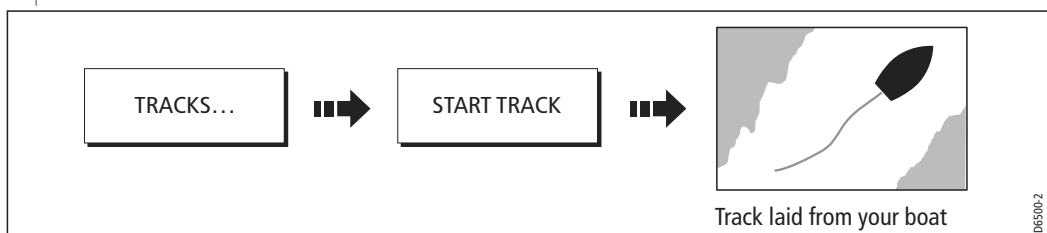
- Review where you have been.
- Retrace your original journey by converting the track to a route and automatically reversing it.

If required, a track can be personalized and the track options customized to your own particular needs. You can:

- Rename a track.
- Change the color of a track.
- Specify the time period between track point creation (see *page 103*).
- Specify the distance between each track point (see *page 103*).

Creating a track

To start a track...

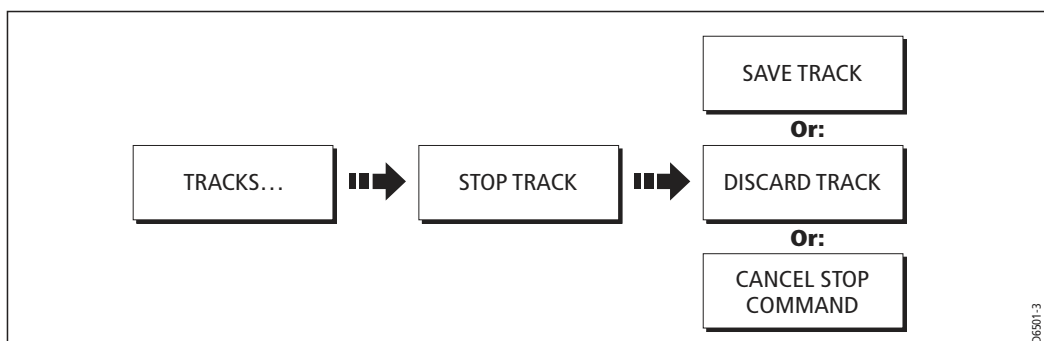


If the power fails whilst a track is being recorded or the position fix is lost, a break will occur in the track. Only the last segment of a track can be converted into a route.

If the maximum number of tracking points is reached, you will be warned. The track will continue to be recorded with the earlier tracking points being overwritten.

To stop the track...

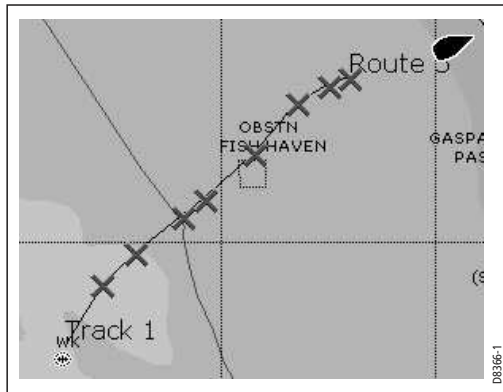
Stop the tracking process:



Creating a route from a track

Creating a route from a track enables you to retrace the course of that track.

When a track is converted the system creates the closest route through the recorded track, using the minimum number of waypoints. Each waypoint created will be 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. It can now be displayed, edited and erased etc. in the same way as other routes in the system.

Note: If a track break occurs, only the last segment is converted to a route.

CAUTION:

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

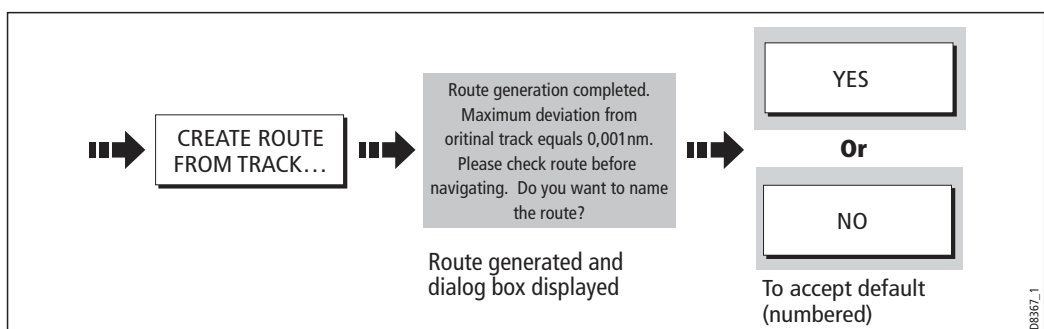
... from the current track

You can create a route from the track that you are currently laying. This method will take a 'snapshot' of the track to date, convert it to a route and then continue laying the track:

1. Select the track list:



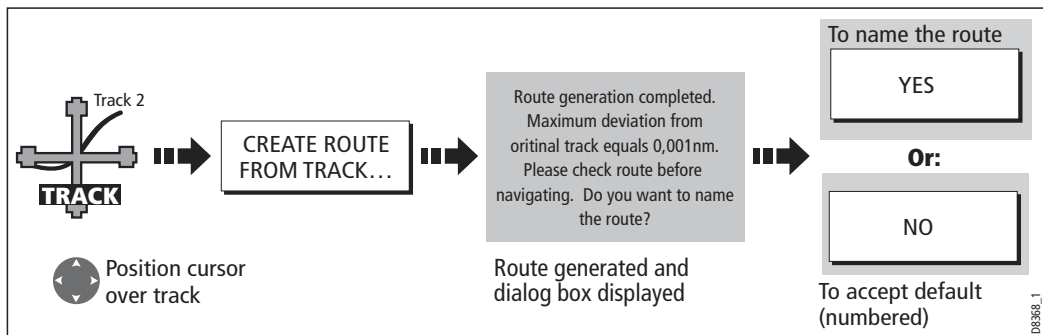
2. Create a route from current track:



Note: Alternatively you can also select the current track with the cursor and convert it to a route.

...from a saved track

You can create a route from a track that you have already saved:



Note: Alternately you can select the track via the track list - see page 92.

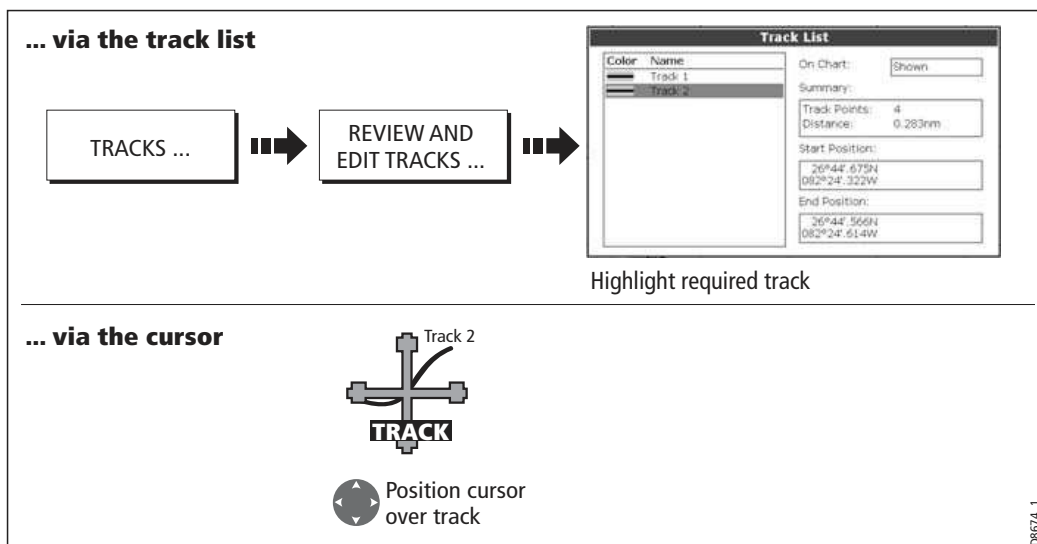
4.16 Editing tracks

Once you have created a track, it can be edited in a variety of ways. You can:

- Change the name of a track (see page 94).
- Change the color of a track (see page 94).
- Erase a track (see page 94).

Selecting a track for editing

For a track to be edited it must first be selected either via the track list or by selecting the appropriate track on-screen.



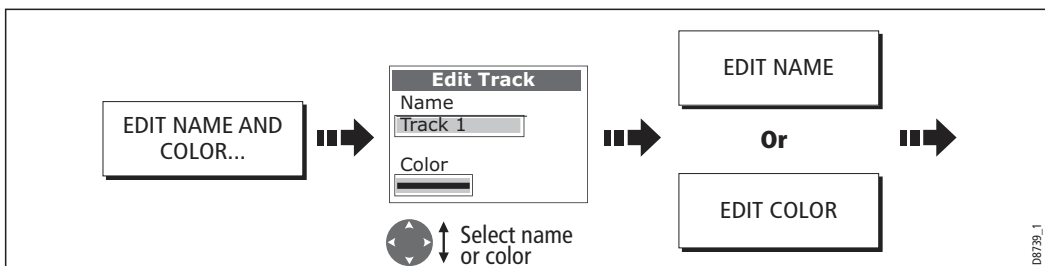
Editing the selected track

Once you have selected the appropriate track (see previous section) you can proceed to edit it.

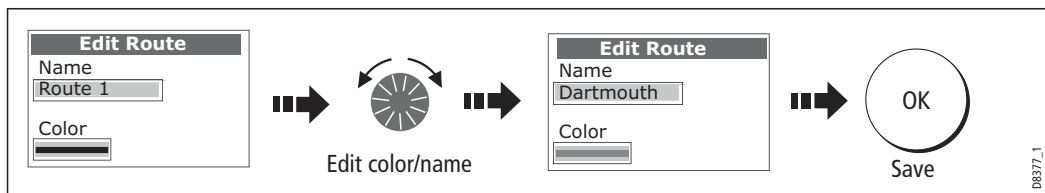
Changing the name or color of a track

You can change the name of a track from the default to a more meaningful one and/or change the color if required. This will make them easier to distinguish from one another, particularly if you have numerous tracks in your system.

1. Select the appropriate track for editing (see *page 93*).
2. Select the Edit Name or Edit Color option:



3. Edit and save:



Erasing a track

You can delete any track in your system:

1. Select the appropriate track for editing (see *page 93*).
2. Erase the track:



You can also erase all or selected tracks, using the ARCHIVE & TRANSFER function as described on *page 24*.

4.17 Defining how the chart windows are presented

Each chart window can be tailored to meet your particular needs. You can:

- Set the chart view for individual windows or system wide (see below).
- Change how the chart is orientated (see *page 96*).
- Change the way your chart is drawn in relation to your boat movement (see *page 97*).

Working with multiple chart views

If you have more than one chart window, you can either share the presentation or present each window independently. The option you have chosen is indicated on the chart status bar as LOCAL or SYSTEM. The system view is shared across networked E-Series displays.

System chart view

When a chart application is started it defaults to system view. Any windows set to system view will have the same presentation as other system windows for:

- 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.

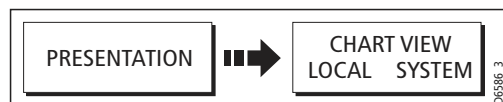
If you change any of these options in one window, ALL system windows will update.

Local chart view

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

Defining chart window presentation

To define how the chart windows are presented:



Note: *The motion mode will be set but not synchronized across windows when the chart view is set to system.*

Setting the orientation of the chart

The orientation of a chart refers to the relationship between the chart and the direction that you are travelling in. It is used in conjunction with motion mode (see *page 97*) to control how your boat and chart relate to one another and how they are displayed on screen. The mode that you choose is restored at power up. Any changes that you make to a chart window that is set to system view will be reflected in all other system view chart windows. The following options are available:

North Up (N-up)

In North Up mode, the chart orientation is fixed with true north upwards. As your heading changes the boat symbol moves accordingly. This is the default mode for the chart application.

Head Up (H-up)

Head Up mode displays the chart with your boat's current heading upwards. As the heading changes the boat symbol remains fixed and the chart picture rotates accordingly.

Notes: (1) *To prevent continuous backwards and forwards rotations as the boat yaws from side-to-side, the chart will not update unless the heading changes by at least 10 degrees from the last displayed orientation.*

(2) *It is not possible to select Head Up when the motion mode is set to True.*

Course Up (C-UP)

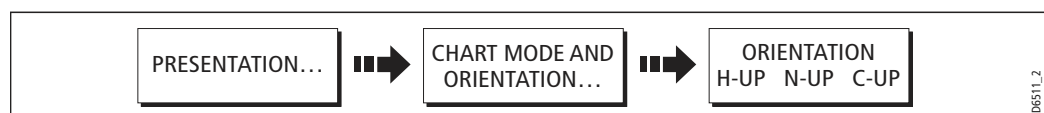
In Course Up mode, the chart picture is stabilized and shown with your current course upwards. As your boat's heading changes, the ship symbol moves accordingly. If you select a new course, the picture will reset to display the new course upwards.

The reference used for Course-Up depends upon the information available at a given time. The system always prioritizes this information 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 whilst in this mode, a warning message will be shown and the chart uses 0° heading in relative motion.

To set the orientation of the chart:



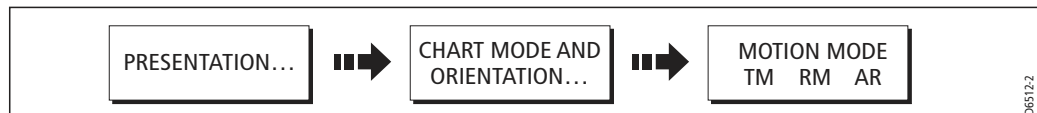
Setting the motion mode

The motion mode controls the relationship between the chart and your boat. Whilst motion mode is active, as your boat moves, the chart is redrawn to keep the boat on-screen. The three motion modes are:

- Relative motion.
- True motion.
- Autorange.

When you pan the chart or toggle FIND SHIP/CURSOR to CURSOR, the motion mode is suspended. This is indicated in the status bar by '()' around the motion mode and enables you to view another area of the chart whilst navigating. To reset the motion mode and return your boat to the screen, press FIND SHIP. Manually changing the range in autorange also suspends motion mode.

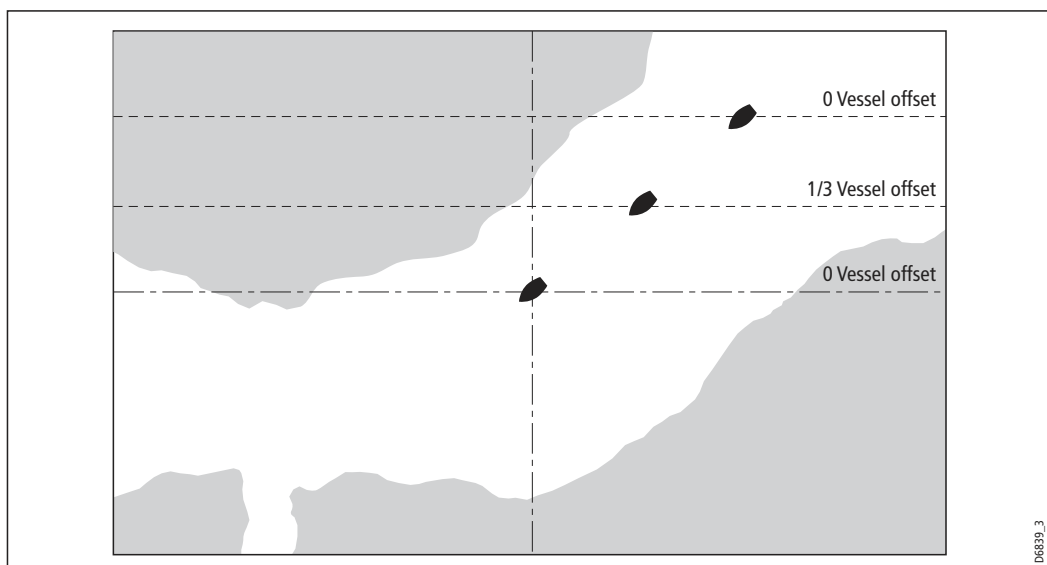
The default setting is relative motion with zero offset. The mode that you select is restored at power up. When a chart window is set to SYSTEM view the motion mode will be set but not synchronized across other system view windows.



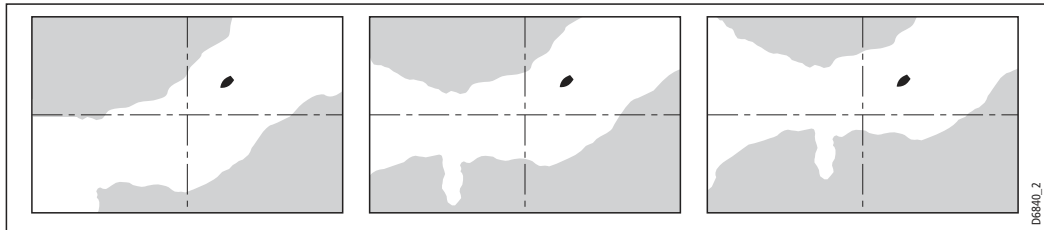
Relative motion (RM) with optional vessel offset

When the motion mode is set to Relative, the position of your boat is fixed on the screen and the chart picture moves relative to your boat.

You can specify using the VESSEL OFFSET soft key, whether the boat is fixed in the centre of the window (0 offset) or offset by 1/3 or 2/3. If you change the offset to 1/3 or 2/3, the view ahead of your boat will be increased.



In the following example the motion mode has been set to Relative with a vessel offset of 1/3. The boat is fixed in the offset position and the chart moves accordingly:



True motion (TM)

When the motion mode is set to True, the chart is fixed and the boat moves in true perspective to fixed landmasses on the screen. As the boat's position approaches the edge of the screen, the chart picture is automatically reset to reveal the area ahead of the boat.

Note: *It is not possible to 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 the boat and the target waypoint. Autorange is not available if radar-chart synchronization is on.

4.18 Altering the level of chart detail displayed

The chart features that you need to see will vary according to your particular needs and circumstances. You can adjust this level of detail by showing/ hiding the following features:

- Range rings
- Waypoints.
- Waypoint index of a route.
- Individual routes and tracks.
- Cartographic features.
- Chart vectors for COG, heading, tide and wind (see page 86)

Note: *You can also specify the level of detail on the chart display (simple, detailed or extra detailed). For more details, see page 106.*

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

In the Chart application:

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

Navionics combined data cards

Some Navionics data cards 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

In the Chart application:

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.

Showing or hiding waypoints/waypoint information

The system has various options to control the display of waypoints and waypoint information. You can show or hide all your waypoints and their names or show or hide waypoints by group or by symbol.

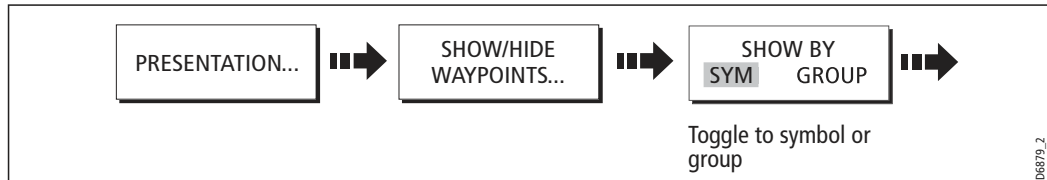
These options are particularly useful when you have placed a large number of waypoints in a small area and rendered your chart difficult to interpret.

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.

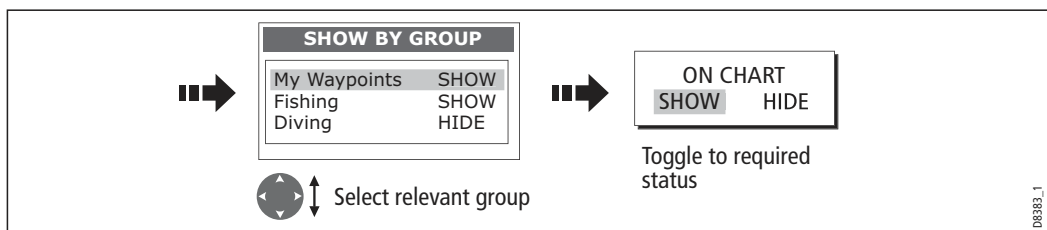
Show/hide by group/symbol

You can show or hide waypoints with a particular symbol or belonging to a specified group:

1. Select to show/hide by waypoint group or symbol:

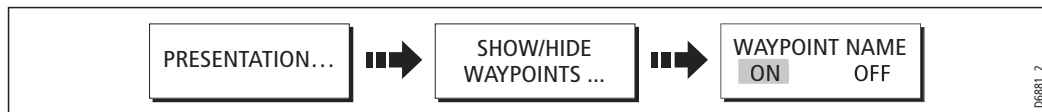


2. Change status to show or hide as required.



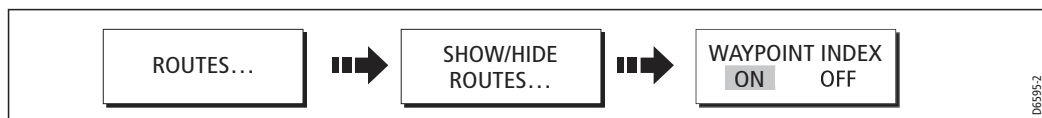
Show/hide waypoint name

You can show or hide the waypoint names from the screen:



Show/hide waypoint index

The order of waypoints within a route is indicated by the waypoint index. To show/hide this index:



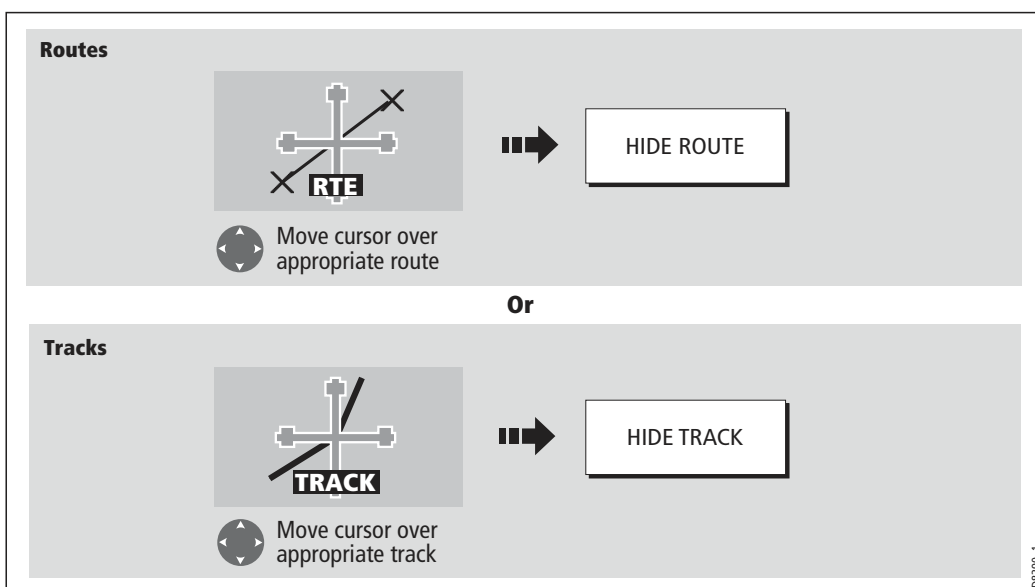
Showing or hiding a route or a track

You can define which routes or tracks are shown or hidden from the screen. When a route is set to HIDE, the route line is not displayed. The display of waypoints within a hidden route depends however on the show/hide waypoint setting (see *page 99*). The active route is always displayed irrespective of the display status.

Note: *The show/hide status of a route or track applied to a chart window that is set to system view, will be displayed in all other system view chart windows.*

... using the cursor

You can use the cursor method to hide a route or track.

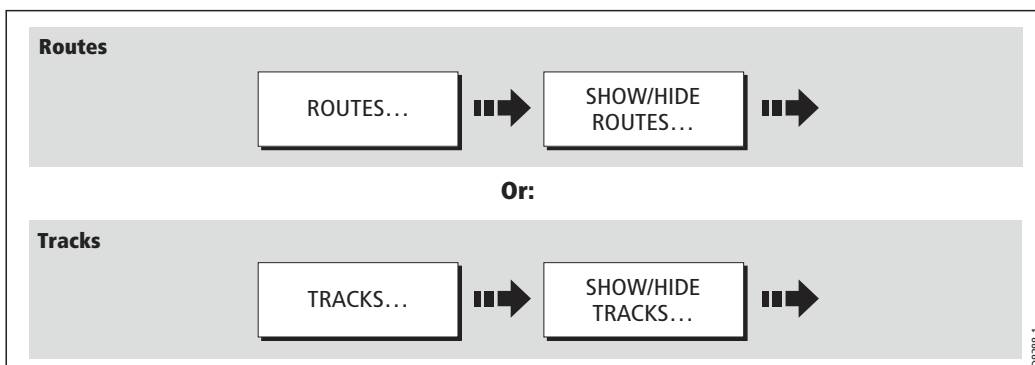


Note: *Use the route/track list to return the display status to SHOW.*

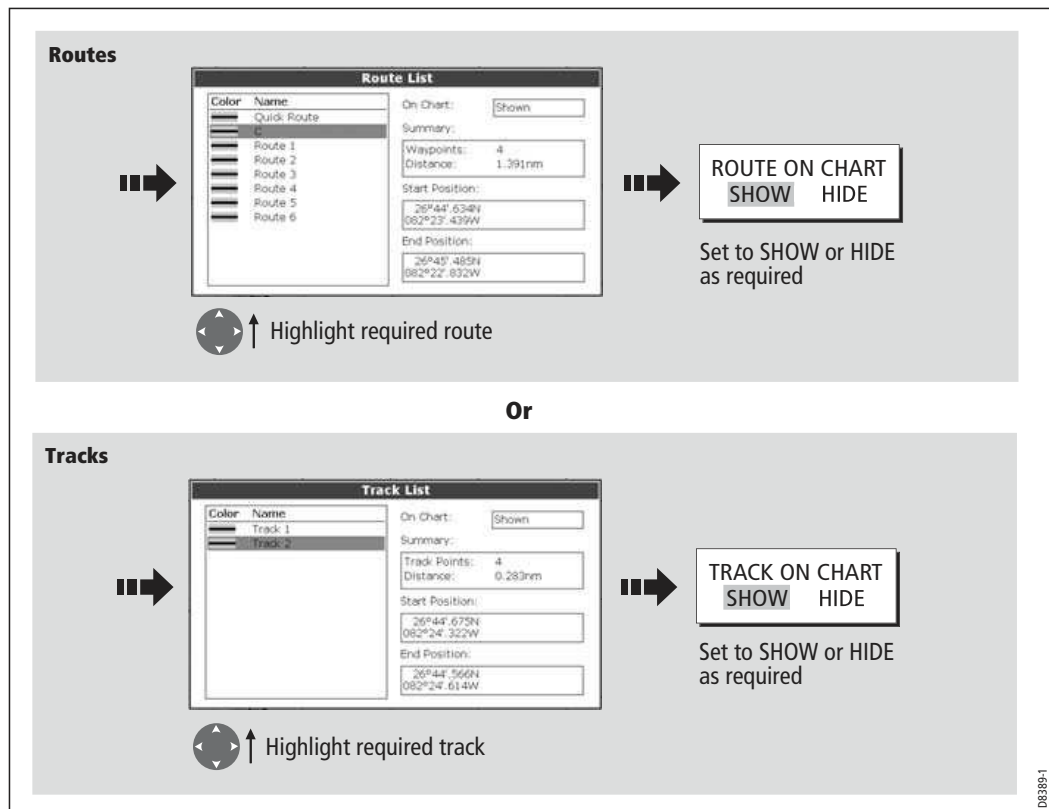
... via the route/track list

You can show or hide a route /track via the appropriate list:

1. Select the Show/Hide Route or Show/Hide Track option:



2. Select required route or track:

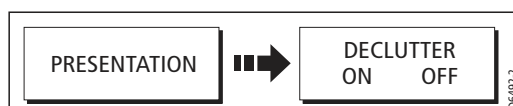


Showing or hiding cartographic features

If there are a large number of cartographic objects in a particular area, 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 & routing data.
- Land and marine features.
- Business services (if available on your cartography)

To declutter your chart:



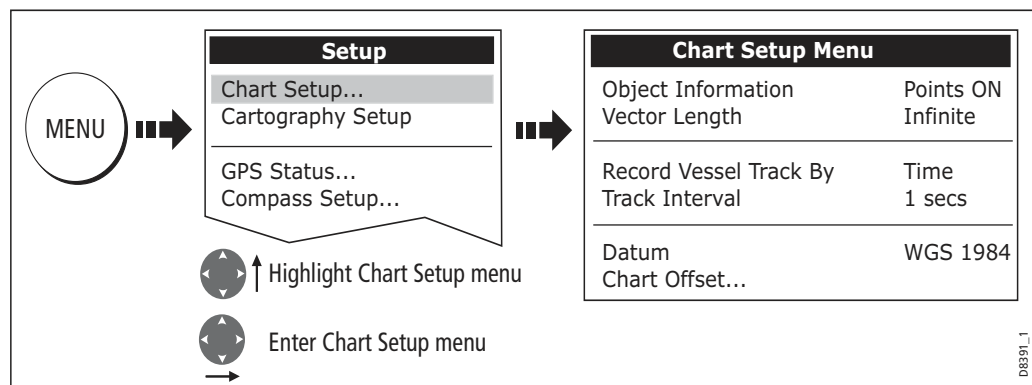
If the declutter option is applied to a chart window that is set to SYSTEM view, the declutter will be applied to all other system view chart windows. If decluttering does not hide/show the particular features of your choice, they can be turned on/off individually via the Cartography Setup menu (see *page 106*).

4.19 Setting up your chart and its cartography

The set up for your chart and its cartography can be changed from the standard configuration to suit your particular needs. Although you will probably only do this when you first use the chart, you may decide to make subsequent adjustments once you become more familiar with the system. Any settings that you change are retained even when you power off.

Chart Setup

To select the Chart Setup Menu:



The following table details the functions and options within the Chart Setup menu:

FUNCTION Description	OPTIONS (Default in bold)
<p>Object Information OFF - No info pop-up is displayed but detailed data can still be displayed by pressing OK. ALL ON - the info pop-up for all cartographic areas (including objects) is displayed. Points ON - the info pop-up only displayed for objects selected with the cursor.</p>	<p>OFF All ON Points ON</p>
<p>Vector Length The time period specified for drawing COG and Heading vectors.</p>	<p>3 Mins 6 Mins Infinite</p>
<p>Vector Width Sets the width of the COG and HEADING chart vector lines.</p>	<p>Thin Normal Wide</p>
<p>Record Vessel Track By AUTO - system automatically creates track points. TIME - for track point creation by time. DISTANCE - for track point creation by distance.</p>	<p>Auto Time Distance</p>

FUNCTION Description	OPTIONS (Default in bold)
<p>Track Interval Options available depend on setting in Record Vessel Track By function: TIME - specify time period between track points creation. DISTANCE - specify distance between track points creation. AUTO - no options available</p>	<p>TIME selected: 1 sec 5 secs 10 secs 30 secs 1 min 3 min 5 min 10 min 30 min</p> <p>DISTANCE selected: 0.1 nm 0.5 nm 1.0 nm</p>
<p>Datum Grid moves according to datum selected and the lat/lon of cartographic features change. System attempts to set up any GPS to the new mode and indicates whether successful or not. See additional information below.</p>	<p>WGS 84 List of datum provided</p>
<p>Chart Offset Moves the position of the chart in order to correct for position errors in the cartography. See below for further information.</p>	<p>ON OFF</p>

Datum

For your GPS and chart to correlate accurately with your paper charts, they will need to be using the same datum. The default datum for your display is WGS1984. If this is not suitable, you can change the setting. When you adjust the datum of the E-Series Display, a Raymarine GPS will automatically correlate. If you have a third party GPS, you will need to correlate this separately.

CAUTION:* Changing the chart datum does not cause any waypoint or routes stored in the chartplotter to move on the display, although their latitude and longitude changes to reflect the new datum.

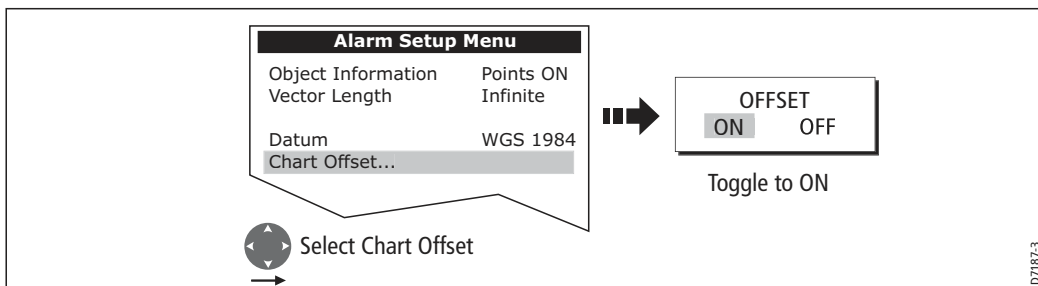
When adding waypoints numerically to the waypoint list, or via SeaTalk or NMEA, it is important that they are referenced to the same datum to which the display is currently set.

Chart Offset

This feature allows you to move the position of the chart in order to correct for position errors in the cartography. This adjustment is indicated as a distance north/west (+ve) or south/east (-ve) from your vessel position to a maximum of 1000m. To view the effects of an offset you can turn the feature on/off. Once calculated, the offset is applied to **all** charts.

Important: Any offset entered will be applied to all charts on the chart card. You should therefore ensure that this feature is switched off once you have transitioned off of the errant chart. Any charting errors that you discover should be reported to Navionics (see page 272).

To switch on chart offset:

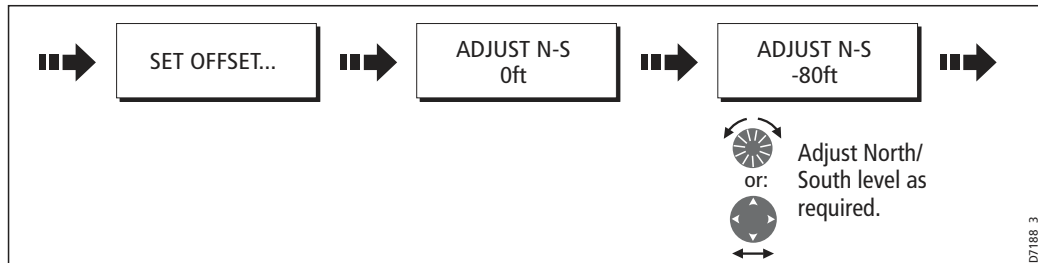


Note: If your vessel position is not available, the current chart centre is used as the reference point.

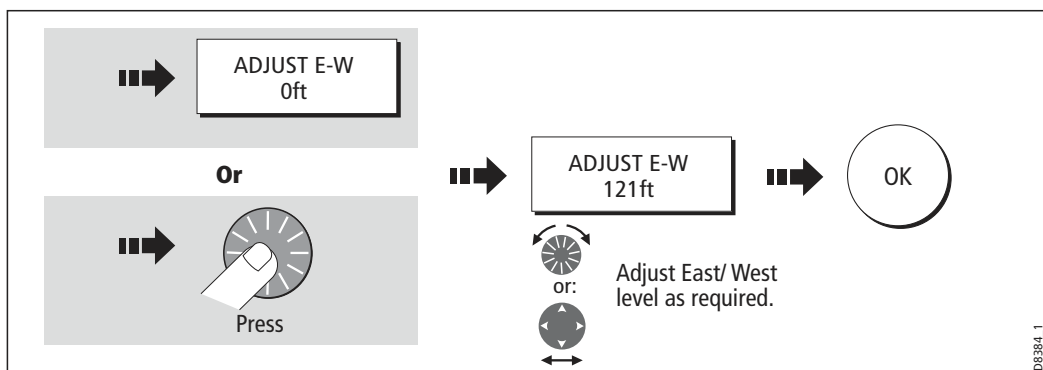
Changing the offset value

To change the offset value:

1. Select the Chart Offset function (see previous section)
2. Set the north/south offset value:



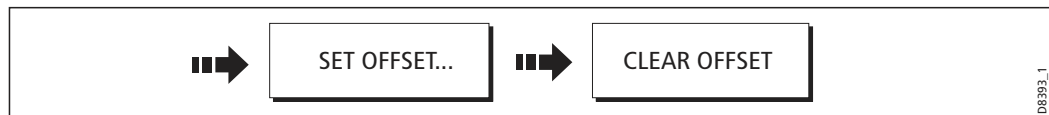
3. Set the east/west offset value:



Resetting the offset value

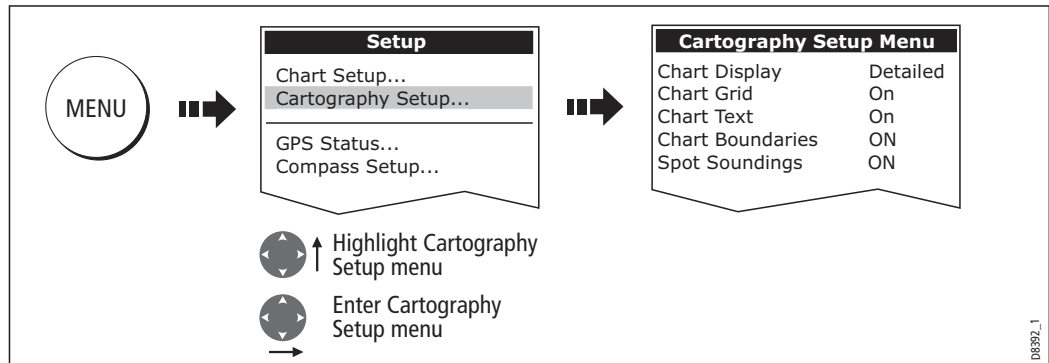
To reset the chart offset to zero:

1. Select the Chart Offset function (see previous section).
2. Reset to zero:



Cartography Setup

The Cartographic Setup Menu allows you to configure what is displayed on your chart:
To select the Cartography Setup Menu:



The following table details the functions and options within the Cartography Setup menu:

FUNCTION	OPTIONS
Description	(Default in bold)
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 boundary 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 6ft 9ft 16ft 19ft 32ft 65ft (Contour always drawn at or deeper than the selected depth).

FUNCTION Description	OPTIONS (Default in bold)
Depth Contour A line indicating the depth at a particular position.	ALL 16ft 19ft 32ft 65ft OFF
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 The following cartographic features displayed on the water - 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
Roads Major coastal roads	ON OFF
Additional Wrecks Extended wrecks data for new wrecks	ON OFF

4.20 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:

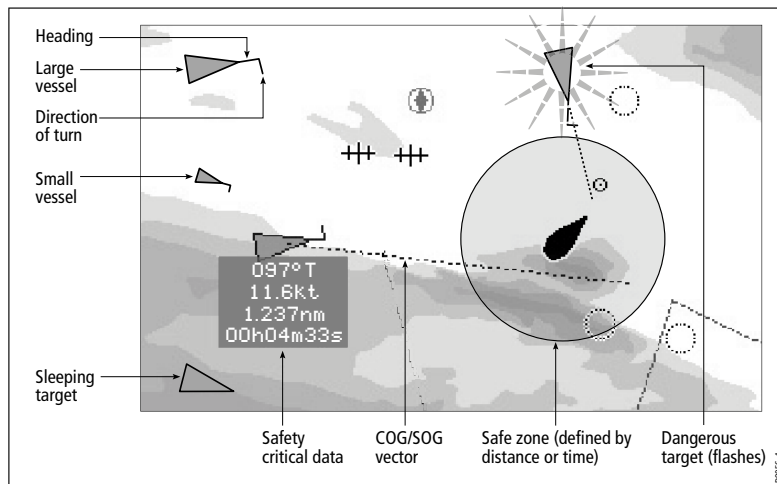
- Route
- Track

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*:

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**.

Chapter 5: 3D Chart

5.1 Important

3D Chart functionality

To obtain the best results from the 3D cartography application you should make sure that your display is receiving accurate heading and position data from a suitable source and that you are using a chart card incorporating 3D cartography for the appropriate area.

Safety

The 3D chart is an aid to visualization. When navigating with your 3D chart you should also check your 2D chart and ensure that a route is safe. Until you are familiar with interpreting the 3D chart, you should take every opportunity to compare the displayed objects with visual targets, such as buoys and coastal structures. You should practice harbour and coastal navigation during daylight and in clear weather conditions. The simulator mode can also be used to help you gain experience.

It is strongly recommended that before you use your 3D chart application, you read and understand *Chapter 3: Working with Waypoints* and *Chapter 4: Using the Chart*.

CAUTION:

The 3D application should not be used as a substitute for good navigational practice nor for official government paper charts. Do not use this application before you have read this chapter.

5.2 An introduction

This chapter describes how to use your 3D chart and its various functions including:

- Setting up your 3D chart (see *page 123*).
- Using the controls (see *page 113*).
- Setting the operation mode (see *page 115*).
- Changing the view point (see *page 116*).
- Rotating the selected view (see).
- Changing the pitch (see *page 114*).
- Exaggerating the view (see *page 118*).
- Synchronizing the 3D and 2D chart (see *page 121*).
- If a transducer is fitted - displaying the fishfinder cone area (see *page 122*).

5.3 What can I use the 3D Chart Application for?

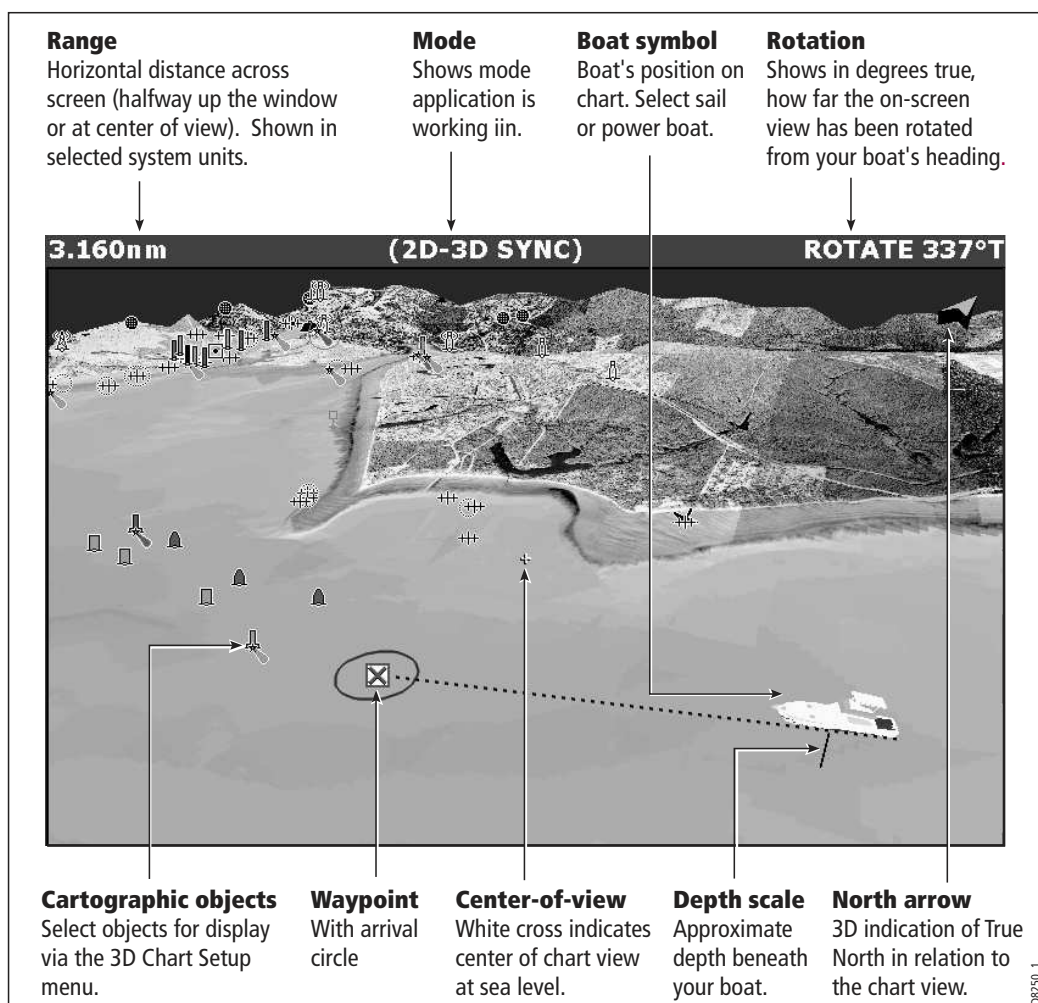
3D cartography introduces an easy-to-use chart format that provides you with a three dimensional graphical view of land and sea contours around your boat. Land masses are shown in green, the shade depending on the height above sea level. Water, the sea-bed and submerged objects are shown in varying shades of blue.

Much of the information available on a conventional chart can be shown in three dimensions, giving you an accurate easy-to-view image of the area around your boat that can help you plan:

- Fishing spots.
- What fishing pattern to use.
- Safe routes.

If the area that you are in is new to you, or visibility is poor, 3D cartography can help to give you the confidence to know where you are and what is around you. As with a conventional chart, active waypoints and routes can also be shown on the 3D chart.

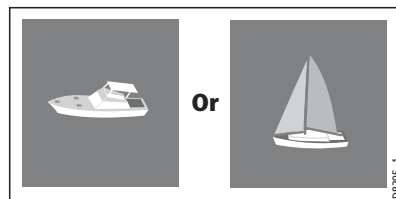
5.4 The 3D chart display



5.5 Where am I on the 3D chart?

Your current position is represented by a boat. You can choose from a power boat or yacht.

To change the style of vessel displayed, see *page 123*.




If positional data has been selected for display (see *page 224*), your position will be displayed in the data bar under VES POS.

Note: *If neither heading nor COG data is available, the boat symbol is not displayed and the FIND SHIP soft key is greyed out.*

If you cannot see your boat:

FIND SHIP

➡➡➡



3D Chart redraws with boat in forward looking view at your current position

To mark your current position:

WPTS
MOB

x2 ➡➡➡

OK

(or wait 3 seconds)

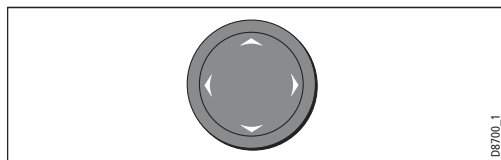
Accepts default

5.6 Moving around the 3D chart

The 3D chart is operated in a similar way to a 2D chart. To move around the 3D chart and display the area required at the appropriate scale and angle, use a combination of panning, zooming, rotating and pitching:

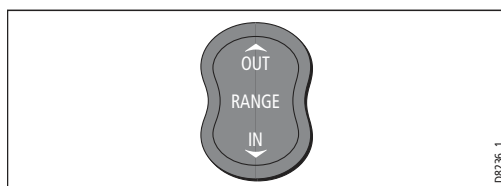
Panning

Panning moves the 3D chart that is displayed to a different area. To pan a 3D chart, press the appropriate arrow (left/right, up/down) on the trackpad.



Zooming in/out

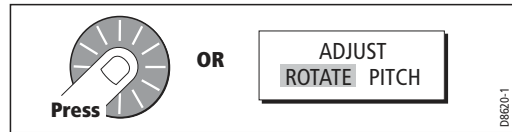
Range **OUT** to show a larger area of the chart (approximately 8nm maximum).
Range **IN** to show a smaller area of the chart.



Rotating and pitching

Select

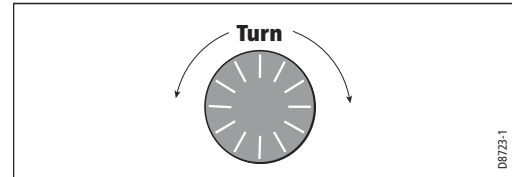
Toggle control between the rotate and pitch functions.



Adjust

Turn the rotary control to adjust the active function:

- Rotate - rotates the view 0-360°.
- Pitch - changes the vertical angle of view. (1-90 degrees)

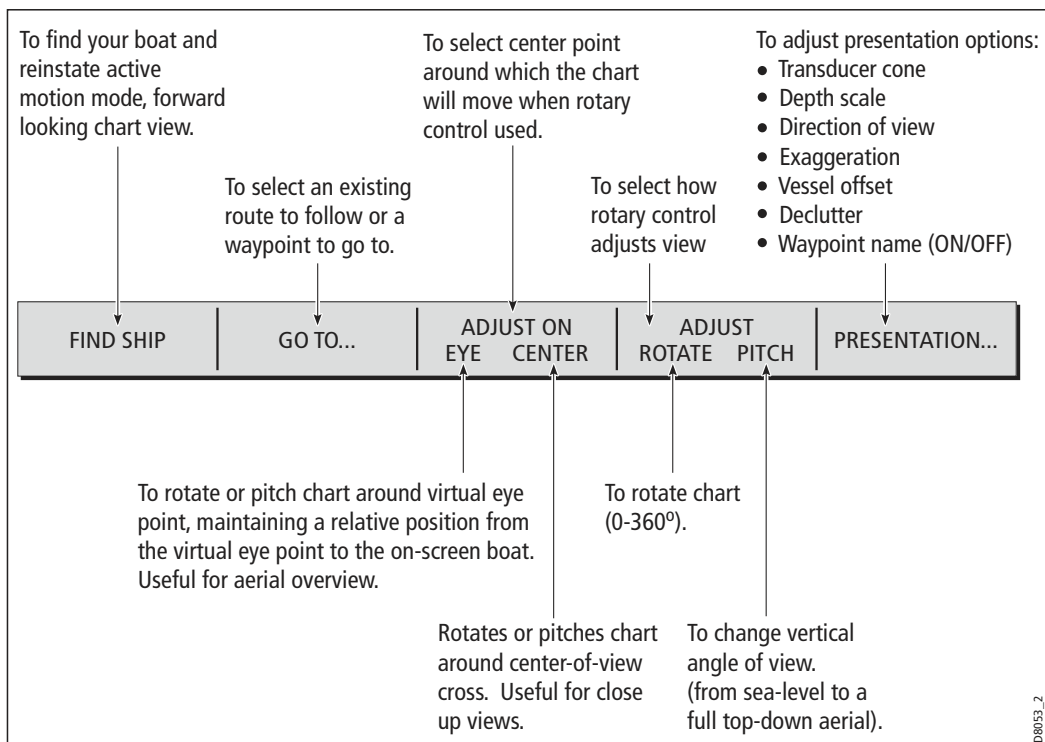


Note: The rotary control is always active to adjust pitch/rotation (even when the soft key sub-menus are displayed, except when adjusting exaggeration). This is different to most other uses of the rotary, which require you to press a soft key to enable adjustment.

5.7 Other 3D controls

Soft keys

The soft keys control the application as follows:



5.8 Changing the mode

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 when you open the 3D application provided that there is a valid fix. The screen shows an aerial view of the 3D chart as if you are above your boat, slightly behind it and looking forward (virtual eye point).

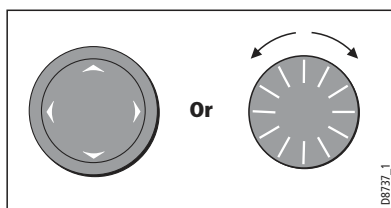
You can also view the chart from different positions relative to your boat - see "View options" on page 116. As your boat moves forward the chart automatically updates and reveals the changing view ahead.

Note: In active motion mode you can adjust the pitch when ADJUST ON is set to CENTRE, but rotating or panning the chart will put it into planning mode.

Planning mode

Planning mode enables you to view an area of the chart, different to the one in which you are navigating, so that you can analyse locations and features. You can use the controls to view a particular area from different angles, bearings and ranges. The chart no longer automatically keeps your boat on-screen.

When you are in planning mode, the controls and functions available are the same as for active motion mode.

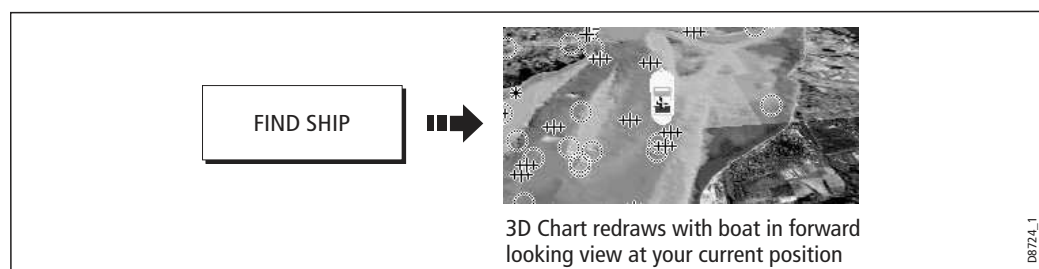


To enter planing mode:

- 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 information e.g. (FWD).

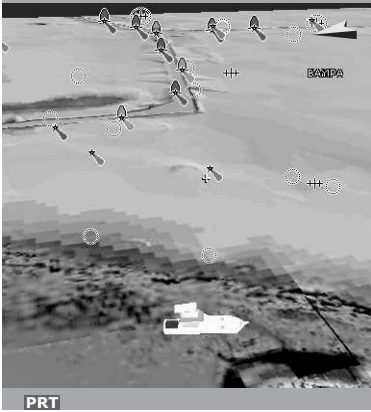



To return to active motion mode



5.9 Changing the view

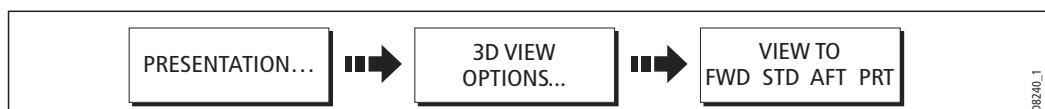
View options

There are four view options that you can choose from - Forward, Aft, Port and Starboard.

	
<p>Port</p> <ul style="list-style-type: none"> ● Eye point above and to starboard side of boat, looking to port. 	<p>Starboard</p> <ul style="list-style-type: none"> ● Eye point above and to port side of boat, looking to starboard.
	
<p>Forward</p> <ul style="list-style-type: none"> ● Default view. ● Eye point above and behind the boat, looking forward. ● Pressing FIND SHIP resets to this view. 	<p>Aft</p> <ul style="list-style-type: none"> ● Eye point above and in front of the boat, looking behind it.

With each view the eye point is changed to show a different area of the chart. The current option is highlighted on the soft keys and displayed in the status bar.

To select the view option:



Note: When the VIEW TO soft key is pressed the system automatically puts you into active motion mode.

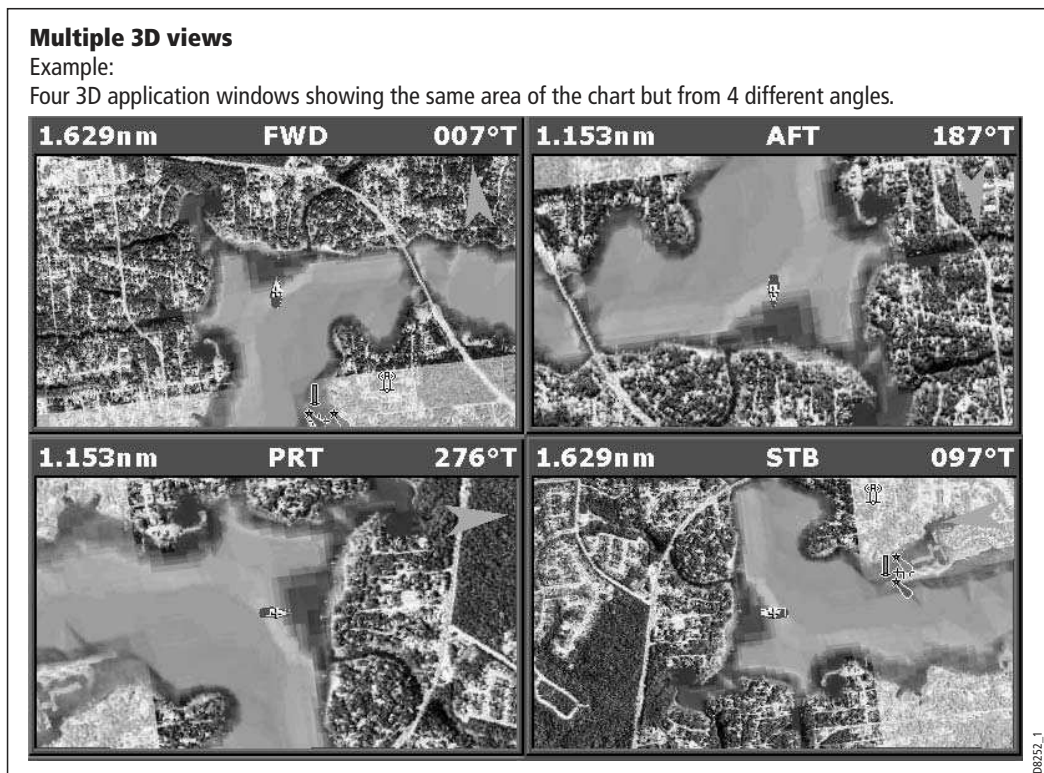
Multiple views

You can display multiple 3D chart views by creating a page that shows 3D cartography in up to 4 windows. As each window is a separate application, they can be set up to operate in active motion mode or planning mode or a combination of the two.

These can be views of:

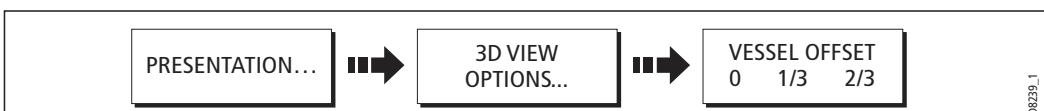
- The same area of the chart from different angles.
- Views of up to 4 different areas of the chart.

Note: For full details of page set up and "active" windows refer to page 17.



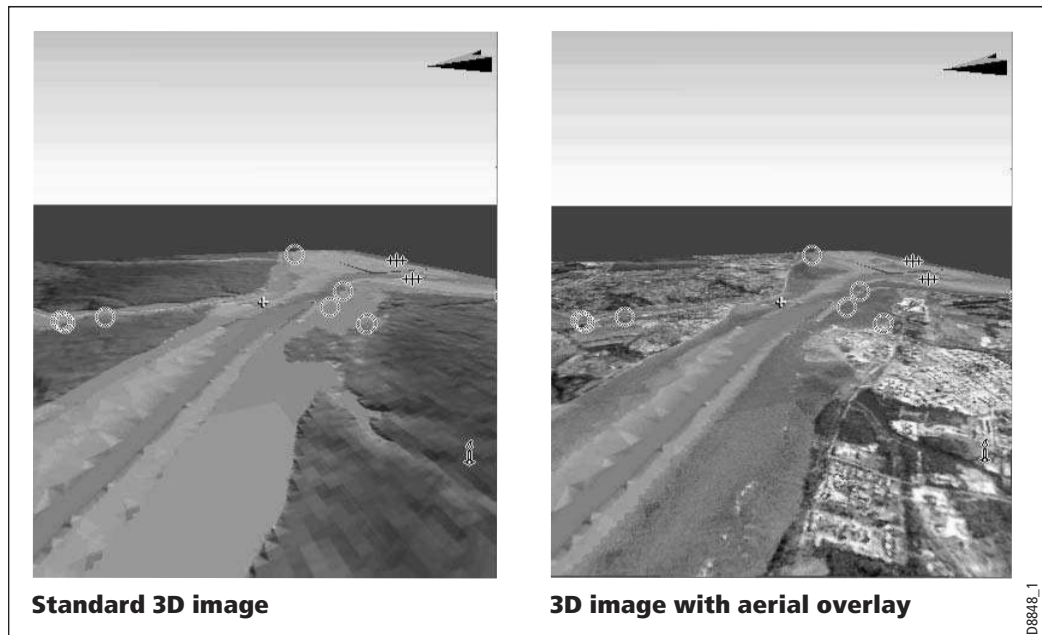
Vessel offset

You can specify whether the boat is fixed in the centre of the window (0 offset) or offset by 1/3 or 2/3 of the screen. If you change the offset to 1/3 or 2/3, the view ahead of your boat will be increased.



5.10 Aerial photo overlay

You can overlay an aerial photo onto the 3D image. This will help you to interpret your environment and its features. Aerial photos cover the navigable waters up to 3 miles inside the coastline. Beyond these limits the land will appear green (color charts) and grey (black and white charts). The level of resolution and the availability of a colored overlay is dependent on the region covered by the chart card.



Aerial photo overlay is controlled via the 3D Chart Setup Menu. See *page 123* for more details.

5.11 Making the view clearer

You can make the view clearer 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.