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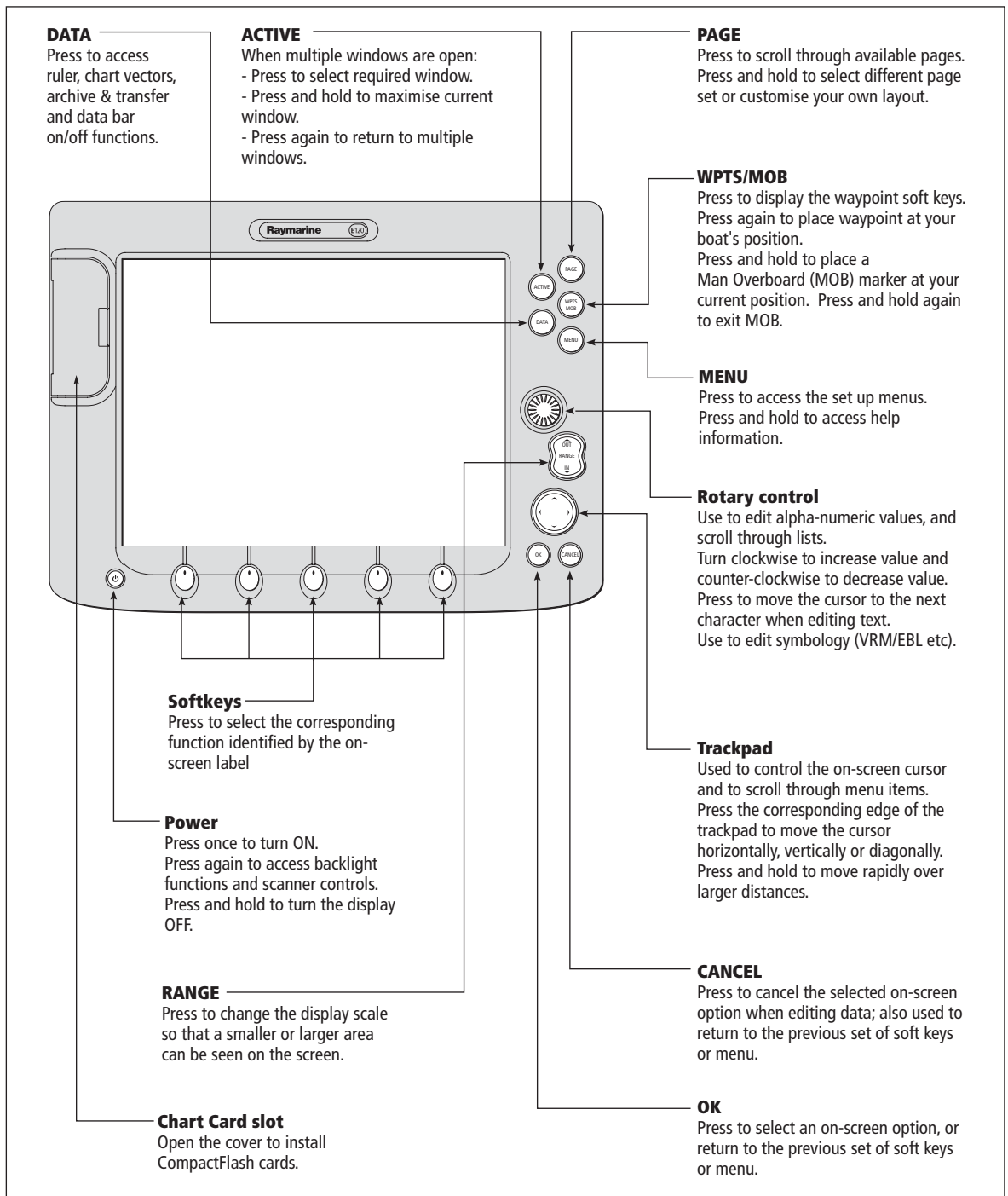
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# General Operation

## The control panel

Card No. 1



### WARNING: NAVIGATION AID

This unit is only an aid to navigation. Its accuracy can be affected by many factors, including equipment failure or defects, environmental conditions, and improper handling or use. It is the User's responsibility to exercise common prudence and navigational judgements. This unit should not be relied upon as a substitute for such prudence and judgement.

Always keep a proper look-out.

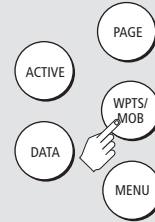
# General Operation Using the controls

Card No. 2

## How do the controls work?

### Buttons

- Access system functions or change what you see on-screen. Within the text of this document they are written in bold capitals e.g. **WPTS/MOB**.
- Press and hold to access short cuts - see individual buttons on facing page.

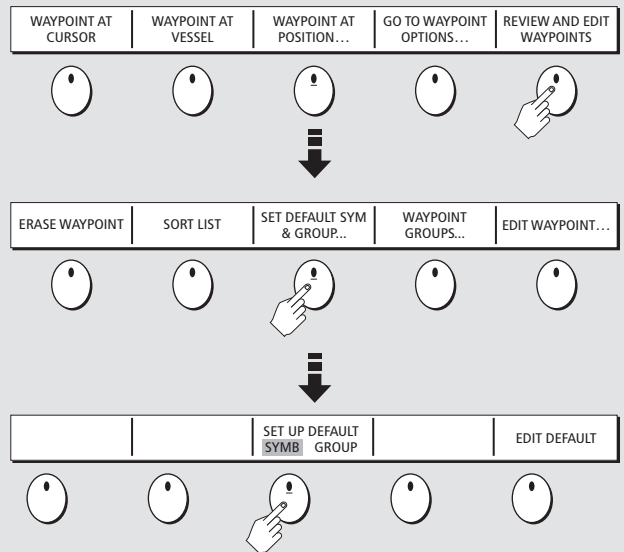


### Example:

This example shows the series of button and soft key presses required to change the waypoint default symbol or group.

### Soft keys

- They change depending on application or function being performed.
- Press and hold **MENU** to display help information for the currently displayed soft keys.
- Press the corresponding key (below the screen) to select.
- Further soft keys may be displayed. If a key has several options, each press will highlight the next option.
- If a key displays a single value or a slider above, use the rotary control to adjust.
- Within the text of this document they are written in capitals e.g. SORT LIST.



This process of pressing buttons and soft keys to navigate to the required function, is simplified within this guide and represented by a strip e.g.



### The Cursor



The Cursor appears on the screen as a white cross.



To make it easier to locate on screen, the cursor changes to a circle with a cross in it, when it is moved after a 10 second period of inactivity.



The cursor is context-sensitive. When it is placed over an object e.g. a waypoint or chart feature, it changes color and a label or information associated with the object is displayed. When you place the cursor over certain items, the soft keys change to enable you to access related operations.

# General Operation

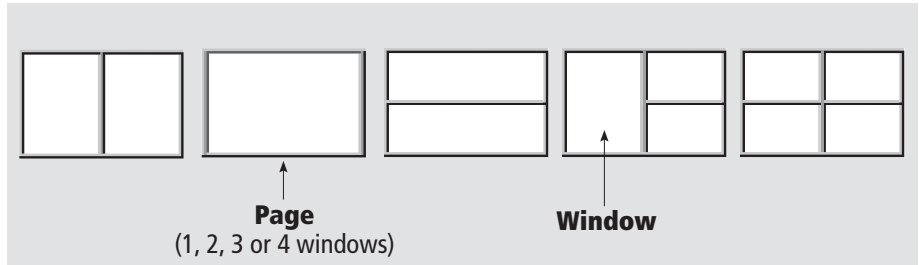
## Setting up the display

Card No. 3

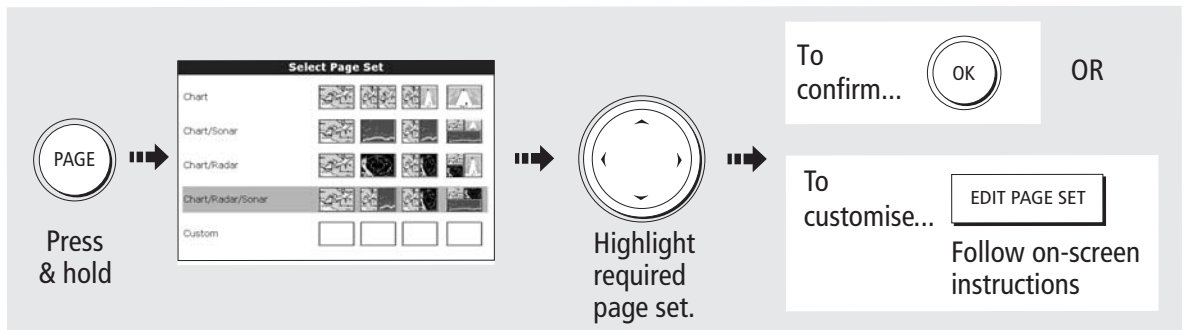
### How do I select how the applications are displayed?

The applications are shown using a combination of page sets, pages and windows. There are four pre-configured page sets each containing five pages with a combination of windows and applications in each. These sets can be edited if required. Alternately, you can use the empty fifth page set to define the combination that suits your particular needs.

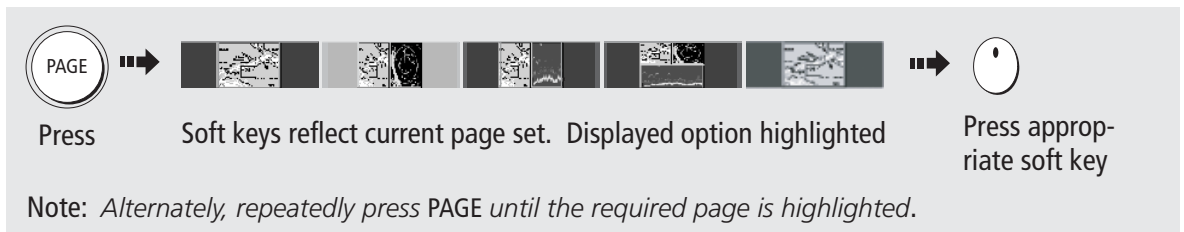
Any changes you make will be saved to the system. You can change these preferences as many times as you wish.



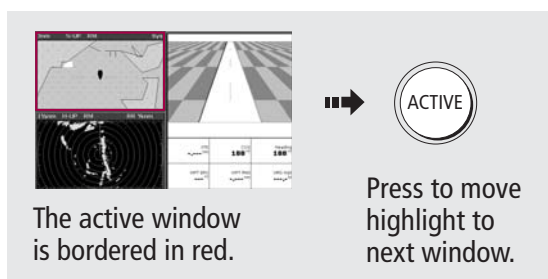
### How do I select the Page Set?



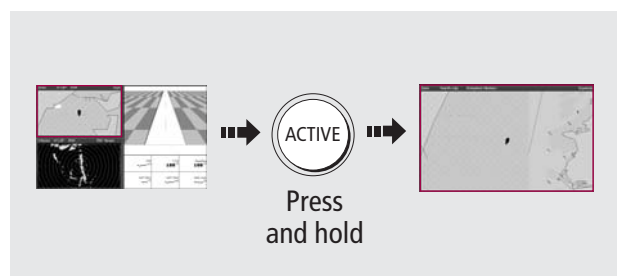
### How do I select a Page?



### How do I select a Window?



### From multiple to single windows?



**? More information** - See the General Operations chapter of the Reference Manual

# General Operation

## Using CompactFlash cards

Card No. 4



### CAUTION

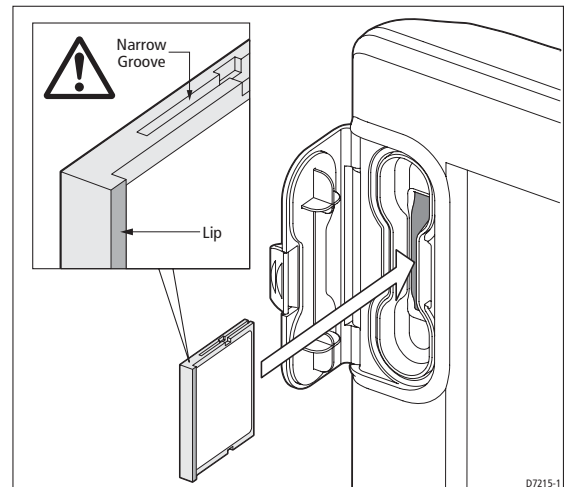
#### CompactFlash Card

In order to protect your E-Series Display and CompactFlash cards from irreparable damage, please adhere to the following:

- Fit the card the correct way around. **DO NOT** force.
- Ensure card door is firmly closed at all times.
- **DO NOT** use a metallic instrument (e.g. screwdriver or pliers) to aid card removal.
- Follow the correct procedure for removing a card (see below).
- **DO NOT** remove card during either a read or write operation.

### How do I insert a CompactFlash card?

1. Check that you are using the correct type of card. Raymarine recommend Navionics Chart cards or SAN DISK CompactFlash cards.
2. Open the chart card door, located on the front left of the display.
3. Insert the card as shown, with the lip of the card facing inwards. It should position easily. If it does not, **DO NOT** force it, check the direction in which the lip is facing.
4. Gently press the card home and then firmly click the chart card door shut.



### How do I remove a CompactFlash card?

#### ... with the unit powered

1. Press **MENU**. The Setup menu is displayed.
2. Use trackpad (up/down) to highlight and then (right) to select CF CARD REMOVAL. The system will now complete its checks.
3. When instructed to do so, open the chart card door and remove the card.
4. Firmly click the chart door shut and press **OK** twice.

#### ... with the unit powered down

1. Open the chart card door.
2. Grip the card and pull to remove it from its slot.
3. Firmly click the chart card door shut.



**More information.....** See the 'General Operation' chapter of the Reference Manual.

# What can I see?

## Understanding the chart

Card No. 5

FIND SHIP

GOTO

ROUTES

TRACKS

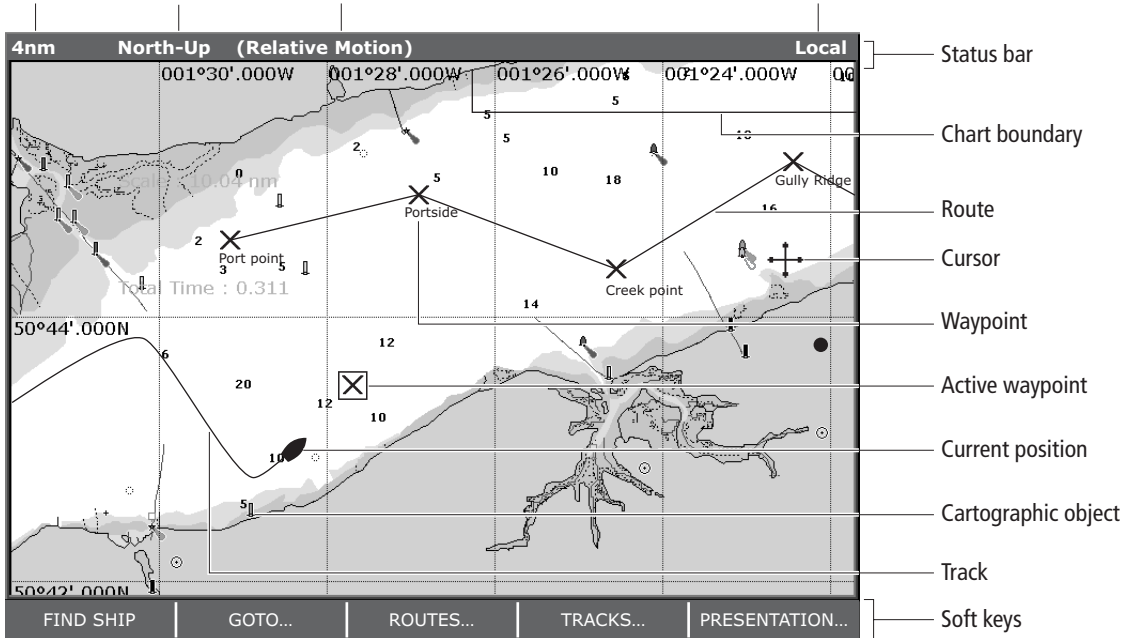
PRESENTATION

### What can I use the chart for?

- Find where you are.
- Interpret your surroundings.
- Place waypoints at specific locations.
- Navigate to a specific point.
- Monitor where you are going.
- Record where you have been.
- Measure the distance between two points.
- Build and follow routes.
- Manage and edit routes and tracks.
- Distinguish between fixed & moving objects (radar overlay).

Chart range Chart orientation Motion mode

Chart view



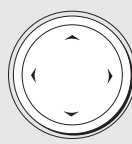
### How do I move around the chart?

To change the scale:



- Press **RANGE (OUT)** to see a larger area of the chart.
- Press **RANGE (IN)** to see a smaller area in more detail.

To pan the chart:



- Moves cursor. When cursor reaches window edge, chart pans to a different area.
- Press and hold to pan larger areas.

### Viewing detail on the chart

- To display **additional information** on a cartographic feature:



- To hide/show **individual** cartographic features:



- To hide/show **pre-set** cartographic features:



**More information ...** See 'Using the Chart' chapter of the C-Series Reference Manual

# What can I see? Using the chart ...

Card No. 6

FIND SHIP

GOTO

ROUTES

TRACKS

PRESENTATION



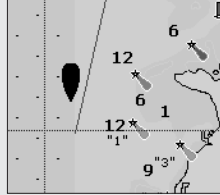
## How do I find where I am on the chart?



The boat symbol indicates your position.

If you cannot find the boat symbol on the screen:

FIND SHIP



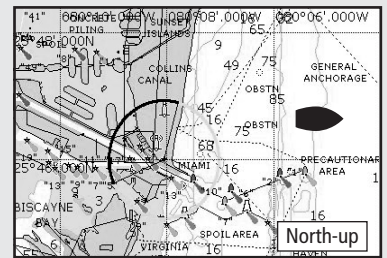
Press

The screen automatically pans to your boat's position and re-activates the motion mode (see below - 'How do I change how my boat moves on the chart').

## How do I change the chart orientation?

The **orientation** of the 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 below) to control how your boat and chart relate to one another and how they are displayed on screen.

The default mode for chart orientation is North Up (N-up). This means that your chart is displayed with true north upwards. As your heading changes the boat symbol moves accordingly.



PRESENTATION...



CHART MODE AND ORIENTATION...



ORIENTATION H-UP N-UP C-UP



Press



Press

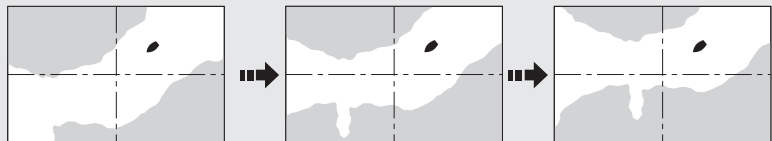


Press

If necessary, you can change the orientation to Head Up (H-up) or Course Up (C-up), using the PRESENTATION soft keys.

## How do I change how my boat moves on the chart?

How your boat moves on the screen is referred to as the **motion mode**. The default setting for the chart is Relative Motion. This means that your boat is fixed on the screen and the chart moves relative to your boat e.g.



If necessary, you can change the motion mode to True (TM) or Autorange (AR), using the PRESENTATION soft keys.

PRESENTATION...



CHART MODE AND ORIENTATION...



MOTION MODE TM RM AR



Press



Press



Press

When you pan the chart, motion mode is suspended. If your boat is not on screen, press FIND SHIP.

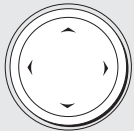
**? More information ...** See 'Using the Chart' chapter of the Reference Manual

### What is a waypoint?

A waypoint is a position marked on a chart, radar or fishfinder screen to indicate a site (for fishing, diving etc), or as a position to go to. You can place a waypoint at the cursor position, your boat's position or at a specified position (using Lat/Long or Loran TD co-ordinates). Waypoints are represented in chart or radar applications as an 'X' (this can be changed if required) and by a vertical line labelled WPT in Fishfinder. The details of each waypoint are stored in a waypoint list which can hold up to 1200 waypoints. If you have networked two or more E-Series Displays, the waypoints are stored on the master display and transferred to other displays via the SeaTalk High Speed network. If required, waypoints can be archived to a CompactFlash card or transferred to another NMEA compatible instrument. Waypoints can be renamed, edited, grouped, or erased, as necessary. To make full use of waypoint features, ensure your display is receiving heading and position data.

### How do I place a waypoint ...

#### ... at the cursor?



Move cursor to required position using trackpad.



Press

WAYPOINT AT CURSOR



Press

#### ... at the vessel?



Press

WAYPOINT AT VESSEL



Press

... OR



Press x2

### How do I navigate to a waypoint ...

#### ... using the cursor?



Place the cursor over the appropriate waypoint.



GO TO WAYPOINT



Press



#### CAUTION

Always check that your route to a waypoint is safe before travelling towards it.

#### ... using the waypoint list?



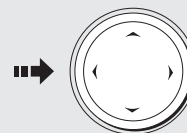
Press

GO TO WAYPOINT OPTIONS...



Press

Waypoint List	
Name:	Group: My Waypoints
Waypoint 1	Position: 50°53' 02.6N
Waypoint 2	001°10' 06.3W
Waypoint 3	Rng/Brg: 284° 4.315nm
	Temperature: ---.°F
	Depth: ---.ft
	Date: 05/11/2003
	Time: 14:59:11



Highlight required waypoint

GO TO WAYPOINT



Press

**? More information ...** See the 'Working with Waypoints' chapter of the Reference Manual



# Basic Navigation

## How do I get to a point?

Card No. 8



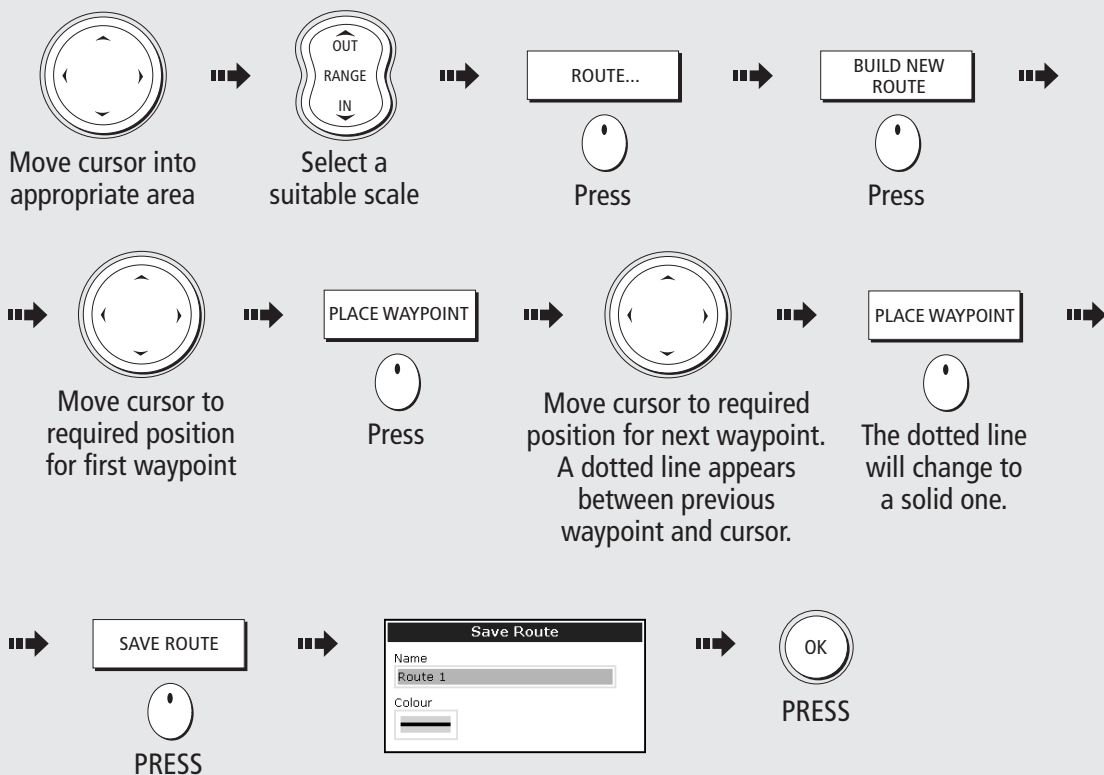
### What is a route?

A route is made up of a series of waypoints. These waypoints can either be placed specifically for that route and/or you can use existing waypoints. You can save a route for future use or follow it immediately (Quick Route). Routes are stored in a route list. If you have networked two or more E-Series displays, the routes are stored in the master display and are transferred to the other displays via the SeaTalk High Speed network.

Routes can be named, edited, erased and archived. After routes have been created you can choose which ones are displayed on your chart.

If a route is being followed, i.e. the **active route**, the current leg is shown as a dotted line and any previous legs are removed from the screen, although any waypoints will remain displayed.

### How do I build a route by placing waypoints on screen?



If you place a waypoint at the incorrect position, press UNDO WAYPOINT.

UNDO WAYPOINT



Press

### ? More information ....

See the 'Using the Chart' chapter in the Reference Manual, for more information on routes.

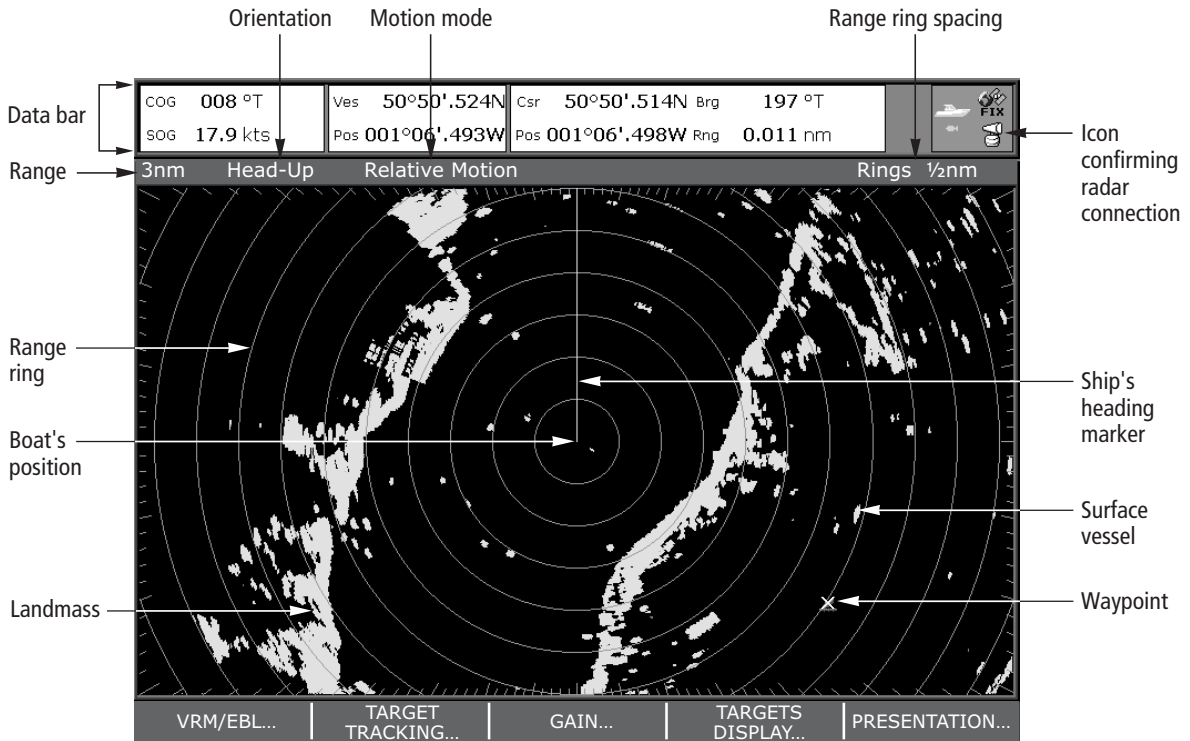
# What is around me? Understanding the radar

Card No. 9

VRM/EBL	TARGET TRACKING	GAIN	TARGETS	PRESENTATION
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## What does the radar show me?....



Typically your boat's position is at the centre of the display, and its dead ahead bearing is indicated by a vertical heading line, known as the Ship's Heading Marker (SHM).

Remember that the radar picture may vary from visual observations that you make; a nearby small object may appear the same size on the screen as a distant large object. However, with experience the approximate size of different objects can be determined by the relative size and brightness of the echoes.

**? More information ....** See the 'Using the Radar' chapter of the Reference Manual.

# What is around me? Avoiding a collision

Card No. 10

VRM/EBL

TARGET  
TRACKING

GAIN

TARGETS

PRESENTATION



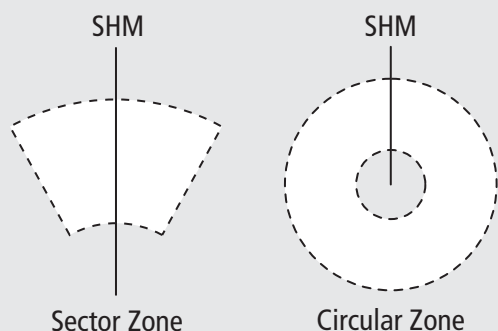
## How can the radar help me avoid a collision?

You can set up your E-Series Display to sound an alarm when anything comes within a pre-set range of the boat. These guard zones allow you to take any necessary action to avoid a collision.

### Guard zones

A sector or circular zone fixed with respect to the Ships Heading Marker (SHM). If the SHM moves, or the centre is offset, or the range scale changes, the zone moves accordingly.

## What does a guard zone displayed?



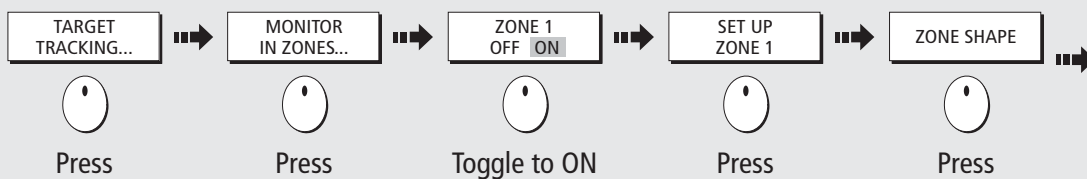
### IMPORTANT

A guard zone:

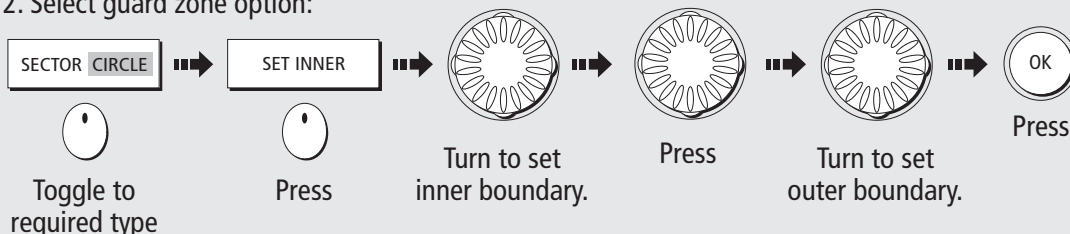
- Will only operate when a whole zone is displayed on the screen, or is displayed by offsetting the centre.
- Is inactive for 10 seconds after it is placed or re-sized, to avoid inappropriate alarms.

## How do I set up a circular guard zone?

1. Select guard zone function:



2. Select guard zone option:



NOTE: You can also set up a sector guard zone.

**?** More information.... See the 'Using the Radar' chapter of the Reference Manual.

# What is around me? Using MARPA....

MONITOR  
IN ZONES

ACQUIRE TARGET

MARPA LIST

MARPA OPTIONS

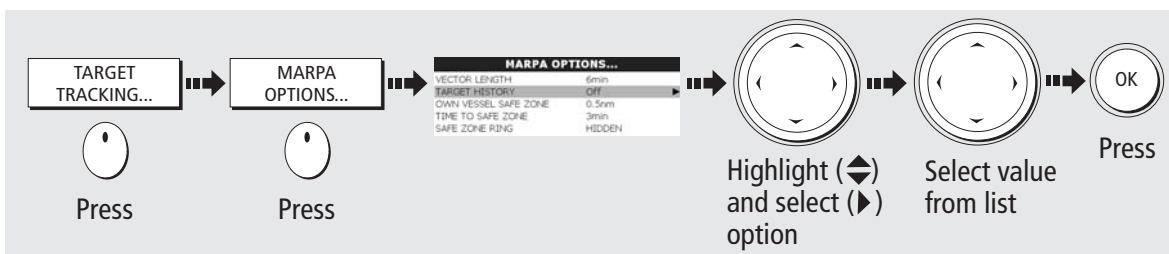
Card No. 11

## What is MARPA?

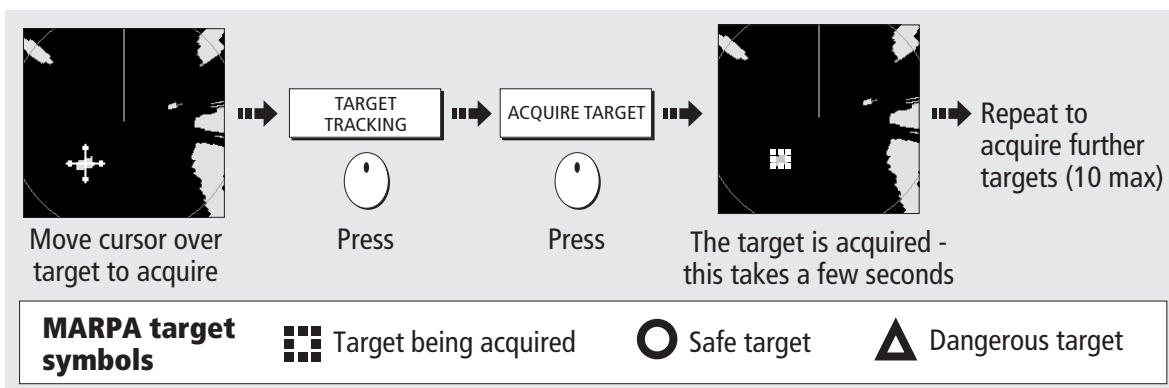
Mini Automatic Radar Plotting Aid (MARPA) functions are used for target tracking and risk analysis. MARPA improves your standards of collision avoidance by obtaining detailed information for up to 10 targets, and provides continuous and rapid situation evaluation.

MARPA tracks the selected targets and calculates target bearing, range, true speed, course, Closest Point of Approach (CPA), and Time to Closest Point of Approach (TCPA). Each tracked target can be displayed with a CPA graphic depicting the approximate target speed (vector length) and course (vector direction). Alternately, move the cursor over the target to display the range and CPA. You can now access bearing and speed. Each target is continually assessed. An alarm sounds if a target becomes dangerous or lost. NOTE: For MARPA to operate, fast heading data is required.

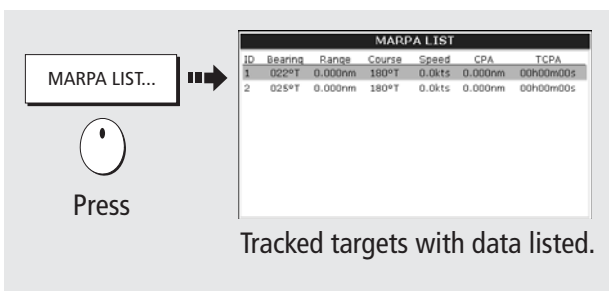
## How do I set up the MARPA functions?



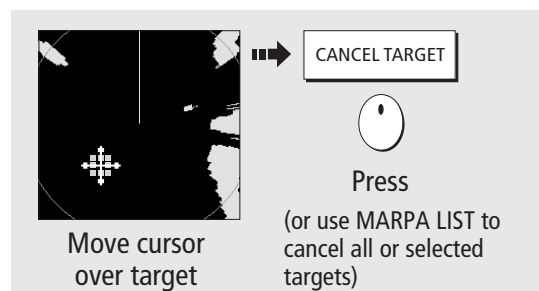
## How do I acquire a MARPA target?



## How do I view details of MARPA targets?



## How do I cancel MARPA target(s)?



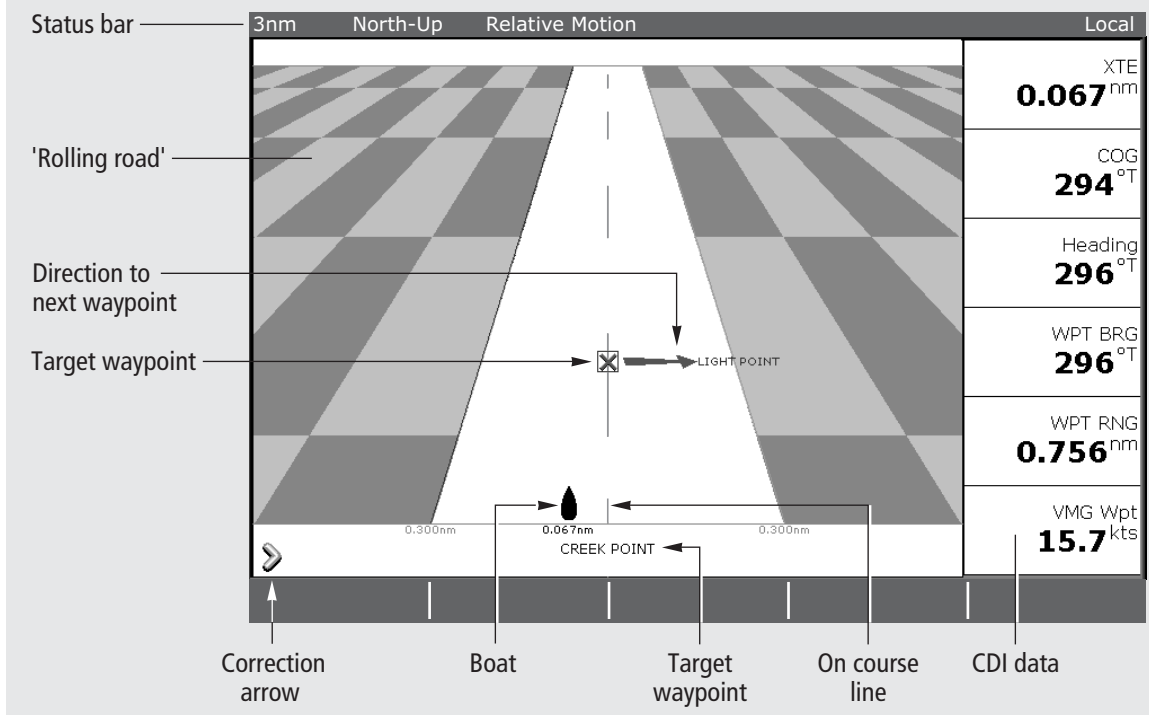
**? More information....** See the 'Using the radar' chapter of the Reference Manual.

## How do I monitor my course?....

- Your course is shown on the chart application whilst motion mode is active.
- Using COG and heading vectors (Press DATA - CHART VECTORS - COG/HDG VECTORS).
- Use the Course Deviation Indicator (CDI). With your display receiving accurate heading and position information, you can to monitor your course and accurately steer to a target waypoint.

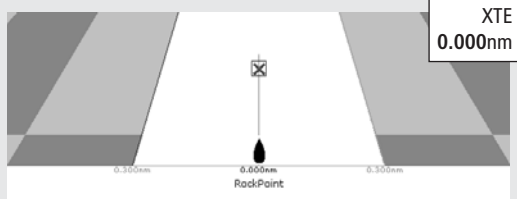
## What does the CDI show me?....

The CDI gives a graphical representation of your boat's course. This 'rolling road' format represents a width of sea equal to the Cross Track Error (XTE) limits that you have specified in the Setup menu. As you travel towards the target waypoint, the checkered pattern moves down the screen to simulate movement at a rate proportional to your boat's speed.



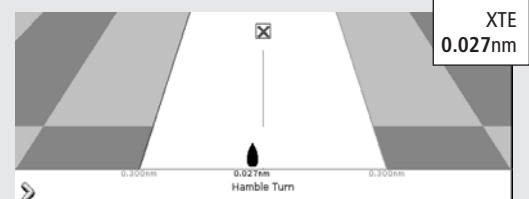
## What do the steering instructions tell me?

### On course



- Boat on center line.
- Zero XTE

### Off course



- Boat off center line.
- Correction arrow(s) indicate direction to steer to maintain course to target waypoint.
- The greater the XTE, the more arrows.

**? More information....** See the 'Using the CDI' chapter of the Reference Manual

# What's under the boat?

## Understanding the fishfinder

TRANSDUCER  
SETTINGS

ZOOM

BOTTOM LOCK

A-SCOPE

PRESENTATION

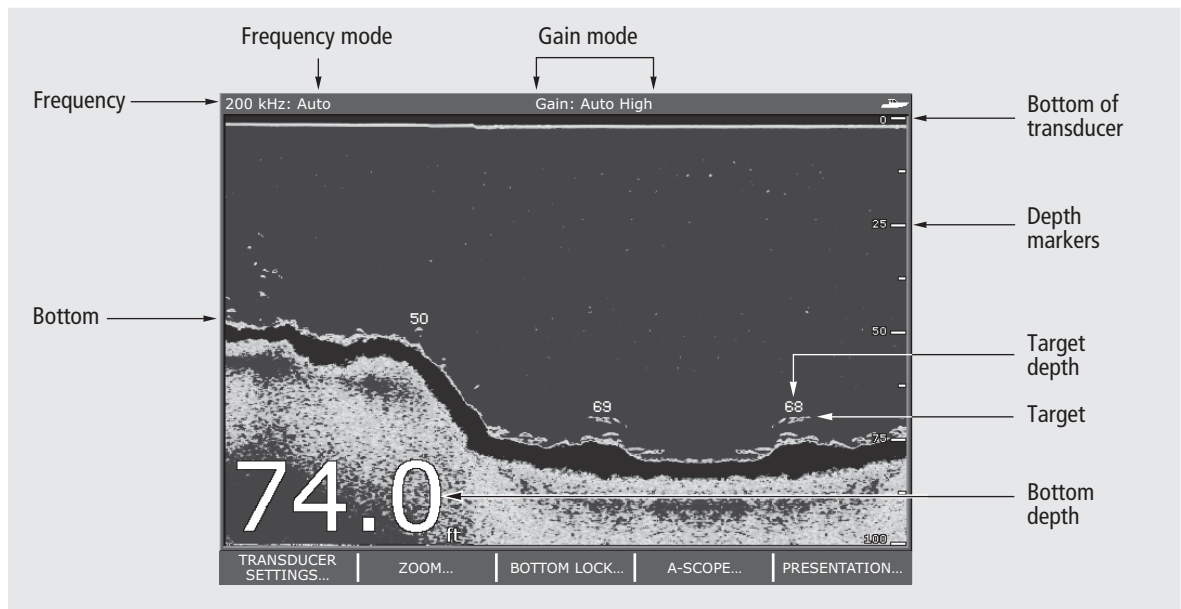
Card No. 13



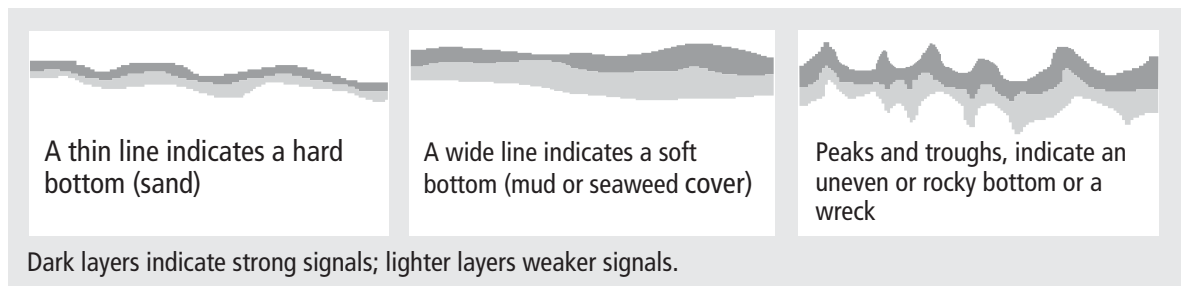
## What's under the boat?

The fishfinder application, when connected to a suitable Digital Sounder Module (DSM) and transducer, will help you to see fish, bottom structure and underwater obstructions. The image scrolls from right to left at an automatically selected range and frequency to provide a record of the echoes seen. You can mark with a waypoint any positions of interest that you may wish to return to. These waypoints are added to the waypoint list and can be used by other applications in your E-Series display.

## What can I see on the screen?



## How do I interpret the bottom?



## What influences target display?

The shape and size of echoes indicating targets, is influenced by a combination of:

- Boat speed - flatter at slower speeds
- Transducer frequency - broader at lower levels
- Target depth - larger near the surface
- Target size - larger targets return larger echoes

**? More information....** See the 'Using the Fishfinder' chapter of the Reference Manual.

# What's under the boat? Using the fishfinder....

TRANSDUCER  
SETTINGS

ZOOM

BOTTOM LOCK

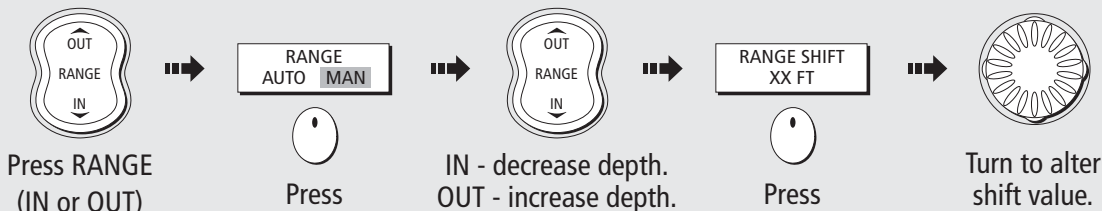
A - SCOPE

PRESENTATION

Card No. 14

## How do I change the range or shift the image?

Your system automatically adjusts the display depth range, selecting the shallowest depth that keeps the bottom on the lower half of the window. You can however, set this manually if required and move the image within the selected page up or down. Using the range controls will affect all fishfinder windows.:

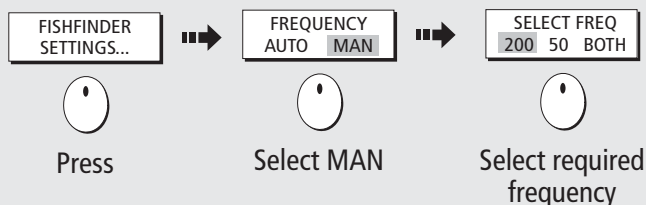


## How do I change the operating frequency?

**Auto mode** - automatically selects 50 kHz or 200 kHz. This is the default mode.

### Manual (MAN) - Single or dual

- **200 kHz** - maximum definition in shallow water.
- **50 kHz** - maximum depth penetration in deep water
- **Both** - 200 kHz & 50 kHz displayed simultaneously.

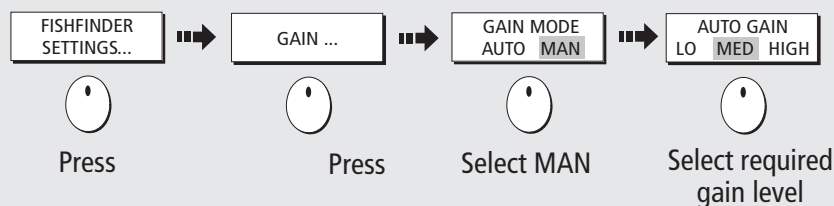


## How do I change the gain mode?

**Auto mode** - automatically adjusts control to display sharpest image. This is the default mode.

### Manual (MAN)

- **Low** - when cruising
- **Med** - when trolling
- **High** - when fishing

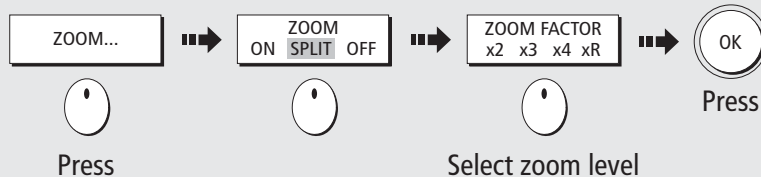


## How do I zoom in on an area of the screen?

To see more detail of the bottom structure, target images etc, zoom in and enlarge a portion of the image.

### Zoom

- **On** - zooms image only.
- **Split** - zooms image and standard fishfinder image simultaneously.



**? More information....** See the 'Using the Fishfinder' chapter of the Reference Manual.

- **Monitoring data and engines**
- **Viewing video images**

Card No. 15

### How do I monitor data?....

NAVIGATION	WAYPOINT	ROUTE	FISHING	SAILING
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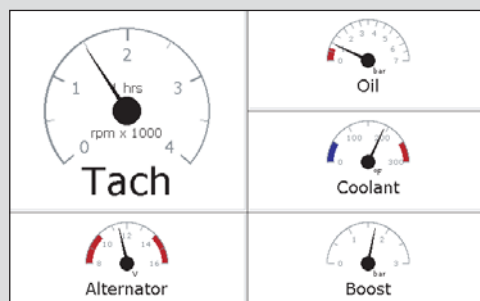
Ves Pos 25°45'.940N 080°09'.718W	GOTO CURSOR 220°T 1.28nm	TTG --h--m--s	VMG Wpt -.-kt
Depth 78.8ft	Cog Sog 286°T 0.0kt	Heading 293°T	Speed 0.0kt
Set Drift 355°T 0.0kt	XTE 0.00nm Steer >	Trip 0.00nm	Local Time 01:42:12

The **digital data application** enables you to view numeric data generated by the system or by instruments available on NMEA or SeaTalk. This information is displayed in a series of pre-configured panels which contain data relating to a particular function or activity.

Press the appropriate soft key to select the panel of your choice

### How do I monitor the engine(s)?....

1 ENGINE	1 ENGINE & FUEL	FUEL RESOURCES	1 ENGINE & RESOURCES	2 ENGINE
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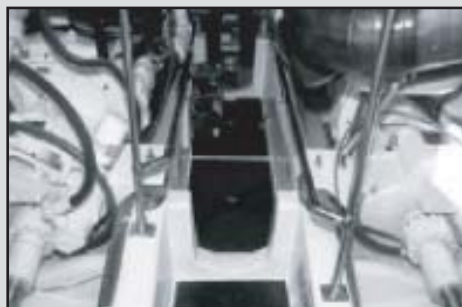


The **engine monitor application** enables you to view data from one or two system compatible engines. The information is displayed in a series of pre-configured panels which contain data relating to engine, fuel and fuel resources.

Press the appropriate soft key to select the panel of your choice.

### How do I view video images?....

VIDEO 1	VIDEO 2	VIDEO 3	VIDEO 4	PRESENTATION
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The **video application** enables you to view images from a video or DVD player or on-board camera.

Press the appropriate soft key, to select the video input of your choice or set CYCLE VIDEO to ON (via the PRESENTATION key), to cycle through the video inputs.

**Note:** Video images can only be viewed on the display to which the video source is connected. They cannot be networked to other Displays.

**? More information....** See the appropriate chapter of the Reference Manual.



## What does a networked system do?

If you have connected two or more E-Series Displays (via either a crossover coupler or SeaTalk High Speed Switch), data can be transferred across the network enabling you to input, view and maintain data across all your Displays irrespective of the Display from which the data originated (excepting Video Input).

## How is the network controlled?

The Display that has been installed and nominated as the master, should always be switched on (preferably first). The master display maintains the waypoint, route and track lists as well as data from NMEA and SeaTalk. Each time the master display detects a change on any display e.g. waypoint, route or track added or edited, the data is copied to the database which in turn is copied to all other Displays that are switched on.

If the system does not detect a master, either because it is not switched on or because a master has not been selected, an alarm will sound and you will be prompted to set a master display.

## How do I change the master display?

On the display that you wish to nominate as the master:

1. Press MENU.
2. Highlight and select System Setup
3. Highlight and select System Integration.
4. Highlight and select Data Master.
5. Select ON.

Any such changes that you make to the nominated master will be saved when you power off.

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