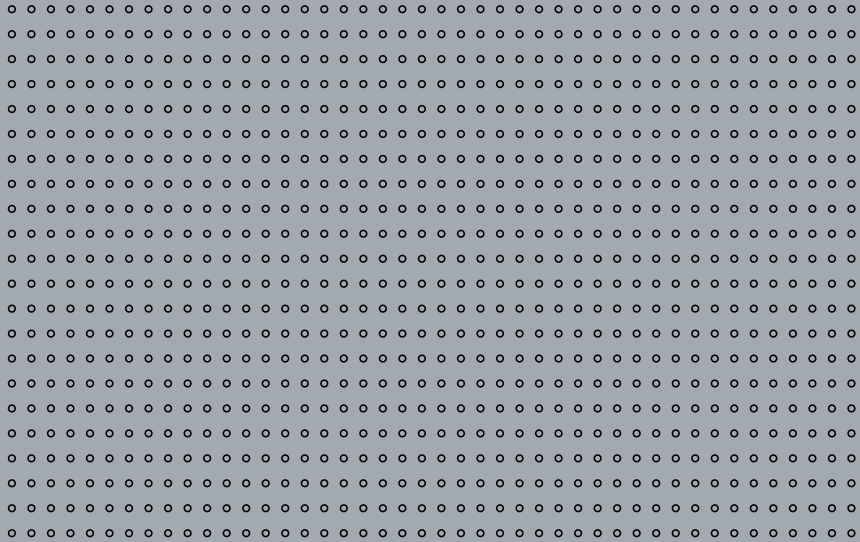


Manual

Simrad GB40 Integrated Network System

English

Sw. 4



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1 Welcome to the GB40

The GB40 (Glass Bridge 40) system is designed for easy use in the marine environment.

The GB40 can integrate navigation, fishfinding, instrumentation, multimedia entertainment, and an onboard camera. Whatever type of boat you have and however you use it, you can customize the GB40 to meet your needs.

Flexible, modular and innovative, the GB40 delivers awesome performance.

Please take a few minutes to learn how to get started with your GB40.



Note: The GB40 has several requirements that must be met to ensure safe and proper operation. Installation and interfacing of the GB40 should be done by a marine technician using the guidelines found in the various installation manuals.

1.1 Disclaimer

As Simrad is continuously improving this product, we retain the right to make changes to the product at any time which may not be reflected in this version of the manual. Please contact your nearest Simrad distributor if you require any further assistance.

It is the owner's sole responsibility to install and use the instrument and transducers in a manner that will not cause accidents, personal injury or property damage. The user of this product is solely responsible for observing safe boating practices.

NAVICO HOLDING AS. AND ITS SUBSIDIARIES, BRANCHES AND AFFILIATES DISCLAIM ALL LIABILITY FOR ANY USE OF THIS PRODUCT IN A WAY THAT MAY CAUSE ACCIDENTS, DAMAGE OR THAT MAY VIOLATE THE LAW.

Governing Language: This statement, any instruction manuals, user guides and other information relating to the product (Documentation) may be translated to, or has been translated from, another language (Translation). In the event of any conflict between any Translation of the Documentation, the English language version of the Documentation will be the official version of the Documentation.

This manual represents the product as at the time of printing. Navico Holding AS. and its subsidiaries, branches and affiliates reserve the right to make changes to specifications without notice.

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1.2 Warranty

The Simrad Warranty Statement is supplied as a separate document.

It is shipped with the Product Registration Card.

In case of any queries, refer to www.simrad-yachting.com.

1.3 Terms and conventions

This manual uses the following conventions:

To "**click**" on a screen feature (button, icon, text field or other) with the OP30 means to position the cursor on a screen feature and press the tick key.

To "**drag**" over an area with the OP30 remote control means to position the cursor on a screen feature, hold down the tick key, then reposition the cursor.

"**Select**" means to use the OP30 Remote control or USB mouse to click on the button, key, area or point specified. For USB keyboard operation, refer to the Controller section.

"**Select Pages**" mean to select **Pages** on your OP30 controller OR select **Pages** on the USB mouse menu at the top of the screen. To "**cancel**" an operation means to press X on the OP30 or select "Cancel" on the main menu.

The "**main menu**" refers to the buttons down the right side of the screen. Some of these buttons display settings or values. In some instances, the buttons referred to are actually mouse buttons above the main pane, or shortcut buttons on the OP30.

The "**scroll frame**" is the semi-transparent area framing the chart. If you position your cursor over the edge of a scroll frame, the chart scrolls toward the opposite edge. So, if the cursor is positioned over the top edge, the chart scrolls from top to bottom.

A "**pane**" is a part of a screen showing one GB40 function, such as the sounder, chart, radar, and so on.

A "**page**" is a full screen that might display anything from one to four panes.

The "**cursor**" is the crosshair or arrow that is shown on screen.

"**Buttons**" are displayed graphically on screen. They are normally located around the screen border or in rows on the pages.

Range - enlarges the detail and **Range +** shrinks the detail.

1.4 Get Started

It's best to work through this section with the GB40 set up and running so you can try out the various functions and see the results.

This section assumes you have one OP30 and the master unit in the system. It also assumes you are running from factory default settings.

If starting the system for the first time, you're recommended to check the setup preferences for **Units, Chart, Radar** and **Echosounder**. Most of these should have been set by your system installer. See the **Setup** section for more information.

It's essential that you enter accurate data to ensure the GB40 delivers safe and reliable information.

The draft and the safe depth values must be accurate otherwise the "Depth Below Keel" alarm will not work correctly.

The transducer depth must be accurate otherwise the echosounder screen will be wrong.

You are recommended to add a safety margin to these values.

The Global Positioning System (GPS) is operated by the US Government which is solely responsible for its operation, accuracy and maintenance. This system is subject to changes which could affect the accuracy and performance of all GPS equipment in the world.



1.5 Start Up

When starting a GB40 system, perform the following common tasks:

➤ Turn on the GB40:

- Press and hold the **PWR** key on the OP30 for about 5-6 seconds.

Note: If there is no OP30 connected, start the system using the ON/OFF button at the rear of the GB40.

When the GB40 starts up, the splash screen loads followed by the Terms & Conditions.



- Select **Accept conditions of use**.
- If there is no GPS signal going into the GB40 an alarm may appear. If so, select **Acknowledge**.
- A full-screen *Chart* pane is displayed. If you have a GPS signal going into the system your position is centered on-screen.

➤ **Start the Radar:**

A radar scanner typically has a warm up period before signals can be adequately processed.

- Select **Pages** on your OP30 controller OR select **Pages** on the USB mouse menu at the top of the screen. (Throughout this manual, this action is abbreviated to "Select **Pages**.")
- Select **Radar**.

The **Radar Mode** button will display its current status.

- Select **Radar Mode** if the status needs to change.

➤ **Check the Instruments:**

- Select **Pages**.
- Select **Instruments**.

Your default instruments pane contains some basic information which you can customize, depending on the sensory data your vessel receives.

➤ **Show/hide the Instruments bar:**

You can show or hide the instruments bar at the bottom of the screen.

- If you want to change the current setting, select **Pages**.
- Select **Show/Hide Instruments Bar** to toggle to the other setting.

You can customize the instruments bar.

➤ **Start the Echosounder:**

- Select **Pages**.
- Select **Echo**.

You can customize the *Echosounder*.

➤ **Select a palette:**

You can select a palette to suit sunlight, day time, or night time conditions.

- Select **Pages**.
- The **Palette** button shows the current setting. Select it to change the setting.
- A list of choices is displayed. Select the new setting.

1.6 Multiple panes in pages

The GB40 can save and recall combinations of panes, delivering several functions on screen at the same time. A collection of panes is called a **Page**.

Pages can be configured in several layouts:

Single - a full pane.

Twin - two half panes, side by side.

Tri - One half pane, two quarter panes.

Three-to-One - One half pane, three mini-panes.

Quad - Four quarter-panes.

➤ Loading preset panes

- Select **Pages** to display the single-function pages.
- Select **Pages** again to display a choice of preset page combinations tailored to suit activities such as cruising or fishing.
- Select the page you want to display.

➤ To expand a small pane temporarily

- Press **WIN** on your OP30 until the pane you want to expand has a red border.
- Select **MAX** at the top right of your screen.
- Select **MIN** when finished.

➤ To customize a preset page

You can select your own combination of applications to put into a preset page.

- Select **Edit Pages**.
- Select the preset page you want to edit. Select **Next**.

- Select the layout type. Select **Next**.
 - Choose the content for each pane from the list of applications displayed. After selecting the application for the current highlighted pane (indicated by a red border). Change focus to another pane by using the arrow keys on the OP30. Once again, select an application from the list to be displayed in this pane.
 - Select **Edit**. Use the on-screen keyboard to enter a new name. Select OK.
 - Show or hide the instrument bar.
- Select **Save**.

1.7 Controllers - OP30 remote/USB mouse

The GB40 can be operated using a SIMRAD OP30 remote control (this is the preferred option) or by using a USB mouse. These devices are called **controllers**.



Note: At least one controller must be present in the network when powered up for the first time.

OP30

The OP30 has several dedicated shortcut and feature buttons that can access common features quickly. Each GB40 on the network can be set up to accept or ignore key presses from any OP30 on the network.

USB Mouse

Plugging in a USB mouse introduces an extra set of buttons on screen.

Using a USB mouse can be a very convenient way to quickly negotiate through the GB40s onscreen menus and buttons. However, each mouse can only operate the GB40 it is plugged into. The GB40 registers "left-click" or single-button clicks and dragging, but not double-clicks.

If you're using a mouse on the same system as an OP30 controller, right click the mouse each time you use it after having used the OP30. This will put the system back into the correct mode for mouse usage.



Note: When a GB40 detects a mouse, an extra set of buttons above the main pane appears. These buttons are shortcuts to

common functions. Right click the mouse to make it operational. You can switch between the menu and chart cursor with a right click (similar to the OP30 MENU key).

1.8 Network the GB40

The GB40 can be connected to a wide variety of compatible marine devices, including Simrad's echosounder and radar. A qualified marine electronics technician should perform these installations.

The GB40 integrated networking technology lets you connect two or more display units in order to share navigation, sounder, radar, entertainment, and instrumentation data. Any changes that you make to any of these functions, such as creating a new waypoint or saving a new video in the video jukebox, are instantly available to everyone using the GB40 system.

If more than one display unit is used in the GB40 system, one of them must be specified as the master unit. The other display units are sometimes referred to as client units. The master unit MUST:

- have all the data wiring (such as NMEA) run to it. Incoming navigation data, such as GPS and NMEA, is received by the master unit and then distributed over the network to other display units.
- have the chart license key connected to it. When the chart license key is connected and the charts unlocked, other display units can share the one license and display the charts.
- be operating in order for the other display units to function with navigational information.

If the master unit is NOT operating, all the other display units will show a grey screen with the message "Master "name" unavailable". This will be the case for Chart, Radar, and 3D Chart.

1.9 Add an OP30 to a GB40

The GB40's primary controller is the Simrad OP30. Once the SimNet network has been initialized you can add more controllers (OP30s, a USB mouse or trackball) to the system if you want.

Networking an OP30 with a specific unit can be as simple or detailed as you like. One GB40 can be controlled by several OP30s or by a subset of controllers on the SimNet network but an OP30 Controller may only control a single GB40.

In multi-unit systems, setting up the master-client relationships between the GB40s and your OP30 assignments will be done by

your installer but you may wish to add another OP30 to the SimNet network at a later time.



Note: Adding a new OP30 to the SimNet network requires another controller to be present: either an established OP30, or a USB controller plugged into the unit that the new OP30 will operate.

For SimNet networks with no suitable controllers attached, try restarting the SimNet network if moored, OR, if underway, connect an OP30 to the SimNet network. GB40 will identify with the OP30 by sounding 3 short beeps. If the OP30 is not recognized, press and hold the PWR and MENU keys simultaneously for 3 seconds in order to reset the OP30.

➤ **To add an OP30 to the SimNet network:**

- Connect a new OP30 to the SimNet network then press and hold the PWR and MENU keys for 5-10 seconds. A double beep confirms that the unit has reset.
- Switch Off power on the GB40. Press and hold PWR for 5 seconds on the OP30 to switch on.

This new OP30 will register to each GB40 on the network, but will not operate any unit until it has been assigned control.

Now use an established OP30 to assign the new OP30 to the network as follows:

- Select **Pages**, then **Setup** from the main menu.
- Select **Installation**.
- Select **Keypad Controller Status**. This page allows you to assign the new OP30 to the target unit.
- Select the new unit's keypad ID. if you don't know which OP30 is which, select a keypad ID and select **Identify**.

The targeted GB40 will send a beep and flash to the OP30 associated with the ID you selected.

Select **Add Keypad**.

Select **Return**.

2 Setup

The setup options affect how the GB40 measures, displays and interacts with the environment around your vessel.

Some setup options enable you to specify your preferences for information display formats but other setup options are important configurations that affect critical navigation settings.

After commissioning the system, you can record a backup on a portable storage device.



It's essential that you enter accurate data to ensure the GB40 delivers safe and reliable information.

Enter accurate draft and safe depth values, otherwise the "Depth Below Keel" alarm will not work correctly.

Enter an accurate transducer depth value, otherwise the echosounder screens will be wrong.

You are recommended to add a safety margin to this accurate data.

➤ **To access any setting:**

- Select **Pages** then **Setup** from the main menu.
- Select the row showing the appropriate setting.
Options about that setting will be listed underneath.
- Select the setting you wish to change.

Depending on the setting, you might enter values using the on-screen keyboard, use a drag-line to alter values, step through values using on-screen arrows, or use the hard-key controller.

- When you are finished, select **Return**.

2.1 Setup: Units

➤ **To enter setup options for Units**

- Select **Pages** then **Setup** from the main menu.
- Select **+ Units** to display a list of options.
- When you are finished, select **Return**.

	Units	Default	Description
Distance Units			
	Nautical Miles	X	Sets the format for large distance units.
	Statute Miles		
	Kilometers		
Distance Units Small			
	Yards		Sets the format for small distance units.
	Feet	X	
	Meters		
Temperature Units			
	Fahrenheit	X	Sets the format for temperature units.
	Celsius		
Depth Units			
	Feet	X	Sets the format for depth units.
	Meters		
	Fathoms		
Speed Units			
	Knots	X	Sets the format for speed units.
	MPH		
	KPH		
Pressure Units			
	PSI	X	Sets the format for pressure units.
	Bar		
	hPa		

2.2 Setup: Chart

➤ To enter setup options for Chart

- Select **Pages** then **Setup** from the main menu.
- Select **+ Chart** to display a list of options.
- When you are finished, select **Return**.

	-Chart	Default	Description
C-Map Chart Manager			
	Activate	Off	Enters the C-Map Chart manager. Use this to purchase / activate / remove chart licenses.
C-Map Chart Diagnostics			
Default Event Mark Icon			
	Icon Name	<input type="checkbox"/>	Sets the default for icons displayed on the screen when the Mark button is pressed.
Default Waypoint Icon			
	Icon Name		Sets the default for icons displayed on the screen.
Guard Zone - Highlight danger objects within guard zone			
	On / Off	On	Sets the guard zone feature to highlight approaching dangerous objects on the chart.
Guard Zone angle			
	5,10,15,30, 45,60,75,90	15	Sets the angular width of the chart guard zone (degrees).
Guard Zone Prediction time			
	1-60 minutes	5	Sets the amount of warning time before the vessel reaches a dangerous object.
Deep Contour			
	Depth Units	45 ft	Sets the value of the deep water contour. The deep water contour should always be deeper than the safe depth setting.

2.3 Setup: Navigation

➤ To enter setup options for Navigation

- Select **Pages** then **Setup** from the main menu.
- Select **+ Navigation** to display a list of options.
- When you are finished, select **Return**.

	-Navigation	Default	Description
Bearing mode			
	True	X	Sets the mode in which all bearings are displayed on the screen. Calculations are made with variation taken from the GPS.
	Magnetic		
Position Format			
	Degrees / Minutes / Seconds		Sets the preferred format for position data.
	Degrees / Minutes	X	
Predictor Length			
	1-60 Minutes	10	Sets how far the predictor line will extend in front of the vessel: Predicted position in X minutes at current speed. Each minute is marked by a solid circle on the course predictor line. Select Edit to change.
Look Ahead Distance			
	(%)	75	Sets the amount of chart visible on the screen in front of the vessel (Vessel offset: look ahead mode).
Center Circle to Update			
	(%)	20	Sets how far the vessel will move from center of the screen before the chart is refreshed and the vessel returned to center of the chart (Vessel Offset: Center).
Angle Delay to Update			
	(Deg)	10	Sets the angle the vessel will turn before the chart redraws to align vessel with the top of the screen (Look Ahead mode and Center mode).

	-Navigation	Default	Description
Waypoint Arrival Distance			
	(0.01-1 Nautical Mile)	0.03	Sets the distance between the vessel and the active waypoint before the waypoint arrival alarm is activated and the next waypoint becomes active.
At End of Route			
	Stop Navigating	X	Stop navigating. Cancels active route and stops sending information to the autopilot.
	Keep Navigating		
Phantom Loran			
	On / Off	Off	Displays Phantom Loran information on the status bar of the chart screen.
Group Repetition Interval			
	(Group Listings)	9960	
Preferred TDs			
		None	

2.4 Setup: Data sources

There are three options for selecting the data sources for the system:

- Local Reset - data sources are set automatically for the current display unit only.
- Global Reset - data sources are set automatically for ALL display units in the network.
- Automatic Data Source Selection - manually initiate the automatic data source selection every time the unit is powered up.



Note: Ensure that the sources of the data are connected and powered On.

➤ To reset Data Sources Locally or Globally:

Select **Pages** then **Setup** from the main menu.

Select either **Local Reset Data Sources** or **Global Reset Data Sources** depending on your requirement.

- **To select the data source for a channel where more than one option is available:**
 - Select **Pages** then **Setup** from the main menu.
 - Select + Data Sources to display a list of options.
 - When you are finished, select **Return**.

2.5 Setup: Tracks

- **To enter setup options for Tracks**
 - Select **Pages** then **Setup** from the main menu.
 - Select + **Tracks** to display a list of options.
 - When you are finished, select **Return**.

	-Tracks	Default	Description
Record Vessel Tracks			
	On / Off	On	Enables the system to record the vessel's track history.
Cross track distance to create track point			
	0-3000 ft	33	Sets the cross track threshold before a track point is laid.
Distance to create track point			
	0.01-10 N	0.1	Sets the interval between track points along a straight course.
Max track points shown			
	1,000-10,000	2000	Sets the maximum amount of track points used. After the maximum is reached track points from the beginning are deleted.

2.6 Setup: Radar

- **To enter setup options for Radar**
 - Select **Pages** then **Setup** from the main menu.
 - Select **+ Radar** to display a list of options.
 - When you are finished, select **Return**.

- Radar	Default	Description
Radar Antenna Height		
Small Distance Units	13.12 ft / 4 m	<i>Sets the antenna height above the water-line so that the sea clutter control works properly.</i>
Radar Open Array Parking Angle		
Deg	0	<i>Sets the parking angle for the radar scanner when it stops.</i>
Radar Power on Action		
Standby	X	<i>When powered, the radar will warm up, then go into standby mode.</i>
Remain Off		<i>When GB40 is powered up, the radar will remain Off.</i>
Radar information		
Switch		<i>Displays magnetron hours information (for a 10 kW or 25 kW scanner only).</i>

2.7 Setup: Echosounder

You can:

- enter the transducer depth for your vessel
- enter an offset if you need to calibrate the water temperature readout
- enter a filter value to average the temperature readout over a number of readings
- select the speed offset value if you need to calibrate the Echosounder speed
- enter a filter value to average the speed readout over a number of readings

These changes are global, meaning that they'll apply to all the *Echosounder* screens.



You must enter an accurate value for the transducer depth. If you don't, all the depths on the Echosounder screens will be wrong.

➤ **To enter setup options for Echosounder**

- Select **Pages** then **Setup** from the main menu.
- Select **+ Echosounder** to display a list of options.
- When you are finished, select **Return**.

- Echosounder	Default	Description
Transducer Depth		
Depth Units	0	Set the difference between the transducer and the water line. Zero is the water line.
Water Temperature Offset		
Temperature Units -10 to 10	0	Set the difference between the actual water temperature and the one measured and displayed by the system (if any).
Water Temperature Averaging		
Seconds	2	Set the time over which the system calculates the average temperature before updating on the screen.
Echo Speed Offset		
Speed Units	0	Set the difference between the displayed speed and the actual speed. You'll need an accurate measurement of your vessel's speed. You can use a GPS receiver when you're traveling faster than 5 knots, follow another vessel traveling at a known speed between 5 knots and 20 knots, or make a timed run over a known distance. Best results are obtained in calm conditions with minimal current.
Echo Log Speed Filter		
Seconds	2	Set the average time period that the sounder speed is updated.

2.8 Setup: AIS

- **To enter setup options for AIS**
 - Select **Pages** then **Setup** from the main menu.
 - Select **+ AIS** to display a list of options.
 - When you are finished, select **Return**.

- AIS	Default	Description
AIS	Off	Activates AIS services.
Dangerous vessel alarm	Off	Alarm activates when CPA is less than the specified CPA Limit OR when TCPA is less than the specified TCPA limit.
Lost vessel alarm	Off	Activates when an AIS signal is no longer received from a tracked vessel.
Proximity alarm	Off	Activates when an AIS vessel enters the specified proximity radius.
Show dangerous only	Off	Displays AIS broadcasting vessels within the specified safe distance or on a potential collision course.
Simulate	Off	Simulates AIS activity around around the vessel's position.
MMSI	0	Record your vessel's MMSI number, in order to prevent your own vessel being displayed as a target vessel.
Proximity Radius (range units)	1 nm	Sets the range at which proximity alarms activate.
TCPA limit (1-60 minutes)	2	Time to Closest Point of Approach to the AIS-tracked vessel at current course and speed.
CPA limit (range units)	0.5 nm	Distance to the AIS-vessel's Closest Point of Approach, given current course and speed.
AIS List		Lists all tracked AIS vessel's information - MMSI/ Name, Position, Distance, Bearing, Speed Over Ground, Course Over Ground, Closest Point of Approach and Time to Closest point of Approach.
AIS Safety Msgs		Lists the time, MMSI and message of broadcasting AIS vessels.

- AIS	Default	Description
Show Vessel by type		<i>Hides the display of certain vessel categories.</i>
Filter by distance (range units)		<i>Hides the display of vessels outside the specified distance.</i>
Filter by speed (speed units)		<i>Hides the display of vessels travelling under a certain speed.</i>
Projected course	Off	<i>Displays a line indicating the course of an AIS vessel.</i>
Projected Time (1 - 60 minutes)	2	<i>Shortens or lengthens the Projected Course line to indicate the AIS vessel's future position given current speed.</i>
Range Rings	0	<i>Overlays 0-5 reference rings centered on your vessel.</i>
Icon Screen Persistence	10	<i>The time that a 'lost target' icon will be displayed after a target is lost.</i>
Reset To Factory Defaults		<i>Initializes all variables and settings.</i>

2.9 Setup: Entertainment

➤ To enter setup options for Entertainment

- Select **Pages**, then **Setup** from the control panel.
- Select **+ Entertainment** to display a list of options.
- When you are finished, select **Return**.

- Entertainment	Default	Description
Application Volume Levelling		
Music Video DVD CD	100%	<i>Displays slider controls to adjust individual volume levels of audio sources.</i>

- Entertainment	Default	Description
Music Library		
		<i>Accesses the Music Library.</i>
Video Library		
		<i>Accesses the Video Library.</i>



Note: When the system is installed, the Media Storage Location needs to be set (using Setup>Installation>Change Location of Media Storage). This tells all processors on the network which processor is storing the music and video files. This includes portable drives attached to the media storage location.

2.10 Setup: Installation

- **To enter setup options for Installation**
 - Select **Pages** then **Setup** from the main menu.
 - Select **+ Installation** to display a list of options.
 - When you are finished, select **Return**.

- Installation	Default	Description
Software Version Information		
Keypad Controller Status		<i>Maps control devices to the GB40 being set up. You may add and identify controllers on the network, as well as adjust sound and backlight levels.</i>
Software Version		<i>Displays software version, firmware version of processor and C-Map Database version.</i>
More info		<i>Displays application, hardware service and VNIB versions for diagnosis.</i>
Network Module Firmware		
		<i>Displays the firmware versions of network modules attached to the network.</i>

	- Installation	Default	Description
Network Diagnostics			
			<i>Displays diagnostic information regarding the network.</i>
Configure NMEA Output			
			<i>Displays a table showing NMEA sentences and status. Select the desired sentence and switch On/Off using the output button. Select Save when finished.</i>
	Sentence	Output	
	APA	No	
	APB (T)	Yes	
	APB (M)	No	
	BOD	No	
	BWC	Yes	
	DBT	No	
	GGA	No	
	GLL	Yes	
	HDG	No	
	HDT	No	
	RMB	Yes	
	RMC	Yes	
	VTG	Yes	
	XTE	Yes	
	ZDA	No	
NMEA Baud Rate			
	4800	X	<i>Sets the NMEA 0183 Baud rate for input and output.</i>
	19200		

- Installation	Default	Description
Change Master		
Name Of Processor		Set which unit on the network is going to perform as the system master. Select unit from list, press SELECT AS MASTER then OK to confirm.
Change Location of Media Storage		
None Set	None Set	Select which processor on the network acts as the Media Server. Select SET LOCATION to change.
Upgrade Software		
		Start the software upgrade process.
Heading Priority		
True		Sets the priority of the heading source if a magnetic and true compass are installed in the system.
Magnetic	X	

2.11 Setup: Vessel Statistics

- **To enter setup options for Vessel Statistics**
- Select **Pages** then **Setup** from the main menu.
- Select **+ Vessel Statistics** to display a list of options.
- When you are finished, select **Return**.

- Vessel Statistics	Default	Description
Cruising Speed		
Speed Units	10 Knots	Set the cruising speed of the vessel. This is used in distance/time calculations in Chart. Select Edit . Enter speed. Select OK .
Draft		
Depth Units	6 Feet	Set the draft of the vessel. Used in calculating safe depths in Chart.

	- Vessel Statistics	Default	Description
	Safe Depth (Draft + Safety Margin)		
	Depth Units	15 Feet	<i>Set the safe depth of water under the keel. Used by Chart to display safe depth contour and safe soundings.</i>

2.12 Setup: Backup/Restore

A removable drive must be available to either backup or restore files.

- **To enter setup options for Backup/Restore**
 - Select **Pages**, then **Setup** from the main menu.
 - Select **Backup/Restore** to display a list of options.
 - When you are finished, select **Return**.



Note: *Local settings apply only to the display unit that you are using. Global settings are applied to all the display units in your network.*

2.13 Setup: System

- **To enter setup options for System**
 - Select **Pages** then **Setup** from the main menu.
 - Select **+ System** to display a list of options.
 - When you are finished, select **Return**.

	- System	Default	Description
	Processor Name		
		GB40 Processor name	<i>Re-name the processor if a more descriptive name is needed to help identify it on the network. Use up to 15 characters (letters and numbers only, with no spaces). Re-select Master after restart.</i>

	- System	Default	Description
Language			
English US	<input checked="" type="checkbox"/>		<i>Set the preferred language.</i>
English UK	<input type="checkbox"/>		
Decimal Separator			
Point	<input checked="" type="checkbox"/>		<i>Used to select separator between values e.g. Long/Latitude.</i>
Comma	<input type="checkbox"/>		
Select Time Zone			
Selected Time Zone		GMT	<i>Set the local time zone. Allow for daylight saving if applicable. Select from the list of time zones. Press select time zone to confirm. Check local time (this is displayed in the Position screen).</i>
Time Format			
12	<input checked="" type="checkbox"/>		<i>Set the preferred time format for time display.</i>
24	<input type="checkbox"/>		
Date Format			
MM/DD/YY	<input checked="" type="checkbox"/>		<i>Set the preferred format for date display.</i>
DD/MM/YY	<input type="checkbox"/>		
Display One Backlight Level			
(0-100)		100	<i>Controls the backlight levels of the various display units.</i>
Display Two Backlight Level			
(0-100)		100	<i>Controls the backlight levels of the various display units.</i>
Restart Software			
			<i>Restarts the application software. Not a system restart. Takes around 15 seconds.</i>
Synchronize Time			
			<i>Synchronizes the processor system time with the time coming from the GPS.</i>

	- System	Default	Description
	Data Channel Diagnostics		
			<i>Channels snapshot dialog page.</i>

2.14 Setup: Restore To Factory Defaults

Navigation Data will be lost when GB40 is restored to Factory Defaults. You are recommended to perform a backup before taking this action.

- **To enter setup options for Restore To Factory Defaults**
 - Select **Pages** then **Setup** from the main menu.
 - Select **Restore To Factory Defaults** to display a list of options.
 - When you are finished, select **Return**. The restored nodes will be restarted.

3 Chart

The GB40 is supplied with default settings for all the *Chart* options, but you can change many of the settings to suit your own preferences. You can:

- set up your Chart Library
- change your *Chart* settings
- show and hide items on your *Chart*
- store your settings as *Chart* views
- choose which *Chart* overlays to use
- change the navigation settings
- change the tracks settings
- import waypoints and routes from an older Simrad system

Each of these sections summarizes the settings that you can change, and explains how to change each setting.

The electronic chart used by the Simrad GB40 is an aid to navigation designed to supplement, not replace, official government charts. Only official government charts supplemented by notices to mariners contain the information required for safe and prudent navigation. Always supplement the electronic information provided by the Simrad GB40 with other plotting sources such as observations, depth soundings, radar and hand compass bearings. Should the information not agree, the discrepancy must be resolved before proceeding any further.



3.1 Chart Manager

If you're running a networked GB40 system on your vessel, be sure to unlock the chart collection on the master unit. Then, when the master unit is On, the chart collections are available to all the other display units on your GB40 network.

Use the Chart Manager to:

- purchase a license and/or subscription for one or more chart collections
- install the chart collections into the Chart Library
- update charts over the internet then install the updates into the Chart Library

- update the database using a DVD with the updated database from a C-Map office or from an authorized C-Map dealer
- download chart updates over the internet using a USB drive if you've paid for a subscription (the first year's subscription is free).

You need a valid license for each chart before you can install new charts to a chart collection.

BEFORE connecting or using a USB drive, CD or other removable media to the GB40, check it for viruses or corrupt data on a device isolated from the GB40 system.

Chart Manager: License and subscription options

The Chart Library uses charts supplied by C-Map. Charts are grouped together into collections that cover various regions of the world.

All of the C-Map chart collections are pre-loaded into the GB40. You must purchase a license then unlock the code for each chart collection that you want to use, and then update this license annually.

A subscription to the chart updates is included free with the first year's license, and you can update this annually if you want to maintain your subscription.

You can purchase the licenses and subscriptions in three ways:

- through your dealer
- over the phone
- over the internet

The information about your licenses and subscriptions is stored on your Chart License Key.

Purchase or Rent?

If you purchase a chart collection, it's always available. Additionally, you can install any updates to the chart databases that C-Map issue within a one-year period after purchase at no extra cost.

After that one-year period you can choose whether or not to subscribe to further updates on an annual basis.

If you rent a chart collection, it's available for a four-month period.

Chart Manager: Display information

The C-MAP PRO Chart Manager screen shows:

- the hardware key serial number
- version number of the Chart Manager software
- database number and issue

It also shows chart collection information including:

- the number of licenses in your license key (memory stick)
- the number of installed chart collections
- updating state of the database
- the Chart Manager main menu

➤ To display the Chart Manager screen:

- Select **Pages** then **Setup** from the main menu.
- Select **+ Chart**.
- Select **C-Map Chart Manager** then choose from:
 - **Install Charts.** Select this if you have the license to a chart collection and want to install them on your system.
 - **Purchase licenses.** Select this if you want to install a chart collection but don't have the license to it.
 - **Update Charts.** Select this to update charts in real time.
 - **Update Database.** The C-Map database is updated periodically, and the updates are issued on DVD. A C-Map office or a C-Map authorized dealer can arrange for delivery of the DVD with the updated database to you, by post.

You can receive the DVD free of charge when you have purchased or rented a chart collection and the access to updates is not yet expired. When you receive the DVD, just insert it into your DVD-ROM drive then select this option.
 - **Help.** Select this to see the description of the program and its functions.
- When you are finished, select **Return**.

Chart Manager: Select a collection

Chart collections icons indicate the status of the collection:

- Squares near the names of chart collections in the list of available chart collections indicate price conditions: the chart collections with the squares of the same size have the same price.
- A green key near the names of chart collections in both lists means that the license to those chart collections is loaded on the license key.
- A globe with **P** (purchased) or **R** (rented) near the names of chart collections in the purchase list shows whether the collection is purchased or rented.
- A shopping basket near the name of a chart collection in the purchase list indicates that the collection is chosen for purchase, but not yet purchased.
- Selected charts appear as a red region on the World Map.

➤ To choose a chart collection:

- Select **Pages** then **Setup** from the main menu.
- Select **+ Chart** then **Chart Manager**.
- Select **Purchase Licences**.

The Chart manager displays a world map and a list of charts.

Method 1: From the list

- Use the list arrows to navigate your way to a chart.

Method 2: By Name

- Select **Find Collection** in the Collections Data window.
- Print the name of the chart collection to the **Find what** box. Select OK.

The list of available chart collections will only contain the chart collection you are searching for, if there are several chart collections whose names contain the text you have printed in the Find what box, the list will contain these chart collections too. (To restore the complete list, select **Restore List**.)

Method 3: World Map selection

- Click on the silver transparent area to pan around the world map and locate the region of the world that you want charts for.
- Use the **Zoom In**, **Zoom Out**, and **World Overview** buttons if necessary.

- Click on the region that you want charts for. The chart collections for that region appear on the map in blue and are listed below.
 - Alternatively, select a chart collection from the list. It is displayed on the map in red.
 - Green areas displayed on the map show chart collections that are already purchased.
 - Select the chart collections you want to purchase.
 - Select **Add To Purchase**.
 - Select **Purchase** or **Rental**, depending on your preference. Add more chart collections if necessary.
 - Select **Collections To Purchase**.
- A list of your chart collections is presented. The license to be purchased is indicated by a Shopping Cart Icon. To remove a chart collection, select it and select **Remove Selected**.

Chart Manager: Purchase a collection

➤ **To purchase one or more chart collections:**

Choose one of these options from the C-MAP Chart Manager screen:

- **Phone Purchase**
 - Select **Save Purchase** then enter the required contact details.
 - Select **OK**.
 - Insert a USB drive and copy the order file to it.
 - Dial a C-Map office or an authorized C-Map dealer office. Your dealer will provide you with the license codes.
 - Enter the license code into the **Type license code here** field and select **Apply Code**. If the license code is correct, the license is loaded to the memory stick.
- **Internet Purchase**
 - Select **Save Purchase** to create an e-mail request file.
 - Enter your contact details then select **OK** to save the file on a USB drive.
 - Insert the USB drive into a computer with an internet connection.

- Attach the order file to an e-mail and send this to an authorized Simrad dealer.
- An automatic acknowledgement with the license code file will be sent to the contact details that you specified. This may take some time.
- Copy the license code file to the USB drive.
- Insert the USB drive into the GB40 master unit.
- **Dealer Purchase**
 - Take the USB drive to an authorized dealer.
 - The dealer will load the licence code file onto your USB drive.
 - Insert the USB drive into the GB40 master unit.

You're now ready to install the chart collections and load the license codes to unlock the chart collections.

Chart Manager: Install/uninstall a collection

When you've purchased your chart collection licenses and any subscriptions, all the license code information for those charts is uploaded onto your C-Map chart license key.

You must install the charts on the master unit. Any other display units can access the chart collections when the GB40 master unit is On.

You can only install the collections that you have licenses for. Licenses are stored in your license key. A license is shown by a green key icon near the chart collection name in the list of chart collections.

Even if you have more than one license key with licenses to different chart collections, you can only use one of the license keys at a time.

➤ **To install ALL collections:**

- Select **Install All**.
- A dialog box requesting your confirmation opens. Select either:
 - **Yes** to install all of the collections in the list OR
 - **No** if you do not want to install all of the collections.
- A progress bar appears indicating the installation status.

➤ **To install a selected collection:**

- Select the collection from the list.
- Select **Install Selected**.
- A dialog box requesting your confirmation opens. Select either:
 - **Yes** to install the selected collection OR
 - **No** if you do not want to install the collection.
- A progress bar appears indicating the installation status.

After the collection is installed, the globe and eye icons that indicate the status of the collection are activated and the green circle (with or without the lightning symbol) appears near the installed collection name.

- The active globe icon confirms that the collection is installed.
- The colored eye icon confirms that the collection is visible (if the eye icon is dim, the collection is not visible).
- The green circle with the lightning symbol confirms that the real-time updating is available (if the lightning symbol is absent, the real-time updating is unavailable).

The Collection Status section is displayed for each chart collection when it is selected from the Install Charts main page.

It contains the following information about the collection, depending whether the collection is installed or not installed.

- Access to data status. Access is permanent if the collection is purchased. If the collection is rented, the last date for access is shown. If this date is past, then access has expired.
- Access to updates status. The final date for accessing updates. If this date is past, then access to updates has expired.
- The date indicating that you cannot install collections from the databases issued later than this date
- Collection name, and the name of the database to which the collection belongs
- Contents of the collection.
- Installation status of the collection (installed/not installed).
- Update date for the collection. Access to updates will be displayed either as Expired OR a date will be provided with a countdown of how many days remain that the user is entitled to free updates e.g. "Access to Updates: expires 20-Feb-2009 (428 days left)". (The "Collection updating date:" shows the date when the selected collection was last updated.)

- **To uninstall all collections:**
 - Select **Remove All** in the Chart Manager main menu.
A dialog box requesting your confirmation opens. Select either:
 - **Yes** to remove access to all the collections in the list OR
 - **No** to keep access to your collections
- **To remove a selected collection:**
 - Select a collection in the list then select **Remove Selected**.
A dialog box requesting your confirmation opens. Select either:
 - **Yes** to remove access to the selected collection OR
 - **No** to keep access to the collection.
 - When you are finished, select **Return**.

Chart Manager: Load a license

This works only when the licence key with the license code file is connected to the GB40 master unit.

- **To load the chart licenses:**
 - Select **Pages** then **Setup** from the main menu.
 - Select **+ Chart** then **C-Map Chart Manager**.
 - Select **Purchase Licenses** then **Collections to Purchase**.
 - Select **Load Licenses**.
 - The Chart Manager displays a message "License File ... is found - would you like to process it?" Select **Yes** to confirm.
 - The Chart Manager displays another message. Select **Yes** again to install the chart collections.

Chart Manager: Icons

The chart manager has a variety of icons that show the status of your chart collection, licenses and subscriptions.

Chart Manager: Icons - no valid subscription 1

 [Green]
Collection is less than 2 months old. No valid subscription to the updating service.
Required Action
None.

Chart Manager: Icons - no valid subscription 2

 [Amber]
Collection is between 2 and 4 months old. No valid subscription to the updating service.
Required Action
Consider getting DVD update.

Chart Manager: Icons - no valid subscription 3

 [Red]
Collection has not been updated in 4 months. No valid subscription to the updating service.
Required Action
Consider getting DVD update.

Chart Manager: Icons - valid subscription 1


 [Green]
Collection is less than 2 months old. A valid subscription to the updating service exists.
Required Action
None.

Chart Manager: Icons - valid subscription 2


 [Amber]
Collection is between 2 and 4 months old. A valid subscription to the updating service exists.
Required Action
Update collection.

Chart Manager: Icons - collection not in view



Collection is not in view.
Required Action
Double click to switch On/Off.

Chart Manager: Icons - collection in view



Collection is in view.
Required Action
Double click to switch On/Off.

Chart Manager: Icons - collection installed


The collection is installed on the hard disk.
Required Action
None.

Chart Manager: Icons - valid subscription 3

 [Red]
Collection has not been updated in 4 months. Valid subscription to the updating service exists.
Required Action
Update collection.

Chart Manager: Icons - no icon

No Icon
The collection is not installed.
Required Action
None.

Chart Manager: Icons - collection not installed


The collection is not installed on the hard disk.
Required Action
Install collection.

Chart Manager: Icons - cannot retrieve data



Data cannot be retrieved from the hardware key (the hardware key may be unplugged).
Required Action
Check hardware key. If this is not unplugged, try rebooting.

Chart Manager: Icons - license does not exist

 [Fade]
A license for this collection does not exist on the hardware key.
Required Action
Missing/expired license.

Chart Manager: Icons - license expired

 [Red]
A license for this collection exists on the hardware key and has expired.
Required Action
Get DVD update if you want to keep the license up to date.

Chart Manager: Icons - license due to expire


 [Green]
A valid license for this collection exists on the hardware key, but will expire in less than 2 weeks.
Required Action
Consider getting DVD update. Start action to renew license if desired.

Chart Manager: Icons - valid license

 [Green]
A valid license for this collection exists on the hardware key.
Required Action
None.

3.2 Chart: The Basics

This section explains how to display the *Chart*, and what the *Chart* and status bar show.



Note: You must purchase and install the licenses for the chart collections that you want to access before you can display the charts on your GB40.

This section also explains how you can:

- display your current position in real time
- display your current position data
- pan the *Chart*
- zoom in or out on the *Chart*
- change the *Chart* view (Planning, Underway, Fishing, Anchored, Local View)
- change the *Chart* orientation (North Up, Course Up, Head Up)
- select the vessel offset mode (Look Ahead, Center)
- select the level of detail (Base, Standard, Full)
- show details about an object
- show range and bearing from your vessel
- show range and bearing between two points

If you want to show or hide items such as the course predictor line and the chart guard zone, and change the way your *Chart* looks, see Chart: Customize the chart screen.

Any changes that you make to the orientation, vessel, vessel offset mode, and level of detail are global, meaning that they'll be applied to any other display unit that's showing the same *Chart* view as yours.



Note: You can save yourself a lot of time by storing your preferred Chart settings for the *Planning, Underway, Fishing, Anchored, and Local* chart views.



The electronic chart used by the Simrad GB40 is an aid to navigation designed to supplement, not replace, official government charts. Only official government charts supplemented by notices to mariners contain the information required for safe and prudent navigation. Always supplement the electronic information provided by the Simrad GB40 with other plotting sources such as observations, depth soundings, radar and hand compass bearings. Should the information not agree, the discrepancy must be resolved before proceeding any further.

3.3 Chart: Display

➤ To display the chart:

You can either:

- select **Pages** then **Chart** OR
- select a page that includes the *Chart* and make this the active pane.

The GB40 displays your local *Chart*, with the main menu on the right hand side of the screen. The most recent *Chart* view is selected.

3.4 Chart: Display features



The *Chart* always shows:

- an arrow with an N. This is the true North indicator.
- an alphabetic letter to show the unit of depth (such as a large M to indicate meters).
- a distance scale.
- a lightly shaded frame around the edges (this may not be visible with *Chart* overlays).

The status bar is the gray bar along the top of your *Chart*. This shows:

- whether the *Chart* is at normal size, oversized (enlarged), or undersized (shrunk).
- the position of the cursor (if the cursor is shown) or your vessel (just select **Vessel** to see your position) as a Lat/Long coordinate.
- the current GRI and the preferred TDs below the Lat/Long coordinates (if Phantom Loran is On).
- the range and bearing (R/B) from your vessel to the cursor (if the cursor is shown).
- your course over ground (COG) and bearing mode.
- your speed over ground (SOG) in the units of your choice.

3.5 Chart: Show vessel status and position

Use this to quickly display your:

- current position coordinates
- COG (Course-Over-Ground)
- SOG (Speed-Over-Ground)
- chart datum
- time data
- TDs, GPS, Loran, or DGPS data details.

➤ **To show your status and position:**

- Select **Pages** then **Position**.

3.6 Chart: Position data sources

The GB40 can receive Lat/Long coordinates from several sources, depending on the type of receivers that are connected. These include:

- GPS
- GPS enhanced by WAAS
- GPS enhanced by DGPS
- Loran or Phantom Loran

GPS satellites are the primary source of position data but, depending on the type of receivers that are connected to your GB40 and your personal preferences, you can choose to display your vessel's position as Lat/Long coordinates OR as Loran Time Differences (TDs) coordinates.

Loran coordinates can be calculated from the GPS coordinates (this is known as Phantom Loran).

3.7 Chart: Instant GoTo

➤ **To create an instant, temporary waypoint and go to it:**

- Make the *Chart* pane active.
- You can either:
 - select the location on the *Chart* that you want to go to, then select **GoTo Here** OR
 - select **GoTo** then **GoTo Cursor**, then select the location on the *Chart* that you want to go to.

3.8 Chart: GoTo/Show a new coordinate

This won't work if there's an active route on your *Chart* screen.

➤ To go to or show a specific coordinate:

- Select **GoTo**. ((If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
- Select **GoTo**. The GB40 displays the GoTo control panel. There are five choices:
 - **Go to Cursor**: click on the *Chart* to select a temporary waypoint or Plot Route.
 - **Go to Waypoint**: select a Waypoint from the Waypoints Library.
 - **Go to Position**: Use **EDIT** to enter the new Lat/Long or TD coordinates using the onscreen keypad. Select **OK**. Select either **Find On Chart** to show the new coordinate position briefly OR **GoTo** if you want to navigate to the new coordinate.
 - **Follow Route**: Select a route from the Routes Library that you wish to follow.
 - **Plot Route**: Create a new route.
- When you are finished, select **Return**.

3.9 Chart: Range and bearing

You can quickly show the range and bearing from your vessel to another point, or between two arbitrary points. This information is shown only on your *Chart*.

➤ To show range and bearing:

- Make the *Chart* pane active.
- Select **Distance**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
- The **Range and Bearing** button shows the current setting. Select it to change the setting. There are two settings:
- **From Vessel**
 - Select a point on your *Chart*. The GB40 shows the range and bearing on the *Chart* and in the main menu, with an estimate of the time it will take to travel that distance at your cruising speed (this is specified in your Vessel Statistics Setup). The information is updated continuously.
 - You can drag the point to a new location if you want to check another range and bearing.

- **Point to Point**

- Select a point on your *Chart*. You may either drag the screen cursor to a new location, or enter a new point on your *Chart*.
- A line joins the two single points OR, if the cursor is dragged to create multiple points, a continuous line will connect all points and the sum of the individual ranges between these points, will be calculated.

The GB40 shows the range and bearing on the *Chart* and in the main menu, with an estimate of the time it will take to travel that distance at your cruising speed. The information is updated continuously.

- You may select new points at any time.

3.10 Chart: Keep your vessel in view

You can use this to re-position the *Chart* automatically to keep your vessel in view on the *Chart*.



Note: The re-positioning applies only to the chart on your display unit.

Your vessel's current position will be shown in real time if you are receiving position data from an external source such as GPS.

➤ **To keep your vessel in view:**

- Make the *Chart* pane active.
- There are three choices:
 - Select **Show Vessel** from the *Chart* control panel, and ensure that it is switched On. The GB40 repositions the *Chart* to show your vessel as an icon that moves in real time as your position changes.
 - Use a USB mouse to select **Vessel** at the top of the screen.
 - Press and hold down the **Vessel** key on the controller.
- If you pan to a new area of the *Chart* that doesn't include your vessel, **Show Vessel** automatically switches Off. Just press **Vessel** to switch it on again.

3.11 Chart: Pan the chart

You can pan (move) the *Chart* to show areas that are outside the currently displayed area.

➤ **To pan:**

- Make the *Chart* pane active.
Identify the lightly shaded frame around the edge of the *Chart* (this may not be visible if there are any *Chart* overlays)
- Select the edge of the *Chart* once to move one step in that direction, or hold-select to scroll the *Chart* rapidly in that direction
- Move the cursor off the scroll edge to stop.

3.12 Chart: Zoom the chart

You can zoom in and out on the *Chart* to show different levels of detail.

The status bar shows whether the *Chart* is overscaled (zoomed in), underscaled (zoomed out), or at the normal scale.

➤ **To zoom:**

- Make the *Chart* pane active.
 - Select **Range -** to zoom in on the central point of the *Chart* by one step. Repeat if necessary to continue zooming in and to show more detail.
 - Select **Range +** to zoom out from the central point of the *Chart* by one step. Repeat if necessary to continue zooming out and to show a larger area.

3.13 Chart: Preset chart views

There are five preset *Chart* views. These preset views store your preferred *Chart* settings for five common boating scenarios so that you can quickly apply your preferred settings to your current *Chart*.

➤ **To change the preset chart view:**

- Select **Chart View**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
- Select the preset *Chart* view you want to use. Your stored settings for that preset *Chart* view are applied immediately. If

you make any changes to the *Chart* settings, those changes are saved when you exit that preset *Chart* view.



Note: *When you select a preset chart view for the first time, the default settings for that preset chart view are applied.*

3.14 Chart: Orientation - Head Up/North Up/Course Up

Whatever the *Chart* orientation, an indicator in the top left corner always shows True North.

If you change the *Chart* orientation, it's also changed on any other display units that are showing the same *Chart* view.

There are three choices of *Chart* orientation:

- **Head Up.** The *Chart* rotates under your vessel, so the direction in which you're travelling is always at the top of the screen. This means that you can easily compare the view in front of your vessel with the *Chart*. If you're using Head Up with the compass as the heading sensor, Head Up will operate all the time, even when you're not moving. However, if you're using GPS to provide the heading, Head Up operates only when you're underway so when you stop, the *Chart* displays the North Up orientation until you get underway again because there is no meaningful COG when you're stationary.
- **Course Up.** The *Chart* rotates under your vessel as you travel, so the active leg of your route is always pointing to the top of the screen. This means that when you're on course, the boat symbol is also pointing to the top of the screen. If there's no active route, the chart will temporarily display the Head Up orientation.
- **North Up.** North is always at the top of the screen. The vessel symbol rotates on the *Chart* to show the direction in which your vessel is heading.



Note: *In Head Up or Course Up mode, the chart rotates ONLY when your vessel changes course by more than the amount specified. This avoids continuous re-adjustments.*

➤ **To change the chart orientation:**

- Make the *Chart* pane active.
- Select **Chart View**. Select the preset *Chart* view that you want to change.

- If you can't see the **Chart Orientation** button, select **Settings** then **Chart Orientation**.
- The **Chart Orientation** button shows the current setting. Select it to change the setting.

3.15 Chart: Vessel offset selection

When **Show Vessel** is On, you can choose to show your vessel's position on the *Chart* in Look Ahead mode or Center mode. Look Ahead is the default.

- **Look Ahead.** Your vessel is positioned towards the edge of the *Chart*, to give you a good view of what lies ahead. When your vessel has traveled a certain distance, the *Chart* scrolls automatically to reposition your vessel and maintain a good view of what lies ahead. (You can change the distance to be traveled before the *Chart* scrolls automatically; see GB40 Setup: Navigation.)
- **Center.** Your vessel is shown in central area of the *Chart*, traveling towards the edge. When your vessel moves a certain distance out of the central area, the *Chart* scrolls automatically so that your vessel is shown in the central area again. (You can change the distance to be traveled before the *Chart* scrolls automatically, see GB40 Setup: Navigation.)

If you change this setting, it's also changed on any other display units that show the same *Chart* view.

➤ To change the vessel offset mode:

- Make the *Chart* pane active.
- Select **Chart View**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
- Select the preset *Chart* view you want to change.
- If you can't see the **Vessel Offset** button, select **Settings**.
- The **Vessel Offset** button shows the current setting. Select it to change the setting.

3.16 Chart: Detail selection

You can use this to select from three different levels of detail on the *Chart*:

- **Base** shows the least detail.

- **Standard** is the default.
- **Full** shows the most detail.

If you change this setting, it's also changed on any other display units that show the same *Chart* view.

➤ **To select the level of chart detail:**

- Make the *Chart* pane active.
- If you can't see the **Chart Presentation** button, select **Settings**.
- Select **Chart Presentation**.
- The **Chart Detail** button shows the current setting. Select it to change the setting.
- When you are finished, select **Return**.

3.17 Chart: Customise the chart screen

You can make the following choices and changes to your *Chart*.

These changes are global, meaning that they'll be applied to any other display unit that's showing the same *Chart* view as yours.

You can change the vessel symbol.

You can show or hide the:

- course predictor line
- current track
- chart boundaries
- chart guard zone
- safe depths
- safe soundings
- light sectors
- Lat/Long grid overlay
- text labels on the chart

You can change the:

- chart guard zone (On/Off)
- chart guard zone settings
- default icon for a waypoint
- default icon for an event mark

These default values for these four items are defined in the *Chart* setup. See the Setup: Chart section to change the default values.



Note: You can store your preferred settings within the preset chart views for each of five common boating scenarios.

3.18 Chart: Vessel symbol selection

You can show your vessel on the *Chart* screen as a vessel or as a compass rose. The vessel symbol is the default.

- **To select the vessel symbol:**
 - Make the *Chart* pane active.
 - Select **Settings**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
 - The **Vessel Symbol** button shows the current setting. Select it to change the setting.
 - When you are finished, select **Return**.

3.19 Chart: Predictor line on/off

You can use the course predictor line to predict where your vessel will be in a specified time if you maintain your current COG and SOG.

The course predictor line is drawn on your *Chart* screen and extends out from your vessel in the direction of your COG. It extends over the time period that you specify.



Note: The length of the predictor line can be altered in *Navigation Setup*.

You can switch the course predictor line On or Off.

This works only if your position, COG, and SOG are available from GPS data.

If you change this setting, it's also changed on any other display units that show the same *Chart* view.

- **To change the course predictor line setting:**
 - Make the *Chart* pane active.
 - The **Predictor Line** button shows the current setting. Select it to change the setting. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
 - When you are finished, select **Return**.

3.20 Chart: Chart boundaries on/off

You can switch the chart boundaries On or Off to show or hide the boundaries of any charts in your licensed chart collection.

If you change this setting, it's also changed on any other display units that show the same *Chart* view.

- **To change the chart boundaries setting:**
 - Select **Chart Presentation**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
 - Select **Chart Presentation**.
 - The **Chart Boundary** button displays the current setting. Select it to change the setting.
 - When you are finished, select **Return**.

3.21 Chart: Guard zone - what is it?

The chart guard zone can help identify hazards that are marked on the *Chart*.

The chart guard zone is different from the radar guard zone. Use them both to help ensure the safety of your vessel.

When the chart guard zone is On, two red lines are drawn on the *Chart*. These start at your vessel and diverge out in the direction that you're traveling. After a defined distance, they are joined together by another line to form a triangular area that extends in front of your vessel. This triangular area is the chart guard zone.

The chart guard zone also extends vertically down into the water to a depth that is the same as the Safe Depth setting.

Objects within the chart guard zone that are marked on the *Chart* and that could be dangerous to your vessel, such as a sea wall or shallow water, will be highlighted on the *Chart*.

3.22 Chart: Guard zone on/off

You can switch the chart guard zone On or Off.

If the chart guard zone is On, the chart guard zone is shown on all the charts displaying the same *Chart* view and the GB40 checks for hazards that are marked on the chart. If a hazard is identified, the guard zone alarm will operate if it's been turned on.

If the chart guard zone is Off, it's not shown on the *Chart* and it isn't active.

- **To turn the chart guard zone On or Off:**
- Select **Guard Zone**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
- The **Guard Zone** button shows the current setting. Select it to change the setting.
- When you are finished, select **Return**.

3.23 Chart: Safe depths on/off

You can toggle the safe depths boundary line On or Off. If it's On, the boundary line between safe and unsafe water depths for navigation immediately appears as a thick gray line on your *Chart* and the safe water changes to a different color.

If you change this setting, it's also changed on any other display units that show the same *Chart* view.

The gray boundary line is at the Safe Depth setting.

- **To change the safe depths setting:**
- Select **Chart Presentation**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
- The **Shade Safe Depths** button shows the current setting. Select it to change the setting.
- When you are finished, select **Return**.

3.24 Chart: Safe soundings on/off

You can toggle the numeric depth values On or Off on your *Chart*.

- **To change the safe soundings setting:**
- Select **Chart Presentation**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
- The **Safe Soundings** button shows the current setting. Select it to change the setting.
- When you are finished, select **Return**.

3.25 Chart: Light sectors on/off

You can switch the light sectors On or Off on your *Chart*.

Some lights show different colors when they're viewed from different bearings. The different colors indicate different light sectors.

Although the color of the light will change depending on your bearing, the characteristics of the light, such as a three second flash, will not change.

Light sectors may be only a few degrees wide, or they may cover a wide arc.

If you change this setting, it's also changed on any other display units that show the same *Chart* view.

➤ **To change the light sectors setting:**

- Select **Chart Presentation**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
- The **Light Sectors** button shows the current setting. Select it to change the setting.
- When you are finished, select **Return**.

3.26 Chart: Lat/Long grid overlay on/off

You can switch the Lat/Long grid overlay On or Off on your *Chart* screen. Off is the default.

If you change this setting, it's also changed on any other display units that show the same *Chart* view.



Note: *This works only when the chart orientation is set to North Up.*

➤ **To change the Lat/Long grid setting:**

- Select **Chart Presentation**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
- Select **More Chart Settings**.
- The **Lat/Long Grid** button shows the current setting. Select it to change the setting.
- When you are finished, select **Return**.

3.27 Chart: Text on/off

You can toggle the names of islands, oceans, towns, and places of interest On or Off on your *Chart*.

Chart Detail must be set to Full if you want to show the chart text (see Chart: Detail selection).

- **To change the chart text setting:**
 - Select **Chart Presentation**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
 - Select **More Chart Settings**.
 - The **Chart Text** button shows the current setting. Select it to change the setting.
 - When you are finished, select **Return**.

3.28 Chart: Preset chart views

There are five preset *Chart* views:

- Planning
- Underway
- Fishing
- Anchored
- Local View

These can be customized to suit your preferences, so you can save a lot of time by storing your preferred settings for each *Chart* view.

All of the *Chart* views except Local View are global (meaning that your stored settings or any changes that you make to those settings are applied to ANY display unit that's showing the same *Chart* view as you).

Local View is a general purpose *Chart* view, and any changes that you make to the Local View settings are shown only on your *Chart* screen.

Chart: Default values for preset chart views

The five preset *Chart* views (Planning, Underway, Fishing, Anchored, and Local) have the following default settings:

Planning	
Chart scale	1:150,000
Chart center	1:150,000
Show boat	Off
Show boat mode	Center
Chart orientation	North Up
Guard zone	Off
Predictor	Off
Track	Off
Boat symbol	Boat
Chart detail	Full
Tides Info	On
Shade safe depths	Off
Hide safe soundings	Off
Light sectors	Off
Chart text	On
Chart boundary	Off
Lat/Long grid	Off
Ports and Marinas overlay	On
Chart object overlay	On
Radar overlay	Off

Underway	
Chart scale	1:20,000
Chart center	1:20,000
Show boat	On
Show boat mode	Look Ahead
Chart orientation	Course Up
Guard zone	On

Underway	
Predictor	On
Track	On
Boat symbol	Boat
Chart detail	Standard
Tides Info	Off
Shade safe depths	On
Hide safe soundings	On
Light sectors	Off
Chart text	On
Chart boundary	Off
Lat/Long grid	Off
Ports and Marinas overlay	On
Chart object overlay	Off
Radar overlay	On

Fishing	
Chart scale	1:20,000
Chart center	1:20,000
Show boat	On
Show boat mode	Center
Chart orientation	Head Up
Guard zone	Off
Predictor	Off
Track	Off
Boat symbol	Boat
Chart detail	Full
Tides Info	On
Shade safe depths	Off
Hide safe soundings	Off
Light sectors	Off
Chart text	On

Fishing	
Chart boundary	Off
Lat/Long grid	Off
Ports and Marinas overlay	On
Chart object overlay	On
Radar overlay	On

Anchored	
Chart scale	1:20,000
Chart center	1:20,000
Show boat	On
Show boat mode	Center
Chart orientation	North Up
Guard zone	Off
Predictor	On
Track	Off
Boat symbol	Boat
Chart detail	Full
Tides Info	Off
Shade safe depths	On
Hide safe soundings	Off
Light sectors	Off
Chart text	On
Chart boundary	Off
Lat/Long grid	Off
Ports and Marinas overlay	On
Chart object overlay	On
Radar overlay	Off

Local	
Chart scale	1:20,000
Chart center	1:20,000

Local	
Show boat	On
Show boat mode	Center
Chart orientation	Head Up
Guard zone	Off
Predictor	Off
Track	Off
Boat symbol	Boat
Chart detail	Full
Tides Info	On
Shade safe depths	Off
Hide safe soundings	Off
Light sectors	Off
Chart text	On
Chart boundary	Off
Lat/Long grid	Off
Ports and Marinas overlay	On
Chart object overlay	On
Radar overlay	Off

3.29 Chart: Overlays

When you're viewing the *Chart* screen, you can overlay any or all of the following information:

- the *Radar*
- satellite and aerial photographs for land areas, if these are available for that area
- tide stations, tidal flow and currents
- location of ports and marinas
- roads and symbols that show sites of interest, such as tourist spots and public car parks. You can also select a symbol and show the details of that site of interest.
- GDMSS regions (Global Maritime Distress and Safety System)
- SAR areas (Search and Rescue areas)

- a shaded relief map that shows topographic information for land
- bathymetric information for the ocean.

3.30 Chart: Overlay the radar

You can overlay the *Radar* returns on the *Chart*. This is extremely useful because it can help you to easily interpret the radar image by correlating the radar targets with charted objects.

You need good heading data to align the *Radar* returns on the *Chart* correctly. The overlay will work with COG, but you'll get a better result with a good quality, high-speed NMEA heading source such as a gyro compass or heading sensor.

The range, orientation, motion mode, and center position of the radar are all adjusted automatically to match your chart view. When a chart view has Radar Overlay On, a link is created between Radar Range and the chart zoom level. This means that if you zoom out on the *Chart/Radar* overlay the Radar Range will increase, and if you change the radar range in the *Chart/Radar* overlay, the chart zoom level adjusts automatically.

➤ To configure the radar overlay:

- Make the *Chart* pane active.
- Select **Chart Overlays**.
- The **Radar Overlay** button shows the current setting. Select it to change the setting. If it's:
 - **On**, the *Radar* overlay is operational. If no *Radar* overlay is shown, the radar mode may be set to Off or StandBy.
 - **Off**, the *Radar* overlay is not shown.
- Select **Radar Settings**.
- The **Radar Opacity** button shows the current setting for the transparency of the radar overlay. If you want to change this, select the button then drag the line to increase or decrease the transparency. Select **OK**.
- Select **Adjust Radar** to display a new menu, then select the setting(s) that you want to change:
 - **Gain Mode** (radar gain mode)
 - **Gain** (radar gain setting)
 - **Sea Clutter Mode** (sea clutter mode)
 - **Sea Clutter** (sea clutter setting)

- **Rain** (rain clutter setting)
- When you are finished, select **Return**.

3.31 Chart: Overlay ports & marinas

You can overlay the location of the ports and marinas on your *Chart*.

You can also show detailed information about a marina and an aerial photo of the marina if this is available.

➤ **To overlay the ports & marinas:**

- Make the *Chart* pane active.
- Select **Chart Overlays**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
- The **Ports & Marinas** button shows the current setting. Select it to change the setting.

➤ **To show details about a marina on the chart:**

- Select the marina that you want information on. A new menu is displayed.
- Select **Query Chart**. The GB40 displays the Chart Object Details box which shows more information about the marina.
There may be a scroll bar at the side of the right hand box. Drag the scroll bar to see any other information.
- Select **Photos** if there is an aerial photo of the marina available.
- Select **Return** twice.

3.32 Chart: Overlay tide information

You can show or hide the tide stations and the tidal flows and currents.

Tide stations are shown as small yellow boxes with a stylized wave symbol inside them. The tidal flow and currents are shown by broad yellow arrows.

If you change this setting, it's also changed on any other display units that show the same *Chart* view.

- **To show or hide the tidal flow and currents:**
 - Select **Chart Overlays**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
 - The **Tidal Flow & Currents** button displays the current setting. Select it to change the setting.
- **To show the tide details:**
 - Select the tide station. A new menu is displayed. Select **Tide Details**.

The Tide box shows a graph of the expected tidal rise and fall over a 24 hour period. The present time is indicated by a vertical red line.

 - **Next Day** to view tomorrow's tide details
 - **Previous Day** to view yesterday's tide details
 - **Select Date** to view the tide details for a date that you specify using the onscreen keyboard
 - **UTC/Local Time** to switch between showing the tide details in local time or UTC time.
 - When you are finished, select **Return**.

3.33 Chart: Overlay roads, terrain, bathymetry, SAR, GMDSS

If land is drawn on your *Chart* or overlain with satellite photos or aerial photos, you can overlay any or all of the following:

- **GMDSS** - Global Maritime Distress and Safety System. These regions are displayed on the *Chart* as circles shaded in green.
- **SAR** - Search and Rescue areas. These areas are displayed on the *Chart* as yellow stars
- **Roads** - the main road network and other symbols that show sites of interest, such as tourist spots and public car parks. (If you overlay the roads and other symbols, you can select a symbol and show more details of that site of interest.)
- **Terrain** - a shaded relief map that shows topographic information.
- **Bathymetry** - a shaded relief map that shows bathymetric information.

- **To overlay GMDSS, SAR, roads, relief on the chart:**
 - Make the *Chart* pane active.
 - Select **Chart Overlays**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
 - Select **More Overlays**.

The GB40 displays the More Overlays box with a list of overlays and their current status. (**Yes** means the overlay is On, **No** means the overlay is Off.) Select an overlay.
 - Select **Overlay Enabled** to change the setting of that overlay.
 - Repeat to change another overlay setting.

3.34 Chart: Information about an object

- **To show information about an object on the chart:**
 - Select the object that you want information about.

The object is marked with a red icon and a new menu is displayed.
 - If **Object Info** is Off, select it to switch it On.

Some information about the object will be displayed.
 - To show more information, select **Query Chart**. The GB40 display the Chart Object Details box which shows more information about that object.

There may be a scroll bar at the side of the right hand box if there's a lot of information. Drag the scroll bar to reveal it.
 - Select **Return** twice.

3.35 Chart: Routes & waypoints

Routes are groups of waypoints that create a navigational guide.

The GB40 stores all your routes in the Routes Library. Named waypoints are stored in the Waypoints Library.

3.36 Chart: Create/name a new route

You can create a new route even when there's an active route or waypoint already on the *Chart*. You can pan or zoom the *Chart* while you are creating a new route.

If you want to create a new route that is similar to an existing route, just copy the existing route.



Note: Only named waypoints are stored in the Waypoints Library.

➤ To create a new route:

- Select **Plot** then **Plot Route**.
- The **Share Waypoints** button shows the current setting. Select it to change the setting.
 - **On** - allows you to share existing waypoints.
 - **Off** - creates a new waypoint where you choose, even if a waypoint already exists at this position in another route.

There are two ways to add waypoints to your route:

Use Existing Waypoints

- Select **Add Waypoint from List**.
- Select the waypoint.
- When you are finished, select **Return**.
- Repeat as necessary.

Use the Chart

- Select the position of the first waypoint on the *Chart* pane. The GB40 immediately draws a blue circle at this position.
- Select the location of the second waypoint. The GB40 marks this position with another blue circle, names it w2, and draws a line between the first and second waypoints.
- Repeat as necessary.
- If you want to make changes to the new route, select **Edit Route**.
- Select **Finish** to confirm the route is complete.

The GB40 immediately shows a summary of the new route in a Route Details box.

- **To change the route name:**
 - Select **EDIT** next to the route name.
 - Enter the new name.
 - Select **OK**.
 - Select either:
 - **Return** if you are finished OR
 - **Follow Now** to make the route active. The new route is stored in the Routes Library and shown in red on the *Chart* pane.

3.37 Chart: Copy a route

Use this to save time when you want to create a new route that is very similar to an existing route.

After you have copied the route, you can change the route name and details to create your new route.

- **To copy a route:**
 - Select **Plot**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
 - Select **Routes Library**.
 - Select the route you want to copy.
 - Select **Copy Route**.
 - Select **Edit on Chart** to change details.
 - When you are finished, select **Return**.

3.38 Chart: Delete or show/hide a route

- **To delete a route:**
 - Select the route to delete. You cannot delete an active route.
 - Select **Delete Route**. The GB40 asks for confirmation. Select **OK**.
- **To show or hide a route using the Routes Library:**
 - Select the route that you want to show or hide.
 - The **Display on Chart** button shows the current setting for that route. Select it to change the setting.

3.39 Chart: Select & follow/stop a route

The active route shows the destination waypoint in gold, with a broken line extending from it to your vessel. The active route is shown on every *Chart*.

You can navigate along an active route yourself or by autopilot.

The GB40 automatically selects the first waypoint as the destination waypoint.

When your vessel arrives at the specified distance from the waypoint, the GB40 automatically sets the next waypoint as the new destination waypoint and shows the completed leg as a grey line.

When your vessel arrives at the last waypoint in the route, the GB40 either stops navigating or keeps navigating, depending on your choice.

If you want to go to a different waypoint or join a route at a specific waypoint, just select that waypoint then select **Follow Route From Here**. The GB40 creates a temporary waypoint at your current position and draws a broken line between this and the destination waypoint. The broken line shows the course you must take.

➤ **To select and follow a route from the Routes Library:**

- Select **Plot**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
- Select **Routes Library**.
- Select the route that you want to follow.
- Select **Follow Now**.

The GB40 displays the selected route on every *Chart* and makes it the active route.

➤ **To select and follow a route with GoTo:**

- Select **GoTo**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
- Select **Select**.
- Select the route that you want to follow.
- Select **OK**.

The GB40 displays the selected route on every *Chart* and makes it the active route.

- **To stop following an active route:**
- You can either:
 - select **GoTo** then **Cancel Follow Route** OR
 - select one of the route legs then select **Cancel Follow Route**.

3.40 Chart: Manage with chart

Adding, deleting, moving or editing route waypoints is usually done directly on the *Chart*. (You can also use the Routes Library.)

- **To show the route and waypoints:**
- Make the *Chart* pane active.
- Select the route.

The color of the route changes.
- **To add a new route waypoint:**
- Select **Edit on Route**.
- Select **Insert waypoint**.
- Position the cursor on an existing route leg on the OP30.
- Select the Tick key on the OP30, OR click with USB mouse. A new waypoint is created. You can move this to another location while the new waypoint is active.
- When the waypoint is at the correct location, select the Tick key again.
- Select **Finish** to confirm the new route.
- **To remove a route waypoint:**
- Select the waypoint to be removed.
- Select **Remove Waypoint**.
- **To re-order the route waypoints:**
- Select the route that you want to alter the order of the waypoints for.
- Select Route Details.
- Select the waypoint from the list displayed.
- Select either **Move Up** or **Move Down** to reorder the selected waypoint.

- When you've amended your route waypoints, select **Finish**. Any changes are stored in the Routes Library.
- **To add an existing waypoint to a route:**
 - Select the route.
 - Select **Route Details**.
 - Select the waypoint that is positioned before the waypoint that you're adding.
 - Select **Add Waypoint from List**.
 - Select the existing waypoint that you want to add to the route.
 - When you are finished, select **Return**.

3.41 Chart: Manage with Routes Library

Adding, deleting, moving or editing route waypoints is usually done directly on the *Chart*, but you can also access routes and route waypoints through the Routes Library.

- **To access route waypoints:**
 - Select **Plot**. (If this button is not in the main menu, make the Chart pane active, or select Return / Settings.)
 - Select **Routes Library** then select the route.
 - Select **Route Details** to display all the waypoints in the chosen route. The Total Time for the route is shown (estimated on your specified cruising speed) and the TTG between each waypoint is also shown.
 - The **Display On Chart** button in the main menu shows the current setting. Select it to change the setting.
- **To add an existing waypoint to a route:**
 - Select **Routes Library** then select the route.
 - Select **Route Details**.
 - Select the waypoint that is before the waypoint that you're adding.
 - Select **Add Waypoint from List**.
 - Select the existing waypoint that you want to add to the route.
 - When you are finished, select Return.

➤ **To move a route waypoint:**

- Select **Routes Library** then select the route.
- Select **Edit on Chart**.

The GB40 displays the selected route.

- Select **Move Waypoint**.

Select the waypoint you want to move and drag it to the new position.

- If **Share Waypoints** is On, the GB40 checks whether there's more than one waypoint at that position. If a waypoint is being shared with another route, the waypoint is moved if the other route is visible. If the other route isn't visible, the shared link is broken and the waypoint is moved only in the selected route.

➤ **To add a waypoint to the start or end of a route:**

- Select **Routes Library** then select the route.
- Select **Edit on Chart**.
- Select **Add Wpt to Beginning** OR select **Add Wpt to End**.

- Position the cursor at the new position and select the tick key on the OP30.

- Select **Finish** to confirm the new route.

The new waypoint is added to the route and the waypoints are all renumbered, as necessary.

➤ **To remove a waypoint:**

- Select **Routes Library** then select the route.
- Select **Route Details**.
- Select the waypoint you want to remove.
- Select **Remove Waypoint**.



Note: You can select *Edit on Chart* if you prefer to see the route you're editing.

3.42 Chart: GoTo next or previous waypoint

➤ **To navigate to the previous or next waypoint:**

- Select **GoTo**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
- If there's an active route or waypoint already on the *Chart*, select **Previous Waypoint** or **Next Waypoint**.

The GB40 creates a temporary waypoint at your vessel's current position, then draws a line between the temporary waypoint and the destination waypoint.

3.43 Chart: Reverse a route



Note: This works only when a route is displayed on the Chart.

➤ **To reverse your route:**

- Select any one of the route legs.
The selected route is shown in red.
- Select **Reverse Route**. The GB40 immediately renumbers all the waypoints in reverse order and updates the arrows to show the new direction.
- When you are finished, select **Return**.

3.44 Chart: Reset the XTE



Note: This works only when there is an active route or waypoint.

You can reset the XTE (cross track error) when you're off course and want to steer to the next waypoint from your current position, rather than steering back to the original course.

You can also reset the XTE from the *3D Steer* screen.

Check that the new course between your current position and the next waypoint is at a safe depth and contains no hazards or obstacles.



➤ **To reset the XTE:**

- Select **GoTo**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
- Select **Reset XTE**.

The GB40 immediately creates a temporary waypoint at your current position and draws a new leg between this and the next waypoint. It also resets the bearing and distance readouts.

3.45 Chart: Tracks

You can show or hide your tracks. You can store and display multiple tracks.

The current track is displayed as a broken line and is a different shade to the older tracks.

If you choose to show your current track, it appears as a purple line on the chart with a broken line connecting the last track point to the vessel symbol. The GB40 stores your track automatically in the Tracks Library.

You can use the tracks library to:

- start a new track
- delete a track
- rename a track
- select and display a stored track on the chart
- display the direction arrows on a track

If you've chosen to store your tracks then, when your vessel is underway, the GB40 automatically creates a VT point (Vessel Track point) whenever the heading changes or whenever the distance traveled exceeds that specified in the VT settings.



Note: The current track cannot be deleted and is always visible if Show Tracks is On. There can be only one current track. You cannot set an old track as the current track.

3.46 Chart: Tracks settings

The following settings are specified as part of the installation but you can change them at any time, if necessary:

- record vessel tracks
- cross track distance to create track point (0 - 3000 feet)

- distance to create track point (0.01 - 10 nautical miles)
- max track points shown (1,000 - 10,000).



Note: *The track plotting algorithm will plot a VT point every 0.1 nm if the vessel is going in a straight line, but if the 10 meter Cross Track Error threshold is exceeded, it will plot additional VT points. This allows reasonably tight circles to be tracked.*

3.47 Chart: Track - show/hide

Track points are not shown when the *Radar* is On but the track line is visible.

The GB40 always stores your track automatically in the Tracks Library.

You can switch your track On or Off. If it's On, your track is shown as a purple line.

If you change this setting, it's also changed on any other display units that show the same *Chart* view.

➤ **To change the track setting:**

- Select **Plot**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
- The **Show Tracks** button shows the current setting. Select it to change the setting.
- When you are finished, select **Return**.



Note: *The Tracks Library gives you the option of indicating if a track is displayed on the Chart or not. Only the tracks marked Yes in the Show column will be shown.*

3.48 Chart: Manage the Track Library

➤ **To enter the Track Library:**

- Select **Waypoints Routes & Tracks**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
- Select **Tracks Library**.

➤ **To start a new track:**

- Select **Start New Track**.

A new track entry is immediately shown in the Tracks Library box. You can change any of the settings, such as the track name, if you want.



Note: *New track points will be automatically appended to the new track which is the current track. A new track point is created if the vessel deviates from the line recorded from the last two track points.*

➤ **To delete a track from the Track Library:**

- Select the track to delete.
- Select **Delete Track**. The GB40 asks for confirmation.
- Select **OK**.

➤ **To rename a track:**

- Select the track you want to rename.
- Select **Rename Track**.
- Use the onscreen keyboard to enter the new name and select **OK**.

➤ **To show/hide the arrow directions on a track:**

- Select the track.
- The **Arrows** button shows the current setting. Select it to change the setting.

➤ **To display a track from the Tracks Library:**



Note: *This works only if the Show Tracks button is On.*

- Select the track you want to display.
- The **Display on Chart** button shows the current setting. Select it to change the setting. (The current track cannot be switched to No.)

3.49 Chart: Waypoints

Waypoints are virtual locations you mark on your *Chart* in order to show favorite, safe or noteworthy locations.

You can use the waypoints to create navigation routes, name a waypoint, record information about a waypoint, or set conditional display options. Waypoints are stored in the Waypoints Library.

3.50 Chart: Create a waypoint or event mark

You can create a waypoint anywhere on the *Chart* pane except in the shaded frame around the edge.

An event mark is a waypoint created at your vessel's current position.

➤ **To create a waypoint or event mark:**

- Make the *Chart* pane active.
- Position the cursor where you want the new waypoint.
- Select **Plot Waypoint Here**.

The GB40 immediately creates the new waypoint. The Waypoint Details box is displayed with some details (such as the latitude and longitude of the waypoint) already entered.

- Edit the waypoint information if you wish.
- When you are finished, select **Return**.

➤ **To create an event mark:**

- Make the *Chart* pane active.
- On the OP30, press and hold down the **Plot / Mark** button. Otherwise, select **Mark**.

The GB40 immediately creates the new event mark.

3.51 Chart: Edit a waypoint/event mark

You can change the waypoint name and icon, write notes about the waypoint, and change the Lat/Long coordinates.

The changes are global and are saved in the Waypoints Library.



Note: *If you're using Phantom Loran, the TDs and GRI settings are also shown. If you change the waypoint's Lat/Long coordinates, the TDs will be updated. If you change the TD's, the Lat/Long will be lost.*

- **To change the waypoint details**
 - Either create a new waypoint or select an existing waypoint/event mark then select **Waypoint Details**.
 - Select **EDIT** next to the setting you want to change. Most fields use alphanumeric entry.
- **To change the waypoint icon:**
 - Select the icon.
 - Choose the new icon and new color from the drop down list.
 - Select **OK**.

3.52 Chart: Navigate & manage your waypoints



***Note:** These features only work for waypoints that are not part of a route.*

- **To access waypoint features:**
 - Make the *Chart* pane active.
 - Select a waypoint then choose one of the following options:
 - **GoTo Waypoint.** Plots a direct line from your current position to the selected waypoint.
 - **Move Waypoint.** Select a new position for the waypoint.
 - **Hide Waypoint.** Hides the waypoint from view but keeps it in the Waypoints Library.
 - **Delete Waypoint.** Removes the waypoint permanently from the Waypoints Library.
 - **Waypoint Details.** Display and edit the waypoint details.
 - **Adjust Warning Zone.** Select this button to change the waypoint warning zone distance. Drag out from the waypoint to set the new distance. If you want to remove the waypoint warning zone select **Remove Warning Zone**.
- **To navigate to a waypoint that's not shown:**
 - Select **GoTo**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
 - Select **GoTo Waypoint**.
 - Choose the appropriate waypoint.

3.53 Chart: Manage the Waypoints Library

The Waypoints Library stores your waypoints and gives you access to several navigation shortcuts.

- **To use the Waypoints Library:**
 - Select **Plot**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
 - Select **Waypoints Library**.
 - Select a waypoint. Choose an option:
 - **Waypoint Details**. Display and edit the waypoint details.
 - **Delete Waypoint**. Remove the waypoint permanently from the Waypoints Library.
 - **Display On Chart**. Select it to change the setting.
 - **Find On Chart**. Center the waypoint on your *Chart* pane.
 - **GoTo Waypoint**. Plot a line from your vessel to the waypoint.
 - **Add Waypoint**. Create a new waypoint at your current position.
 - When you are finished, select **Return**.

3.54 Chart: Cancel GoTo waypoint



Note: *This works only when you are navigating to a waypoint on the Chart.*

- **To stop navigating to a waypoint:**
 - Select the waypoint OR select **GoTo**. (If this button is not in the main menu, make the *Chart* pane active, or select **Return / Settings**.)
 - Select **Cancel GoTo Waypoint**. The GB40 immediately deactivates the active route.

Blank page

4 3D Chart

3D Chart information is supplied by C-Map. You can use 3D Chart to see a panoramic view of the selected area, as if you were flying over it. You can change your elevation and the angle of view, and zoom in and out to show more or less detail.

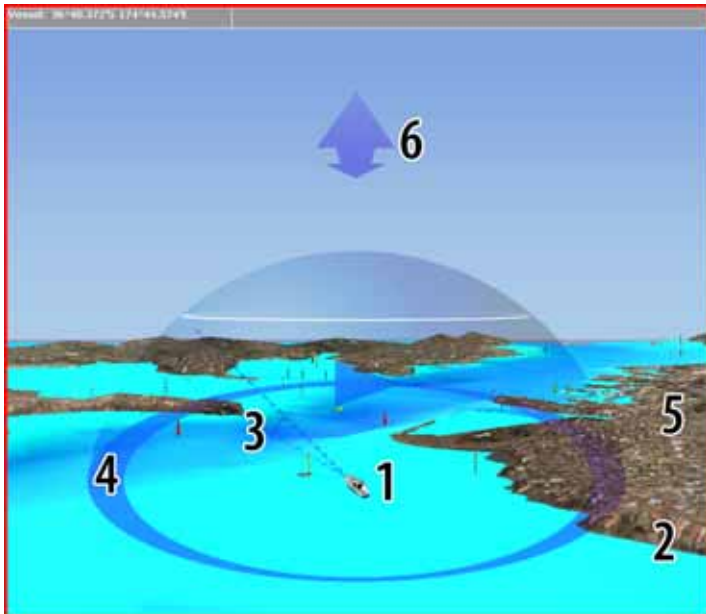
If you display the *Chart* screen and the *3D Chart* screen side-by-side in two panes, you can synchronize the two panes to show different perspectives of the same area.

3D Chart requires position data if you want to show your vessel position in real-time on the *3D Chart* screen.



Note: The level of detail in 3D Chart, and the availability of satellite photos or aerial photos to overlay on land areas depend on your geographical location. Areas around the USA usually have the best level of detail.

4.1 3D Chart: Screen



4.2 3D Chart: Display

➤ To display the 3D Chart:

- Select **Pages**.
- Select **3D Chart**, or select a Page that contains the 3D Chart in one of the panes.)

If position data is available, the GB40 acquires your vessel's position then displays the local area as a *3D Chart* with your vessel shown on it and the *3D Chart* main menu on the right side of your screen.

The status bar is the gray bar along the top of your *3D Chart*.

If position data is available, it's shown as Lat/Long coordinates. If Phantom Loran is On, the current GRI and the preferred TDs are also shown below the Lat/Long coordinates.

4.3 3D Chart: Synchronize with Chart

If you display the *Chart* and the *3D Chart* side-by-side in two panes of a page, you can synchronize the two panes to show different perspectives of the same area.

When the two screens are synchronized, the *Chart* settings are always applied to the *3D Chart*. For example, if you want to zoom in on the *3D Chart*, you must zoom in on the *Chart*; then the changes are duplicated on the *3D Chart*.

➤ To synchronize 3D Chart and the Chart:

- Select **Pages**. If you:
 - don't have a page that shows *3D Chart* in one pane and *Chart* in the other pane, you must edit or create a page that shows these two screens.
 - do have a page that shows *3D Chart* in one pane and *Chart* in the other, select it.
- Select the *3D Chart* pane so that it becomes the active pane. If you can't see the **Sync to Chart** button, select **Return**.
- The **Sync to Chart** button shows the current setting. Select it to change the setting.
 - **On**. The two screens are synchronized. The settings from *Chart*, such as the zoom level, position, and orientation are also applied to *3D Chart*. Any changes to the *Chart*, such as when you turn onto a new heading, are automatically shown in *3D Chart* too.
 - **Off**. *Chart* and the *3D Chart* operate independently.

4.4 3D Chart: View Adjustments

You can orient the current view of *3D Chart* to show the view from different perspectives.



Note: *The best controller to use with 3D chart is a USB mouse, as it allows live dragging to position the camera view. The cursor keys on the OP30 may also be used. The numbers within brackets () refer to the 3D Chart diagram.*

➤ To change the view of your 3D chart

- **Show Vessel (1).** Select to change its current state.
- **Vertical Scale (2).** Select to adjust the contrasting heights of the 3D appearance.
- **Camera Angle (3).** Select to change the apparent height of your eye level to the vessel.

You can also change the camera angle by positioning a USB mouse cursor in the middle of the screen then dragging up or down.

- **Azimuth (4).** Select to orbit your view around the vessel.
- **Photo Overlay (5).** Select to overlay satellite images of land areas.
- **Track Forward/Back (6).** Use **UP** / **DOWN** cursor keys to track the view over or away from the vessel. (This feature is not available with a USB mouse.)

Show Vessel allows you to select a position from which to view the vessel; From Aft, From Forward, From Port, From Starboard.

4.5 3D Chart: Bathymetrics - Show/Hide

You can switch the bathymetric data On or Off on your *3D Chart*.

If the bathymetric data is On and you are:

- in shallow water, different depths are shown in different colors and similar depths are linked by lines. (These lines do NOT correlate with depth contours on a chart.)
- in deep water, different depths are shown in different colors but there is no line overlay.

- **To change the bathymetric setting:**
- Display the *3D Chart* screen and the main menu. If you can't see the **Bathymetric** button, select **Settings**.
- The **Bathymetric** button shows the current setting. Select it to change the setting.

5 3D Steer

3D Steer displays a road-like view of the current leg of your route, as seen from your current position and looking towards the next waypoint.

It shows:

- the roadway - the clear area between the grid lines. Ideally, this should be in the middle of the screen.
- the centerline - the white, broken line that represents the line between the previous waypoint and the next waypoint.
- the boat icon - your vessel's position in relation to the centerline.
- the name and number of the next waypoint, and the distance and bearing to it.
- any XTE (cross-track error).
- your SOG (Speed Over Ground) and COG (Course Over Ground).

5.1 3D Steer: Display

➤ To display 3D Steer:

- Select **Pages**.
- Select **3D Steer**. The GB40 displays a graphical representation of the view from your vessel to the next waypoint. If your vessel is:
 - on track, *3D Steer* shows a XTE reading of zero. The roadway is in the middle of the screen, with your vessel on the centerline.
 - off track, *3D Steer* shows a XTE reading.

5.2 3D Steer: Reset the XTE

Reset the XTE when you're off track and decide to steer directly to the next waypoint from your current position; rather than steering back to the original track.

You can also reset the XTE from the *Chart* screen.

Check that the new route between your current position and the next waypoint is at a safe depth and contains no hazards or obstacles.



➤ **To reset the XTE:**

- Display *3D Steer* then select **Reset XTE**.

The GB40 immediately creates a temporary waypoint at your current position and draws a new leg between this and the next waypoint. It also resets the bearing and distance readouts.

6 AIS: Introduction

The International Convention for Safety of Life At Sea (SOLAS) requires that all vessels greater than 300 tons and all passenger vessels to be equipped with AIS (Automatic Identification System) transponders. These vessels broadcast permanently through one or both of two dedicated VHF channels.

The transmission may include information about the vessel's MMSI number, call sign, name, position, course, heading, speed, rate of turn and type of vessel.

Your system can receive and display AIS information when it is connected to an AIS receiver. All AIS vessels transmitting in the local area are shown on your *Chart* when AIS is enabled. This provides important information to supplement your *Radar* and helps to clarify radar targets and avoid collisions.



Note: AIS notification on your system is automatic and requires no operational instructions. However, you can customize the settings for the AIS display on your GB40.



If you change the filter options in the AIS Setup Menu, the changes may hide some vessels on your display without your knowledge.

If you change familiar settings, the new settings may mislead you about a vessel's bearing and speed.

AIS is a tool to assist with safe navigation, but responsibility for its use rests with the skipper.

7 Echosounder

The *Echosounder* is a high quality, dual frequency fishfinder. An ultrasonic pulse from your hull-mounted transducer travels down towards the bottom and spreads outwards into a rough cone shape. Depth to a target or the bottom is found by measuring the time taken between sending the pulse and receiving the echo.

The *Echosounder* pane shows the most recent echo on the extreme right of the pane, with the earlier echoes (the history) scrolling to the left.

Factors such as the clarity of the water and transducer type can affect the appearance of the *Echosounder* pane.

The *Echosounder* is supplied with default settings, but you can customize many of these to suit your own preferences.

Depth soundings should be used only for navigation. Never use a depth sounding to gauge depth or other conditions for swimming or diving.



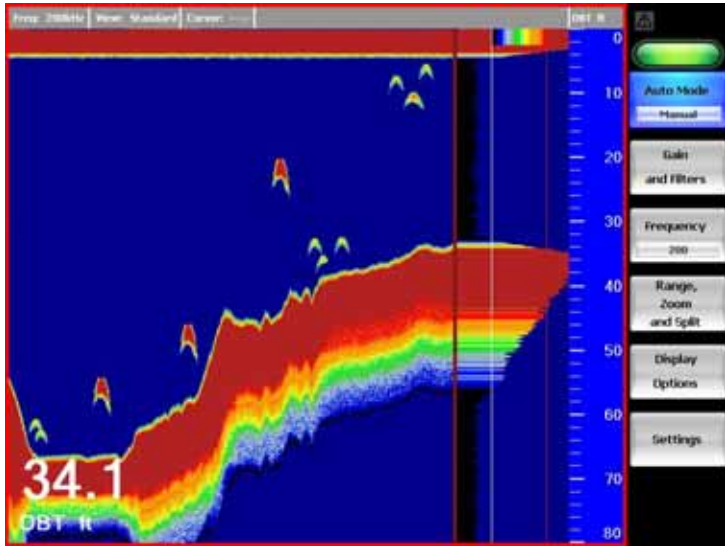
7.1 Echosounder: Display

➤ To display the Echosounder screen:

You can either:

- select **Pages** then **Echo** OR
- select a page that includes the *Echosounder* pane and make it active.

7.2 Echosounder: Screen



The *Echosounder* pane shows each echo as a vertical line of pixels. The echoes can be returned from 50 kHz only, from 200 kHz only, or from both of these frequencies mixed together.

The band of color scrolling from right to left shows the bottom, and any fish (or other objects) in the water are shown as fish arches.

You can turn the A-Scope On or Off. If it's On, horizontal lines of rapidly moving color on the right show the sonar echoes in detail. You can adjust the minimum and maximum gain amplitudes using the two vertical lines shown in the advanced A-Scope pane.

A depth scale is shown at the extreme right of the *Echosounder* pane.



Note: The depth scale is shown as the DBT (Depth Below Transducer).

The *Echosounder* pane can be split to include a zoomed area, or locked to always include the bottom. When it's split, you can change the ratio of the split panes.

If the depth line is On, it appears as a white horizontal line that you can move up or down to measure the exact depth of an object.

If the depth value is On, it appears in the bottom left corner.

The status bar is shown at the top of all the *Echosounder* panes. Use it to quickly check the:

- sonar frequency
- type of view
- depth at the current cursor position.

7.3 Echosounder: Interpret the screen

With practice and experience it's possible to interpret the echoes on the *Echosounder* panes quite accurately. You can learn to recognize different fish, the type of bottom and shadows.

The water depth, the scroll speed and the echo strength can affect the quality of the display. The range and gain settings can also affect the amount and quality of echoes returned.

Fish Arches

In good conditions, a fish passing through the cone-shaped ultrasonic pulse is displayed as a fish arch.

As the fish moves closer to the middle of the cone, the distance between the transducer and the fish reduces, producing a rising shape. When the fish passes directly beneath the middle of the cone, the echo becomes strongest and thickest. As the fish passes out of the middle of the cone the reverse happens with a progressively weaker and deeper echo.

Different frequencies have different attributes.

50 kHz	200 kHz
Wide cone; high power	Narrow cone; low power
Good depth penetration (transducer-dependent)	Good definition in target or bottom detail (transducer-dependent)
More susceptible to boat cavitation or interference	Less susceptible to boat cavitation or interference

Fish Arch Problems

There are many reasons why fish arches may not be seen. For example:

- Poor transducer installation.
- If the boat is anchored then fish will tend to show on the display as horizontal lines as they swim into and out of the transducer beam. Slow speeds in deeper water give the best fish arch returns.
- Range is important. It will be much easier to see fish arches when using zoom mode to concentrate on a particular section

of water, rather than just displaying everything from the surface to the bottom. Zooming in increases the amount of screen space the sonar data can be represented in, and is necessary for good fish arches.

- It is difficult to get fish arches in shallow water as the transducer sonar beam is very narrow near the surface and fish do not stay within the beam long enough to display an arch. Several fish in shallow water tend to display as randomly stacked areas of color.
- Wave motion may result in distorted fish arches.

Identifying Species

The swim bladders inside different fish species vary in size and shape. The size of the swim bladder can affect the strength of the echo. With experience, it's possible to recognize the type of fish from the strength of the echoes that they're producing.

When fishing amidst a school of fish and catching them, note the type of fish and the strength of the echo that they're returning on the A-scope screen. When you see that particular echo pattern again it's likely to be the same type of fish.

Shadows

'Shadows' are likely to be created around areas such as hollows in the bottom or next to individual rocks and rocky ledges. The weak echoes returned from any fish in these areas are often obscured by the stronger echoes that are returned from the whole area.

The 200 kHz frequency is the best defence against shadows. The high frequency and narrow sonar cone tends to reduce the effect of shadows. Shadows are more likely to occur with the 50 kHz frequency.

Bottom Detail

Soft bottoms such as mud, weed, or sand tend to appear as a narrow band on your *Echosounder* pane.

Hard bottoms such as coral or rock tend to appear as a wide band on your *Echosounder* pane.

A rocky ledge reflects echoes from two different depths and is likely to produce a double trace on your *Echosounder* pane.

When you're at anchor, all the echoes are returned from the same area of bottom. This produces a flat, uniform trace on your *Echosounder* pane.

Echo strength variability

The colors on the *Echosounder* pane indicate differences in the strength of the echoes. However, when you're trying to interpret the strength of an echo, remember that it can be affected by many factors such as:

- the size of the object (bigger objects return more echoes).
- the depth of the object and the sonar frequency you've selected.
- the location of the object relative to the position of your vessel. The area of water covered by the sonar pulse is roughly cone-shaped and spreads out and down from your vessel so echoes are returned most strongly from the central area under the transducer.
- the clarity of the water. Particles or air bubbles in the water can reduce the strength of echoes. Planing hulls moving at speed can produce air bubbles and turbulent water that may create transducer interference. Using the 200 kHz frequency can reduce the amount of noise.
- the composition and density of the object, such as a bed of seaweed or a rocky bottom.

7.4 Echosounder: Operating modes

➤ To change the operating mode:

- Display the *Echosounder* pane and the main menu. If you can't see the **Auto Mode** button, select **Return**.
- The **Auto Mode** button shows the current setting. Select it to change the setting. There are 3 operating modes:
 - **Fishing** - the range and gain settings are automatically adjusted to suit fishing conditions.
 - **Cruising** - the range and gain settings are automatically adjusted to suit cruising conditions.
 - **Manual** - you can change the range and gain settings yourself. The *Echosounder* will store your most recent settings and use them until you change them again.



Note: If you operate the Echosounder manually, you can change the range and gain to suit your own preferences. The best results are often returned in manual mode but the optimum settings for different conditions are usually found only with practice and experience.

Note: If you're using Fishing or Cruising mode and adjust the

gain yourself, the Echosounder automatically changes to Manual mode.

Use Cruising mode when you're traveling at speed.

7.5 Echosounder: Colors

You can change the colors (the 'palette') used to represent detail on your *Echosounder*.

White is the default day time setting, black is the default night time setting.

➤ To change the Echosounder colors

- Display the *Echosounder* pane and the main menu. If you can't see the **Palette** button, select **Settings**.
- The **Palette** button shows the current setting. Select it to change the setting.

7.6 Echosounder: Scroll speed

The *Echosounder* pane doesn't show a fixed distance traveled by your vessel; instead, it shows what's passed below the keel over a period of time. This is called the history.

The history is affected by two variables.

- The depth of water. In shallow water, the sonar signals have only a short distance to travel, so the *Echosounder* pane shows a history that covers only a brief period of time and moves quickly. In deeper water, the sonar signals have a much longer distance to travel so the *Echosounder* pane shows a history that covers a longer period of time and moves more slowly.
- The scroll speed. You can change this setting so that the *Echosounder* pane shows a longer history with less fish detail, or a shorter history with more fish detail.



Note: If another GB40 display unit is operating the Echosounder at a different frequency to you, the scroll speed will slow.

If you're looking for fish, a faster scroll speed combined with a slow boat speed - typically between 2 and 6 knots - generally produces the best fish detail.

- **To change the scroll speed:**
- Display the *Echosounder* pane and the main menu. If you can't see the **Settings** button, select **Return**.
- Select **Settings**.
- The **Scroll Speed** button shows the current setting. Select it to change the setting.
 - **Very Fast** shows the shortest history with the best fish detail. This is the default.
 - **Fast** shows a short history with good fish detail.
 - **Medium** shows a longer history with some fish detail.
 - **Slow** shows the longest history with little fish detail.
 - **Pause** freezes the pane so that it can be printed out, photographed, or examined in detail.

7.7 Echosounder: Pulse power

Use this if you want to change the power output of the transmitted sonar pulse.

- **To change the pulse power setting:**
- Display the *Echosounder* pane and the main menu. If you can't see the **Settings** button, select **Return**.
- Select **Settings**.
- The **Pulse Power** button shows the current setting. Select it to change the setting.
- There is a choice of:
 - **Auto**. This is the default.
 - **High**.
 - **Medium**.
 - **Low**. This conserves the battery and produces the clearest display in shallow water.

7.8 Echosounder: Gain setting

The gain is a fixed line shown on the advanced A-scope pane as a thin red vertical line. You may find it useful to view this screen while you adjust the gain setting.

You can adjust the gain settings for the 50 kHz and 200 kHz frequencies independently of each other.

➤ **To change the gain setting:**

- Display the *Echosounder* pane and the main menu. If you can't see the **Gain and Filters** button, select **Return**.
- Select **Gain and Filters**. Select either:
 - **200 kHz Gain** if you want to adjust the gain setting for the 200 kHz frequency or for a Mixed frequency OR
 - **50 kHz Gain** if you want to adjust the gain setting for the 50 kHz frequency.
- A slider box appears. Drag the line to change the setting.
- Select **OK**.



Note: *If you're using Fishing or Cruising mode and adjust the gain yourself, the Echosounder automatically changes to Manual mode.*

7.9 Echosounder: Threshold setting

The threshold line is shown on the advanced A-scope pane as a thin white vertical line. You may find it useful to view this pane while you adjust the threshold.

You can adjust the threshold for the 50 kHz and 200 kHz independently of each other. The default for both is 0.

➤ **To change the threshold:**

- Display the *Echosounder* pane and the main menu. If you can't see the **Gain and Filters** button, select **Return**.
- Select **Gain and Filters**. Select either:
 - **200 kHz Threshold** if you want to adjust the gain threshold for the 200 kHz frequency or for a Mixed frequency OR
 - **50 kHz Threshold** if you want to adjust the gain threshold for the 50 kHz frequency
- A slider box appears. Drag the line to change the setting.
- Select **OK**.



Note: *If you're using Fishing or Cruising mode and adjust the gain yourself, the Echosounder automatically changes to Manual mode.*

7.10 Echosounder: Noise filter

This filters the echo signal and reduces high-level, spiky interference, such as engine noise. However, some detail may be lost and small fish may not be shown if you are using the highest setting.

- **To change the noise filter setting:**
 - Display the *Echosounder* pane and the main menu. If you can't see the **Gain and Filters** button, select **Return**.
 - Select **Gain and Filters**. The **Noise Filter** button shows the current setting.
 - Select **Noise Filter** to change the setting. There are three choices:
 - **Off**. This is the default.
 - **Medium**.
 - **High**.
 - Select the new setting.
 - Select **OK**.

7.11 Echosounder: A-scope ratio

You can adjust the size of the A-scope area.

- **To change the ratio of the A-scope area:**
 - Display the *Echosounder* pane and the main menu. If you can't see the **Display Options** button, select **Return**.
 - Select **Display Options**.
 - The **A-Scope Width** button shows the current setting. Select it to change the setting.
 - Select **Increase** or **Decrease** to change the width of the A-Scope area.
 - Select **OK**.

7.12 Echosounder: Depth line

You can switch the depth line On or Off. Any change is applied only to your *Echosounder* pane. On is the default.

When the depth line is On, you can move it up and down to find the depth of a specific object on the *Echosounder* pane.

➤ **To change the depth line setting:**

- Display the *Echosounder* pane and the main menu. If you can't see the **Display Options** button, select **Return**.
- The **Depth Line** button shows the current setting. Select it to change the setting.



Note: *If you can't see the depth line, check whether it's On. If it is On but you can't see it, try changing the range because it may be out of view.*

➤ **To move the depth line:**

- Display the *Echosounder* pane and the main menu. If you can't see the **Move Depth Line** button, select **Display Options**.
- Select **Move Depth Line**, then move the depth line.
- Select **OK**.

7.13 Echosounder: Depth value

You can show or hide the depth value on your *Echosounder* pane only. If you choose to show the depth value, you can select a small or large pane.

Large is the default.

➤ **To show or hide the depth value:**

- Display the *Echosounder* pane and the main menu.
- The **Depth Value** button shows the current setting. Select it to change the setting.

7.14 Echosounder: 50/200 kHz split screen

You can show the 50 kHz history in one pane and the 200 kHz history in the other.

This can be useful if you're operating in shallow to medium water, typically less than 500 ft (150 m), and want to compare a wide view of the local area (50 kHz) with a more detailed view of the area under your vessel (200 kHz).



Note: *You can't use any of the zoom features on this pane.*

- **To show the 50/200 kHz split pane:**
- Display the *Echosounder* pane and the main menu. If you can't see the **Range, Zoom and Split** button, select **Return**.
- Select **Range, Zoom and Split**. The **View Mode** button shows the current setting.
- Select **50/200**. The 50 kHz history is on the left side, and the 200 kHz history is on the right.

7.15 Echosounder: Auto Range

Auto Range can be set On or Off.



Note: *When the Echosounder operating mode is set to Manual, Auto Range is automatically turned Off. If it's set to Fishing or Cruising mode, Auto Range is automatically turned On.*

- **To turn Auto Range on or off:**
- Display the *Echosounder* pane and the main menu. If you can't see the **Range, Zoom and Split** button, select **Return**.
- Select **Range, Zoom and Split**.
- The **Auto Range** button shows the current setting. Select it to change the setting. Select either:
 - **On** - the *Echosounder* adjusts the range automatically so that the bottom is always shown. Auto Range On is recommended for normal cruising or fishing conditions. This is the default.
 - **Off** - you operate the range and adjust the range manually. The *Echosounder* shows only the range that you specify, for example, the 10 ft of water between 15 and 25 ft below your vessel. Therefore, if your vessel moves into an area where the bottom is deeper than your specified range, the bottom won't be shown.

Auto Range Off can be useful in areas where the depth of the bottom changes very rapidly, such as around pinnacles, because it avoids constant readjustments to your *Echosounder*.

7.16 Echosounder: Range

Range is the vertical extent shown on the *Echosounder* screen. You can increase or decrease the range.

➤ To change the range:

- Display the *Echosounder* pane and the main menu. If you can't see the **Range, Zoom and Split** button, select **Return**.
- Select **Range, Zoom and Split**. The depth column shows the current range. Select either:
 - **Range +** to increase the range OR
 - **Range -** to decrease the range.

7.17 Echosounder: Range shift

➤ To adjust the range shift:

- Display the *Echosounder* pane and the main menu. If you can't see the **Range, Zoom and Split** button, select **Return**.
- Select **Range, Zoom and Split**.
- The **Range Shift** button shows the current setting. Select it to change the setting. Select either:
 - **Shallower** to view a different part of the water column, closer to the surface OR
 - **Deeper** to view a different part of the water column, closer to the bottom.
- Select **OK**.



Note: If you select *Vessel*, the upper value of the range shift automatically resets to 0.

7.18 Echosounder: Zoom range

The zoom range is the vertical extent of the zoomed area. The depth line in the right hand pane is always at the center of the zoomed area.

The depth line is also shown in the center of the zoomed screen, with the actual depth shown in numbers. The numbers at the top and bottom of the zoomed pane show the actual depths of the zoomed area.

You can increase or decrease the zoom range, but remember that the best magnification is achieved over a small vertical extent.

- **To change the zoom range:**
- Display the *Echosounder* pane and the main menu. If you can't see the **Range, Zoom and Split** button, select **Return**.
- Select **Range, Zoom and Split**.
- The **Zoom Range** button, and the echosounder zoom pane, show the current setting. Select it to change the setting. Select either:
 - **Decrease** to decrease the extent of the zoomed area and increase the magnification OR
 - **Increase** to increase the extent of the zoomed area and reduce the magnification
- Select **OK**.

7.19 Echosounder: Zoom range shift

This works only on a split *Echosounder* pane with a zoomed area. Auto Range must be switched Off.

You can use zoom range shift to move the zoomed area up or down, to magnify any section of the water column between the bottom and the surface.

- **To adjust the zoom range shift:**
- Display the *Echosounder* pane and the main menu. If you can't see the **Range, Zoom and Split** button, select **Return**.
- Select **Range, Zoom and Split**.
- The **Zoom Range Shift** button shows the current setting. Select it to change the setting. Select either:
 - **Shallower** to zoom a different part of the water column, closer to the surface OR
 - **Deeper** to zoom a different part of the water column, closer to the bottom.
- Select **OK**.

7.20 Echosounder: Split zoom screen

You can use a split zoom pane to magnify part of the water column and look at it in more detail.



Note: If the A-scope is already shown, this will be shown on the split panes too.

It's useful to have the depth line On.

➤ **To select a split zoom pane:**

- Display the *Echosounder* pane and the main menu. If you can't see the **Range, Zoom and Split** button, select **Return**.
- Select **Range, Zoom and Split**. The **View Mode** button shows the current setting. Select it to change the setting.
- Select **Zoom**.

The history is on the right side. The zoomed area of water is on the left side. The numbers at the top and bottom of the zoomed area show the upper and lower depths of the zoomed area.

7.21 Echosounder: Split bottom lock

Split bottom lock ensures that the bottom is ALWAYS shown on the *Echosounder* pane, regardless of any changes in depth.

You can use the split bottom lock screen to zoom in on the bottom so that you can easily compare different echo strengths. This can be helpful if you're trying to identify the type of bottom or locate objects on, or close to, the bottom.

➤ **To show and adjust the split bottom lock pane:**

- Display the *Echosounder* pane and the main menu. If you can't see the **Range, Zoom and Split** button, select **Return**.
- Select **Range, Zoom and Split**.
- The **View Mode** button shows the current setting. Select it to change the setting.
- Select **Bottom**.
 - The history is on the right side with the bottom always in view.
 - The zoomed area of bottom in the left side.
 - The numbers at the top and bottom of the zoomed area show the extent of the zoomed area of bottom. The lower number may show a negative reading, indicating that this area lies within the bottom.



Note: If the A-scope is already shown, this will also be shown on the split screens too.

7.22 Echosounder: Split ratio

You can use the split ratio to adjust the sizes of a split pane.

This option is available only on the split zoom, the split bottom lock, and the split 50/200 pane. The GB40 must be displaying one of these *Echosounder* pane.

➤ To change the ratio of the split pane:

- Display the *Echosounder* pane and the main menu. If you can't see the **Range, Zoom and Split** button, select **Return**.
- Select **Range, Zoom and Split**.
- The **Split Ratio** button shows the current setting. Select it to change the setting.
- Select **Increase** or **Decrease** to change the ratio of the split pane.
- Select **OK**.

7.23 Echosounder: A-Scope - show/hide

The A-Scope appears in the right side of your *Echosounder* as a column of multi-colored, horizontal lines that are constantly moving. It shows a real-time image of each sonar pulse so that you can optimize the gain and the gain threshold levels for the current sonar frequency.

The A-Scope shows:

- strong echoes as long horizontal lines
- weak echoes as short horizontal lines

The advanced A-Scope also shows:

- a static thin red vertical line showing the maximum sonar amplitude. You can't change this. Any echoes that exceed this maximum are always shown in red
- a white (or black) thin vertical line showing the selected minimum amplitude, which controls the range of colors displayed. You can change this using the gain threshold. Any echoes that don't reach this minimum are shown in the background color of the current palette
- a color bar at the top of the A-scope, showing the colors associated with each amplitude. You can change the width of the colors using the gain.

- **To show or hide the A-Scope:**
- Display the *Echosounder* pane and the main menu.
- Select **Display Options**.
- The **A-Scope** button shows the current setting. Select it to change the setting.
 - **Off.** The A-Scope is hidden.
 - **Standard.** The standard A-Scope is shown in the right side of your *Echosounder* pane.
 - **Advanced.** The advanced A-Scope is shown in the right side of your *Echosounder* pane.
- When you are finished, select **Return**.

8 Radar

8.1 Radar: Introduction

The radar (*RA*dio *D*etection *ANd* *R*anging) system has a scanner mounted on the superstructure and a radar processor box.

The rotating scanner sends out narrow-beam pulses of high frequency energy then 'listens' for echoes as these pulses bounce back from boats, land masses, buoys, waves, raindrops, birds and so on. These are known as "targets".

When a pulse is sent, the angle of the scanner gives the direction of the echo, while the return time of the echo gives the distance to the target.

Typically, your vessel is in the center of the *Radar* screen with concentric range rings surrounding it. These range rings help you to quickly estimate the distance to various targets.

You can customize many of the default settings. Some of these changes apply only to your *Radar* screen, but some are global, meaning they apply to ALL the *Radar* screens in your network.



Note: Before using the radar for the first time, some details must be set up so that the GB40 can configure it correctly. These details should have been set up by your GB40 installation technician, but you are able to configure them in the Radar Setup options.

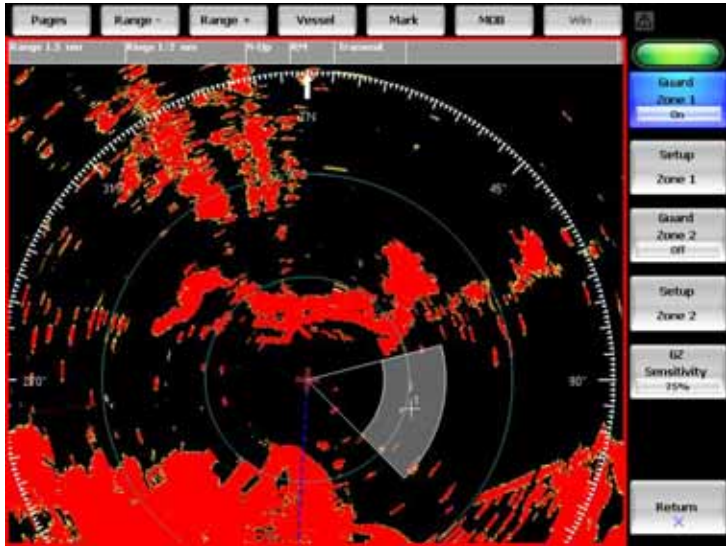
8.2 Radar: Display

➤ To display the radar screen:

You can:

- select **Pages**, then **Radar** OR
- select **Radar** on the OP30 OR
- select a page that includes the *Radar* screen and make this the active pane.

8.3 Radar: Screen



The default *Radar* screen shows the following items, but you can show, hide or change many of these to suit your own preferences:

- a status bar along the top.
- range rings. Range rings estimate the distance of a target from your vessel. The number of range rings and the spacing interval between them is automatically set, according to the range setting. (If you want to change the range of the *Radar*, refer to the radar Installation Manual.)
- North indicator. This shows the direction of True North (0°).
- heading marker. This extends from your vessel and shows the direction that your vessel is heading.
- the PPI position. This is the location of your vessel and the radar sweep is centered around this.
- any land.
- any stationary targets.
- any moving targets.
- any target trails.

8.4 Radar: Status bar

The status bar is shown at the top of all the *Radar* screens. Use it to quickly check the:

- *Radar* range
- the spacing value between the range rings
- *Radar* orientation (Head Up, North Up, Course Up)
- motion mode (True Motion, Relative Motion)
- *Radar* status (Off, Transmit, Standby)
- the range and bearing from the cursor position OR the Lat/Long if a GPS position is available (select the currently displayed item in the status bar to switch to the other item)

Any changes that you make to these settings are immediately shown in the status bar.

8.5 Radar: Operating modes - Start/Stop/Standby

➤ To set the operating mode:

- Select **Pages** then **Radar**.
- The **Radar Mode** button shows the current operating mode. Select it to change the setting. There are three choices:
 - **Transmit** - if the radar was in **Standby** mode, it will start transmitting immediately. If the radar was **Off** there is a pause of 90 - 180 seconds while it warms up before it starts transmitting.

The radar continues to transmit until you change the operating mode to **Standby** or **Off**.
 - **Standby** - this stops transmission but keeps the *Radar* ready to transmit again.
 - **Off** This saves on power consumption, but you must turn the *Radar* on then wait for it to warm up before you can use it again.

8.6 Radar: Orientation - Head Up/North Up/Course Up

The *Radar* orientation is shown in the status bar at the top of your *Radar* screen. You can change the orientation of your *Radar* screen ONLY when the radar is transmitting.

- **To change the orientation:**
 - Display the *Radar* screen and main menu. If you can't see the **Orientation** button, select **Return**.
 - Select **Orientation**. There are three choices:
 - **Head Up** means that the *Radar* screen rotates underneath your vessel, so the direction in which you are heading is pointing to the top of your *Radar* screen. You can easily compare the visual view in front of your vessel with the *Radar* screen.
 - **North Up** works only when heading data from a heading sensor or COG is available. North is always at the top of your *Radar* screen. You can easily compare the *Radar* screen to a *Chart* in North Up.
 - **Course Up** works only when heading data from a heading sensor or COG is available AND there's an active route. It means that your desired heading is always pointing to the top of your *Radar* screen so that you can compare the leg bearing of the active route with the *Radar* screen. (If you're in Course Up orientation but don't have an active route, the GB40 uses Head Up orientation until a route is made active)



Note: *North Up and Course Up require heading data or COG to operate. The quality of the heading data affects the stability of the image so you're recommended to use a good quality heading sensor.*

8.7 Radar: Range offset (trigger delay)

Ideally, the *Radar* sweep should start at your vessel (a radar range of zero). You may need to adjust the radar range offset (also known as the trigger delay) to achieve this.

If the radar range offset is set incorrectly, your *Radar* screen might have a large dark circle in the center, or straight lines such as sea walls or piers might have a curve or indentation. Objects close to your vessel may be distorted. To rectify this, adjust the radar range offset.

If your *Radar* screen:

- has a large dark circle in the center, decrease the radar range offset until it almost disappears.
- has no black circle at the center, increase the radar range offset until a black circle just starts to appear at the center.

- **To change the radar range offset:**
- Display the *Radar* screen and main menu. If you can't see the **Adjust Radar** button, select **Return**.
- Select **Adjust Radar** then **Installation**.
- Select **Radar Range Offset** then use **Up** and **Down** to adjust the current setting.
- Select **OK**.

If this does not correct the problem, consult the installation manual for more information about the radar range offset.

8.8 Radar: PPI position - Look Ahead/Center/Offset

You can set the position of the PPI center to:

- **Center**. The PPI center remains in the central area of your *Radar* screen so that all other objects move relative to your vessel.
- **Look Ahead**. The PPI center is positioned to give you the best view ahead. This is the default.

If neither of these positions are suitable, you can customize the PPI position by offsetting the PPI center to a different location.

The new position must be within a 75% radius of the center of the *Radar* screen. If the selected position is outside of the 75% radius, the PPI center will be moved as close as possible to the desired position.

- **To set the PPI center:**
- Display the *Radar* screen and main menu. If you can't see the **Orientation** button, select **Return**.
- Select **Orientation**.
- The **Position** button shows the current setting. Select it to change the setting.
- **To offset the position of the PPI center:**
- Display the *Radar* screen and main menu. Then either:
 - Use the arrow keys to move the PPI center to the new location OR
 - Select **Orientation** then **Set Offset**.

- If you select **Set Offset**, a message asks you to select the new position for the PPI center.
- Enter the new position. The PPI center immediately moves to the new location.
- If you want to return the PPI center to Look Ahead, just select **Vessel**.

8.9 Radar: True or Relative Motion mode (TM/RM)

The motion mode is shown in the status bar at the top of your *Radar* screen.

- **Relative (RM)**. Your vessel remains in a fixed location on the *Radar* screen and all other objects move relative to your position. You can choose the position of the fixed location. RM is the default.
- **True (TM)**. Your vessel, and moving targets, move across the *Radar* screen as you travel. All stationary objects remain in a fixed position.



Note: You can change the motion mode **ONLY** when the radar is transmitting. If there's no heading data or COG, only Relative Motion mode is available.

- **To select the motion mode:**
 - Display the *Radar* screen and main menu. If you can't see the **Orientation** button, select **Return**.
 - Select **Orientation**.
 - The **Motion Mode** button shows the current setting. Select it to change the setting.

8.10 Radar: True Motion - reset TM position

This works only when heading data or COG is available.

The current motion mode is shown in the status bar at the top of the *Radar* screen.

- **To reset the TM position:**
 - Display the *Radar* screen and main menu. Then either:
 - press the **Vessel** key to immediately reset the TM position
OR
 - select **Orientation** then **Reset TM Position**.

8.11 Radar: Gain, Rain clutter, Sea clutter adjustment

You can improve your *Radar* display to reduce the effects of sea clutter, rain clutter, and interference from other radars.

You can reduce false echoes by changing the sensitivity with the gain setting.

Multiple echoes off the same object are most likely to occur when you are close to a large target and are usually only a temporary nuisance.

If the radar system is installed at a suitable height and in a suitable location on your vessel, side lobe patterns and shadows (blind spots) caused by obstructions such as funnels or masts will be minimized. If you're having problems with these, you may need to relocate the radar scanner. Consult the Installation Guide for your radar model, or talk to your dealer or installer.

Radar: Gain mode - Manual/Range Ride/Auto

Use the radar gain mode to specify whether you want to adjust the radar gain yourself or let the GB40 adjust it automatically.

Any changes to the radar gain mode are global and apply to all the *Radar* screens. Auto is the default.

If the radar gain mode is set to Auto and then you adjust the gain setting manually, the gain mode is changed to manual.)

➤ To change the radar gain mode:

- Display the *Radar* screen and main menu. If you can't see the **Adjust Radar** button, select **Return**.
- Select **Adjust Radar**.
- Select **Gain Mode**. There are three choices:
 - **Manual**. Select this to adjust the radar gain yourself to suit your local conditions and preferences. The manual gain setting will be applied at all radar range settings.
 - **Range Rider**. Select this to adjust the radar gain yourself for a particular radar range, and to have the GB40 store those settings and re-use them whenever you operate at that radar range.
 - **Auto**. Select this to have the GB40 adjust the radar gain automatically.
- Select the new setting.

Radar: Gain adjustment

You can use the radar gain to adjust the sensitivity of the radar. The radar gain should be set so that background noise is just visible on the *Radar* screen. The radar gain is shown as a percentage.

If the radar gain is too low, weak echoes won't be shown. If the radar gain is too high, strong echoes will be difficult to see amongst the large amount of background noise.

Any changes are global and apply to all the *Radar* screens.

If the radar gain mode is set to Auto and you adjust the gain setting manually, the radar gain mode is changed to Manual.

➤ To change the radar gain setting:

- Display the *Radar* screen and main menu. If you can't see the **Adjust Radar** button, select **Return**.
- Select **Adjust Radar**.
- Select **Gain** and a slider box appears. The current setting is shown as a line within a solid bar of color and as a percentage.
- Drag the line to change the setting.
- Select **OK**.

Radar: Sea clutter adjustment

If the sea clutter setting is too low, a lot of sea clutter will be displayed. If the sea clutter setting is too high, there's a chance that you'll lose small targets.

The sea clutter adjustment is shown as a percentage. 0% is the default.

If the sea clutter mode is set to Auto and you adjust the sea clutter setting manually, the sea clutter mode is changed to Manual. This applies to all the *Radar* screens.

➤ To change the sea clutter setting:

- Display the *Radar* screen and main menu. If you can't see the **Adjust Radar** button, select **Return**.
- Select **Adjust Radar**.
- Select **Sea Clutter** and a slider box appears. The current setting is shown as a line within a solid bar of color and as a percentage.
- Drag the line to change the setting.
- Select **OK**.

Radar: Rain clutter adjustment

Rain clutter is visual noise on the *Radar* screen created by interference from rain, hail or snow.

The rain clutter adjustment is a combination of the FTC (Fast Time Constant) that defines the leading edge of a rain shower but suppresses echoes from the following body of rain, so that any targets in the rain shower area are shown more clearly; and the STC (Sensitivity Time Control) that helps to suppress echoes from any rain around the radar itself.

If the rain adjustment is too low, there'll be excessive rain clutter displayed whenever it's raining. If the rain adjustment is too high, very large targets such as the coastline will appear to be hollow.

The rain setting is shown as a percentage. 0% is the default.



Note: *The rain setting is returned to the default value of 0% every time the Radar is restarted.*

➤ To change the rain clutter adjustment:

- Display the *Radar* screen and main menu. If you can't see the **Adjust Radar** button, select **Return**.
- Select **Adjust Radar**.
- Select **Rain** and a slider box appears. The current setting is shown as a line within a solid bar of color and as a percentage.
- Drag the line to change the setting.
- Select **OK**.

Radar: Reduce interference

If another vessel's radar is operating at the same frequency as your radar it can cause interference patterns on your *Radar* screen.

Interference patterns always appear in a different place with each sweep. They can be randomly scattered bright dots or dotted lines that extend from the centre to the edge of your *Radar* screen, often producing a spiral pattern. The stronger the interference, the wider the interference lines.

➤ To reduce interference:

- Display the *Radar* screen and main menu. If you can't see the **Presentation** button, select **Return**.
- Select **Presentation** then **Interference Rejection**. An option list appears:
 - **Off**. Turn interference rejection Off.

- **Low.** Operate interference rejection at minimum strength. This is the default.
- **Medium** Operate interference rejection at medium strength.
- **High.** Operate interference rejection at maximum strength. This setting can make it more difficult to detect some targets and radar beacons. Use this setting only when necessary.
- Select the new setting.

8.12 Radar: Preferences

The following choices apply only to your *Radar* screen. You can show or hide the:

- North indicator
- heading marker
- range rings
- active waypoint
- active route
- waypoint or route details

You can also change the color palette.

Radar: Colors

You can change the colors (the 'palette') used to represent detail on your radar display.

- **To change the radar colors:**
 - Display the *Radar* screen and main menu. If you can't see the **Presentation** button, select **Return**.
 - Select **Presentation**.
 - The **Palette** button shows the current setting. Select it to change the setting. An option list appears.
 - Select the new setting.

Radar: North indicator line

Whatever the *Radar* screen orientation, you can always show a North indicator at the edge of the compass range ring. The North indicator is a short, white arrow.

If the bearing mode is set to magnetic, the North indicator always points to magnetic North.

If the bearing mode is set to true, the North indicator always points to true North.

You can switch the North indicator On or Off. On the default.

- **To change the north indicator line setting:**
 - Display the *Radar* screen and main menu. If you can't see the **Range and Bearing** button, select **Return**.
 - Select **Range and Bearing**.
 - The **Show North Indicator** button shows the current setting. Select it to change the setting.

Radar: Heading marker

The heading marker is a blue, dotted line. It extends from your vessel to the edge of the compass ring, indicating the direction you are heading.

You can hide the heading marker temporarily. You can't turn it off.

- **To hide the heading marker temporarily**
 - Display the *Radar* screen and main menu. If you can't see the **Range and Bearing** button, select **Return**.
 - Select **Range and Bearing**.
 - Select the **Hide Heading Marker** button.
 - If you want to hide the heading marker for more than a few seconds, hold down the **Hide Heading Marker** button, then release the button to re-display it.

Radar: Range rings

Range rings estimate the distance of a target from your vessel. The spacing interval between the range rings is automatically set. The scale is shown in the status bar at the top of your *Radar* screen.

You can switch the range rings On or Off. On is the default.

- **To change the range rings setting:**
 - Display the *Radar* screen and main menu. If you can't see the **Range and Bearing** button, select **Return**.
 - Select **Range and Bearing**.
 - The **Range Rings** button shows the current setting. Select it to change the setting.

Radar: Active waypoints & routes - show/hide

You can show or hide the active waypoint or active route on your *Radar* screen. You can show the name, the range and bearing, and the TTG for the active waypoint.

If an active route or waypoint is shown on your *Radar* screen, you can switch the details On or Off. Off is the default.

- **To show or hide the active waypoint or route:**
 - Display the *Radar* screen and main menu. If you can't see the **Presentation** button, select **Return**.
 - Select **Presentation** then **Waypoints and Routes**.
 - The **Show Active Waypoint** button or **Show Active Route** button shows the current setting. Select it to change the setting.
- **To show or hide the details:**
 - The **Show Active Waypoint** button or **Show Active Route** button must be switched On if you want to show the details.
 - The **Show Details** button shows the current setting. Select it to change the setting.

8.13 Radar: Range & bearing

This section explains how to:

- find the range and bearing with the cursor.
- find the range and bearing with fixed VRM/EBL.
- show or hide a fixed VRM/EBL.
- find the range and bearing with floating VRM/EBL.

Radar: Measure with the cursor

You can use the cursor to quickly find the precise range and bearing of a target from your vessel.

You can also use one or both of the VRM/EBL (Variable Range Markers/Electronic Bearing Lines).

- **To find the range and bearing of a target with the cursor:**
 - Select the target on your *Radar* screen.
 - The range and bearing is shown in the status bar at the top of the *Radar* screen, next to the cursor readout. Select the cursor

readout to show the Lat/Long position (if GPS data is available).

- When you are finished, select **Return**.



Note: *If there's no heading data available from a heading sensor, the bearing readouts are relative to your vessel's head.*

Radar: Fixed VRM/EBL

You can show or hide the VRM/EBL (Variable Range Marker/Electronic Bearing Line) independently on your *Radar* screen.

Off is the default and hides the VRM/EBL.

- **To show or hide VRM/EBL data:**
 - Display the *Radar* screen and main menu. If you can't see the **Range and Bearing** button, select **Return**.
 - Select **Range and Bearing**.
 - Select **VRM/EBL 1** to show the main menu for VRM1 and EBL1. If **Show VRM/EBL 1** is switched Off, select it to switch it On. The *Radar* screen shows:
 - VRM 1. A thin, circular, dotted line centered around your vessel. The radius is set at the most recent position.
 - EBL 1. A thin dotted line extending from your vessel to the edge of your *Radar* screen. The bearing is relative to your vessel. The default angle is 045° Relative.
 - A message box showing the range and bearing of the VRM/EBL. If you can't see this, check the box next to **VRM/EBL 1 Data** to turn it On.
 - When you are finished, select **Return**.
 - If you want to show or hide VRM/EBL 2, select **VRM/EBL 2** then repeat the procedure.
 - Use the VRM/EBL to show the precise range and bearing of a target from your vessel. This is a fixed VRM/EBL. You can also use the cursor keys.

➤ **To find the range and bearing of target with a fixed VRM/EBL:**

- Display the *Radar* screen and main menu. If you can't see the **Range and Bearing** button, select **Return**.
- Select **Range and Bearing**.

The **EBL Reference** button shows the current setting.
Select:

- **North** if you want the EBL bearing to be referenced to North
- **Relative** if you want the EBL bearing to be relative to your vessel's position
- Select **VRM/EBL 1** to show the main menu for VRM1 and EBL1. If **Show VRM/EBL 1** is switched Off, select it to switch it On. Note that if the **VRM/EBL 1** position is not shown initially when you switch it On, because it's outside the current radar range, it'll be adjusted to appear at one third of the current range.

The *Radar* screen shows:

- VRM 1. A thin, circular, dotted line centered around your vessel. The radius is set at the most recent position.
- EBL 1. A thin dotted line extending from your vessel to the edge of your *Radar* screen. The bearing is relative to your vessel. The default angle is 045° Relative.
- A message box showing the range and bearing of the VRM/EBL. If you can't see this, check the box next to **VRM/EBL 1 Data** to turn it On.

➤ **To show the range readout:**

- You can either:
 - drag VRM 1 across the PPI until it touches the target OR
 - select **Adjust VRM 1** then use **Up** or **Down** to increase or decrease the radius of VRM1 until it touches the target.
- The GB40 updates the range readout with each change in radius.
- Select **OK** when you are at the target.

➤ **To show the bearing readout**

- You can either:
 - drag EBL 1 across the PPI until it touches the target OR
 - select **Adjust EBL 1** then use **Up** or **Down** to move EBL1 until it touches the target.

- The GB40 updates the bearing readout with each change. Select **OK** when you are at the target.
- When you are finished, select **Return**.
- If you want to find the range and bearing of another target from your vessel, select **VRM/EBL 2** then repeat the sequence.



Note: *If you select the junction of the EBL/VRM, you can drag them both at the same time.*

If there's no heading data available from a heading sensor, the EBL readouts are relative to your vessel's heading.

Radar: Floating VRM/EBL

You can use the VRM/EBL (Variable Range Markers/Electronic Bearing Lines) independently to show the precise range and bearing from one location to another on your *Radar* screen; for example, from one island to another.



Note: *If there's no heading data available from a heading sensor, the EBL readouts are shown relative to your vessel's heading.*

- **To find the range and bearing with floating VRM/EBL:**
 - Display the *Radar* screen and main menu. If you can't see the **Range and Bearing** button, select **Return**.
 - Select **Range and Bearing**.
 - The **EBL Reference** button shows the current setting. Select:
 - **North** if you want the EBL bearing to be referenced to North
 - **Relative** if you want the EBL bearing to be relative to your vessel's position
 - Select **VRM/EBL 1** to show VRM 1 and EBL 1 on your *Radar* screen. If **Show VRM/EBL 1** is switched Off, select it to switch it On. (If the **VRM/EBL 1** position is not shown initially when you switch it On, because it's outside the current radar range, it'll be adjusted to appear at one third of the current range.)

The *Radar* screen shows:

- A dotted, circular line centered around your vessel. This is VRM 1 and the radius is set at the most recent position.

- A dotted line extending from your vessel to the edge of your *Radar* screen. This is EBL 1 and the bearing is relative to your vessel. The default angle is 045° Relative.
- A message box showing the range and bearing of the VRM/EBL. If you can't see this, select **VRM/EBL 1 Data** to turn it On.
- Select **Floating EBL 1** and a message asks you to select the EBL center. The Center EBL 1 setting should be Off. (If it's On, the EBL will be centered on your vessel.)
- Select the EBL center for the first location, then select **Return**.
- **To find the range and bearing between two other locations:**
 - Select **VRM/EBL 2** then repeat the sequence. These dotted lines are shown in a different color.
- **To show the range readout:**
 - You can either:
 - drag VRM 1 across the PPI until it touches the target OR
 - select **Adjust VRM 1** then use **Up** or **Down** to increase or decrease the radius of VRM1 until it touches the target.

The GB40 updates the range readout with each change in radius.
 - Select **OK** when you're at the target.
- **To show the bearing readout:**
 - You can either:
 - drag EBL 1 across the PPI until it touches the target OR
 - select **Adjust EBL 1** then use **Up** or **Down** to move EBL1 until it touches the target.

The GB40 updates the bearing readout with each change.
 - Select **OK** when you're at the target.
- **To clear the data:**
 - Select **Center EBL 1** then **Return**.



Note: If you select the junction of the EBL/VRM, you can drag them both at the same time.

8.14 Radar: Targets

This section explains how to:

- make small targets more easy to see
- switch target trails On or Off, change the length of the target trails, and temporarily clear target trails from the *Radar* screen

Radar: Target enlargement

You can turn the Expand Target feature On or Off. When it's On, all the targets on all the *Radar* screens appear larger. This is particularly useful if you have several small targets in view and want to make them easier to see by extending them outwards along a radial line.

The default setting is Off.

The resolution decreases as the size increases, so use this feature only when target detection and visibility is more important than the quality of the display.



➤ To make all the targets appear larger:

- Display the *Radar* screen and main menu. If you can't see the **Presentation** button, select **Return**.
- Select **Presentation**.
- The **Expand Target** button shows the current setting. Select it to change the setting.

Radar: Target trails

If target trails are switched On, you can set the trail that each target leaves on your *Radar* screen to last for 15 or 30 seconds, 1 or 3 minutes, or indefinitely.

You can clear target trails temporarily or switch them Off completely. Off is the default.

If you're using True Motion, stationary targets will leave a trail. If you're using Relative Motion, any target that is moving relative to your vessel will leave a trail.

- **To clear target trails:**
 - Display the *Radar* screen and main menu. If you can't see the **Presentation** button, select **Return**.
 - Select **Presentation**.
 - Select **Clear Trails**. The target trails immediately disappear. However, the target trails will start to appear again unless you switch them Off.
- **To switch target trails on or off, or set the length of the trail:**
 - Display the *Radar* screen and main menu. If you can't see the **Presentation** button, select **Return**.
 - Select **Presentation**.
 - Select **Target Trails** and an option list appears.
 - Select the new setting.

8.15 Radar: MARPA

MARPA (*Mini Automatic Radar Plotting Aid*) is a powerful tracking system used to define and track a maximum of 10 radar targets. MARPA can also calculate data relating to each target.

Effective MARPA operation relies on good quality heading data. You're recommended to use a good quality heading sensor. Poor quality heading data will result in inaccurate data calculation and unreliable target tracking.



Note: Certain conditions may affect the effective operation of MARPA. These conditions include poor radar adjustment, weather conditions and the sea state, the type and quantity of radar echoes on the screen and the relative movement of your vessel and other targets.

MARPA processing is performed by the radar processor, not the display unit, so it is important that the radar processor software supports MARPA. If it doesn't, contact your dealer for a software upgrade for your radar processor.

Radar: Acquire a target

➤ To acquire a target:

- Display the *Radar* screen and main menu.
- Select **MARPA**. If you can't see **MARPA**, select **Return**.
- Select **Acquire Target**.
- A message asks you to select the targets that you want to track. Select a target.

The GB40 identifies the target with a target number and a green square to show that it's being acquired.

When the GB40 acquires the target, the symbol changes to a blue circle to show that the target is being tracked. The GB40 shows the:

- range and bearing of the target
- a vector with the speed and course of the target.

The GB40 also calculates the closest point of approach and the time to the closest point of approach.

The GB40 tracks the target to the maximum range of the radar or until you cancel it, it is lost, or it moves out of range.

- When you are finished, select **Return**.

Radar: Cancel a target

You can stop tracking one, more, or all of the acquired targets from either the *Radar* screen or from the *Chart*.

➤ To cancel tracking a target:

- Display the *Radar* or *Chart* and main menu.
- Select **MARPA**. If you can't see **MARPA**, select **Return**.
- Select **Cancel MARPA Target**. A new main menu appears. If you want to:
 - stop tracking one or more targets, select only those targets
 - stop tracking all the targets, select **Cancel All Targets**
- For each cancelled target, the GB40 removes the target symbol and number from the screen, stops tracking that target and deletes all the stored data.

Radar: Show details of one target

You can show the details of a tracked target on the *Radar* screen. The GB40 can show the details of only ONE target at a time.

➤ **To show the target details:**

- Display the *Radar* screen and main menu.
- Select **MARPA**. If you can't see **MARPA**, select **Return**.
- Select **MARPA Data**. A message asks you to select the target. Select the target.

The GB40 displays a data box beside that target, showing:

- range and bearing
- speed and course
- closest point of approach
- time to the closest point of approach

You can select another target if you want to show the details of that target.

- When you are finished, select **Hide MARPA Data**.

Radar: Show details of all targets

You can show the details of ALL the tracked targets (a maximum of ten).

➤ **To show the details of all the targets:**

- Display the *Radar* screen and main menu.
- Select **MARPA**. If you can't see **MARPA**, select **Return**.
- Select **MARPA List**.

The Target Details box shows the following details for each of the tracked targets:

- target number and status
- range and bearing
- speed and course
- closest point of approach
- time to the closest point of approach

- When you are finished, select **Return**.

Radar: Lost target

When a target is lost, it's shown as a gray square on the *Radar* screen and an alarm is raised. The main menu alarm shows a alarm message and the number of the lost target.

➤ **To remove a lost target:**

- Select **Acknowledge**.

The GB40 removes the target from the *Radar* screen and deletes all the stored data for that target.

Radar: Vector settings

Each of the tracked targets has a vector that indicates the target's speed and course.

The vector length indicates the target's expected position after a specified time.

You can:

- change the vector reference setting to show the course and speed in Relative or True Motion or to match the Motion Mode. True vectors work only when GPS data (COG and SOG) is available.
- change the vector length to show the estimated position after a specific period of time.

➤ **To change the vector settings:**

- Display the *Radar* screen and main menu.
- Select **MARPA**. If you can't see **MARPA**, select **Return**.
- Select **MARPA Options**.
- The **Vector Reference** button shows the current setting. Select it to change the setting. There are three choices:
 - **Relative**. The vector shows the target's course and speed relative to your vessel.
 - **True**. The vector shows the target's actual course and speed. (It also shows a vector for your vessel with your actual course and speed.)
 - **Match Motion Mode**. The GB40 automatically sets the vector reference to match your selected motion mode (True or Relative).
- Select the new setting.
- The **Vector Length** button shows the current setting. Select it to change the setting. A list of time options appears.
- Select the new setting.

Radar: Target history

The GB40 stores the history of all the tracked targets for a period of time (specified by the vector length setting) and can show this history as a graphical representation.

You can switch the history On or Off. Off is the default.

- **To show or hide the history of all tracked targets:**
 - Display the *Radar* screen and main menu.
 - Select **MARPA**. If you can't see **MARPA**, select **Return**.
 - The **Target History** button shows the current setting. Select it to change the setting.

8.16 Radar: Guard zones

Use either or both of the two radar guard zones to notify you when a target enters or exits a specified area around your vessel.

When the radar guard zone is On, the specified area around your vessel that is defined by the radar guard zone is highlighted on the *Radar* screen.

The radar guard zones are different from the chart guard zone. Use both types of guard zone to help ensure the safety of your vessel.

Radar: Guard zones - on/off

Two radar guard zones are available, Guard Zone 1 and Guard Zone 2. You can turn either OR both of the radar guard zones On or Off.

If you turn a radar guard zone Off, it's immediately removed from all the Radar screens and any targets within that radar guard zone are no longer monitored.



- **To turn a radar guard zone on or off:**
 - Display the *Radar* screen and main menu. If you can't see the **Guard Zones** button, select **Return**.
 - Select **Guard Zones**.
 - The **Guard Zone 1** button shows the current setting for guard zone 1. Select it to change the setting.

The **Guard Zone 2** button shows the current setting for guard zone 2. Select it to change the setting.

The new setting is applied immediately and stays until you change it again.

Radar: Guard zone settings

There are two radar guard zones, Guard Zone 1 and Guard Zone 2. You can customize each one, independently of the other, to suit your own preferences. The changes are applied to all the *Radar* screens.

You can change the size, shape, and location of each radar guard zone. You can also set up the trigger for the radar guard zone alarm.

➤ To customize a radar guard zone:

- Display the *Radar* screen and main menu. If you can't see the **Guard Zones** button, select **Return**.
- Select **Guard Zones** then select either:
 - **Setup Zone 1** if you want to customize guard zone 1 OR
 - **Setup Zone 2** if you want to customize guard zone 2.A new main menu is displayed. Each button shows the current settings for that radar guard zone.
- Drag a boundary to change it or drag the centre of the guard zone to move the whole guard zone OR select:
 - **Zone Shape** to switch the shape between a sector (wedge shape) or a circle (a circular band surrounding your vessel). Sector is the default.
 - **Adjust Range** then use the up/down keys to move the outer edge of the radar guard zone closer to, or further from, your vessel. Select **OK**.
 - **Adjust Bearing** then use the up/down keys to move the entire guard zone to port or starboard, one degree at a time. Select **OK**.
 - **Adjust Depth** then use the up/down keys to move the inner boundary line of the guard zone closer to, or further from, your vessel. Select **OK**.
 - **Adjust Width** then use the up/down keys to increase or decrease the angular width of the guard zone (this won't work if you've chosen a circular guard zone). Select **OK**.
 - **Alarm When** then switch between Enter Zone or Exit Zone to specify when a target will trigger the radar guard zone alarm. Enter Zone is the default. (Also see "Sensitivity of guard zone alarms").
- Any changes are made immediately, but the radar guard zone alarm is suppressed for ten seconds.
- When you are finished, select **Return**.

Radar: Sensitivity of guard zone alarms

You can set the sensitivity of the radar guard zone alarm to define the size of the target that will trigger the alarm.

100% is maximum sensitivity, meaning that very small targets will trigger the guard zone alarm. 0% is minimum sensitivity, meaning that only very large targets will trigger the alarm. 50% is the default.

The same sensitivity setting is applied to *both* of the radar guard zones if both are activated.

➤ To set the sensitivity of the guard zone alarm:

- Display the *Radar* screen and main menu. If you can't see the **Guard Zones** button, select **Return**.
- Select **Guard Zones**. The **Guard Zone Sensitivity** button shows the current sensitivity setting as a percentage.
- Select **Guard Zone Sensitivity** if you want to change the current setting and a slider box appears. The current setting is shown as a solid line of color and as a percentage.
- Drag the line to change the setting.
- Select **OK**.

Radar: Radar bearing alignment

Use the radar bearing alignment to rotate *Radar* image, one degree at a time, so that a known object dead ahead is directly under the vessel's heading marker.

This means that the *Radar* image is aligned with the displayed *Chart* and the compass. An accurate bearing alignment is particularly important when the radar image is overlain onto the *Chart*.

It's best to do this on a page showing a *Chart* with the radar overlay On in one pane, and the *Radar* screen in the other pane.

➤ To change the radar bearing alignment:

- Select **Pages**. If you:
 - don't have a page that shows the *Radar* screen in one pane and the *Chart* in the other pane, edit or create a page that shows these two panes.
 - do have a page that shows the *Radar* screen in one pane and the *Chart* in the other, select that page.

- Check that the *Chart* has the Radar Overlay turned On.
- Select the *Radar* pane so that it becomes active. If you can't see the **Adjust Radar** button, select **Return**.
- Select **Adjust Radar**, then select **Installation**.
- The **Bearing Alignment** button shows the current setting. Select it to change the setting.
- Use the **Up** and **Down** buttons to move the radar image one degree at a time, until the radar overlay is aligned with the chart.
- Select **OK**.
- When you are finished, select **Return**.

Blank page

9 Instruments

The instruments panel is displayed most clearly as a single pane but you can also show it in a half-pane or quarter pane.

You can customize several features to suit your preferences.

9.1 Instruments: Screen



9.2 Instruments: Display

You can select any panel, then display or customize it.

➤ **To show instruments:**

- Select **Pages** then **Instruments**.

The most recently used panel and main menu is displayed. If no panels exist, a default panel with no gauges is presented for configuration.

- **Select Panel.** Choose a panel and display it.
- **Configure Gauge.** Add, delete or configure any gauge on the current panel.
- **New Panel.** Create a new panel.

- **Rename Panel.** Rename the current panel. Use the keyboard to enter a new name for the panel. Select **OK**.
- **Delete Panel.** Delete the current panel. Confirm the deletion. Select **OK**.

9.3 Instruments: Configure gauge

You can show data on a gauge in digital or analog format. Digital is the default.

If you show the data in analog format, you can customize the number of marks around the circumference of the gauge, label steps, and show a maximum of 3 color zones.

➤ **To set a gauge as analog:**

- Select **Configure Gauge** from the *Instruments* control panel.
- Select the appropriate gauge then select **Gauge Type: Digital**. This changes the gauge to Analog and also updates the description of the status bar.

➤ **To customize an analog gauge:**

- Select **Config Analog Gauge**.

Each of the buttons featured on the **Config Analog Gauge** pane are optional settings.

◦ **Scale:**

Scale Minimum: set the scale's lowest value.

Scale Maximum: set the scale's highest value.

Scale Label Step: set the value points where numerical labels will appear.

Marks are scaled automatically to provide the optimum display for the gauge.

- **Color Range 1, 2, 3.** These buttons create colored arcs to act as quick-reference zone indicators.

Range Visible: You can set the range, then switch the range on or off.

Range Minimum: set the range's start point.

Range Maximum: set the range's finish point.

Range Color: Select an appropriate color.



Note: Only valid numerical entries will be accepted for gauge configuration.

- When you have configured your gauge, select **Return** until you see the **Save Changes** button, then select **Save Changes**.

This completes the analog gauge configuration.

9.4 Instruments: New panel

➤ To create a new panel

- Select **Pages** then **Instruments**.
- Select **New Panel**.

An panel consists of a background image and a gauge template. The gauge template controls how many gauges you can put on a panel and their location on the panel.

- Select the background image/gauge template you wish to use.
- Select **Name New Panel**. Use the keyboard to enter a name for the panel.
- Select **OK**.

➤ To add a gauge:

- Select **Configure Gauge**.

All the possible positions for gauges are shown.

- Select the position for the gauge you want to add.
- Select **Data Channel**.

A list of available data channels is shown.

- (Optional) Select the **Active Channels** button. If this is:
 - **On**. Only the data channels that are currently receiving data are displayed.
 - **Off**. All possible data channels are displayed.

Select it to change the setting.

- Select the specific data channel that you want to display on the gauge.
- Select **OK**.
- Repeat this sequence to add another gauge.

You can configure the gauges to show the data in digital or analog format. Digital is the default.



Note: If the data channel selected is not receiving data, digital gauges will display blank lines and analog gauges will not have an indicator needle showing.

10 Entertainment

You can use the CD/DVD and Music Jukebox options to:

- select and play music from the music jukebox
- listen to music while you're using another GB40 function, such as *Chart*
- play music directly from a music CD
- play music directly from a USB drive
- synchronize your music collections at home and on your vessel
- save music in the Music Library then play it on any display unit
- create and store your own playlists in the Music Library

You can use the Video Jukebox and CD/DVD options to:

- play a DVD directly using a GB40 CD/DVD unit
- play a video directly from a USB drive
- save a video in the Video Library then play it on any display unit.



Note: When using removable media, ensure that you specify the location of the media server using the Setup >Installation >Change Location of Media Storage option.

BEFORE connecting or using a USB drive, CD or other removable media to the GB40, check it for viruses or corrupt data on a device isolated from the GB40 system.

Multiple Entertainment panes

You can create a page that has more than one entertainment pane on it; for example, a DVD in one pane and the music jukebox in another, but only one pane can be active.

You can also have one or more entertainment panes on a page that shows other GB40 functions, such as the *Radar*. Just select the entertainment pane that you want to listen to or watch. This immediately becomes the active pane, identified by a red border. The audio always comes from the active pane.

If you're watching a DVD or a video in a pane and then hide that pane, the GB40 pauses the playback and resumes it only when you display that pane again.

If you're playing music in a pane, the GB40 will continue to play the music, even if the pane is not active or visible, until you pause the music or select another pane that has audio.

Local or global playback

Videos, DVDs, satellite television, camera feed, and normal television channels can be played on your display unit **ONLY** by using **Local Video** and a USB connection to a compatible video server.

Music, videos, DVDs, satellite television, camera feed, and normal television channels can be played on any or **ALL** of the display units on the GB40 network by using **Network Video** and a compatible video server and Ethernet Linker connected to the GB40 network.

10.1 Entertainment: File formats supported

Audio	Video
WMA	MPEG-2
MP3	WMV
	AVI

10.2 Entertainment: USB drives

You can use a portable USB drive to help manage your media files. For example, you can:

- copy your favorite music to the GB40 so that it's always available (whether or not you bring the USB drive).
- plug the USB drive into the GB40 then select **Use Portable Drive** to see and play any of the music that is on the GB40 and the USB drive.



Note: Any individual on the vessel can connect their own USB drive to see their own music collection.

The Music Jukebox and the Video Jukebox will list any media files on a USB drive that's connected to the GB40. When the USB drive is removed from the GB40, the media files on the USB drive are no longer listed in the Music Jukebox and the Video Jukebox.

Entertainment: USB drive - play media

- **To play media files from a USB Drive:**
 - Insert the USB drive into the USB slot on the GB40.
 - Select **Display** then **Music JB** OR **Video JB**.
 - Select **Playlist Library** OR **Video Library**, as appropriate.
 - Select **Use Portable Drive**.
 - Select the item that you want to play then select **Play Selected Music**.

Entertainment: USB drive - manage your media

Video and audio files can be synchronized, added, deleted or moved between the GB40's media library and a USB drive.



Note: When moving files to a portable drive or your GB40, ensure the destination device has enough space for the transfer.

The USB drive must have these specifically-named directories under the root directory:

- "**Music**" to hold your music files.
- "**Video**" to hold your video files.
- **To move files between your library and your USB drive:**
 - Insert the USB drive into the USB slot on the GB40.
 - Select **Pages** then **Music JB** OR **Video JB**.
 - Select **Playlist Library** OR **Video Library**, as appropriate.
 - Select **Transfer Portable Drive**.
 - The **View By** button shows the current setting. Select it to change the setting.
 - **Album**. Lists files by album title.
 - **Artist**. Lists files by artist name.
 - **Genre**. Lists files by genre.
 - **Video**. Lists video files only.
 - If you want the exact same content in the USB drive and the media library, select **Synchronize**.
 - The main menu will highlight the appropriate options, depending on the files you select.
 - Select a file or group of files, and take the appropriate action.



10.3 Entertainment: Video Juke Box

Note: *DVDs cannot be stored in the Video Library until they have been converted into a suitable file format.*

➤ To select and play a video:

- Select **Pages** then **Video JB**.
- Choose **Select Video** from the video main menu.
- If you can't see the video that you're looking for, browse through the video jukebox:
 - use the single arrow buttons to step up or down through the video library items one at a time.
 - use the double arrow buttons to page up or page down through the video library items.
 - use the double arrow and bar buttons to go to the beginning or end of the video library items.
- Select the video that you want to play.

• Select **Play Selected Video**.

The GB40 shows a track progression box at the bottom of the screen.

- You can use the following buttons to control the video display:
 - **Pause/ Play**.
 - **Stop**.
 - **F/Forward**. Each button press will increase the video fast-forward speed by one step (x2, x4, x8, x16, x32, x64, then normal speed).
 - **Rewind**. Each button press will change the video rewind speed by one step (1/2, 1/4, 1/8, 1/16, 1/32, 1/64, then normal speed).
 - **Full Screen**. Fills the screen proportionately with the video. Press any button to return to the main menu.
- On the video jukebox ONLY:
 - **Repeat**. Repeat the video. Select it to change the setting.
 - **Select Video**. Stops the current video and shows the Video JB list for you to select a different video.
- Select **Pages** to exit the video jukebox.

10.4 Entertainment: Music Jukebox

The music jukebox allows you to:

- select and play music from the Music Library.
- create, edit, play and delete playlists.
- view the contents of the Music Library by album, artist, genre or playlist.
- queue more music.
- change the cover art of a music album.
- set a filter to search for music items alphabetically.

Entertainment: Music Jukebox - control play



Note: *The music jukebox must be playing.*

➤ To pause play, skip tracks, repeat, or random play:

- The music jukebox shows the **Now Playing** screen.
- If you want to:
 - pause playing, select **Pause**.
 - skip to the next track, select **Next**.
 - skip to the previous track, select **Previous**.
 - repeat the whole album or playlist, the **Repeat** button shows the current setting. If it's Off, select it to change the setting.
 - random play the whole album or playlist, the **Random Play** button shows the current setting. If it's Off, select it to change the setting.

Entertainment: Music Jukebox - playlists

➤ To configure a playlist:

- If the music jukebox:
 - is already playing, select **Select Music** from the main menu.
 - is NOT playing, select **Pages** then **Music JB**.

- **To create a playlist:**
 - Select **Playlist/Library**.
 - Select **Create/Edit Playlist**.
 - Select **EDIT** then use the onscreen keyboard to enter the new playlist name.
- **To add tracks to a playlist:**
 - Highlight tracks in your Music Library then select **Add to Playlist**.
- **To delete tracks from a playlist:**
 - Highlight tracks in your playlist then select **Remove from Playlist**.
- **To move a track in a playlist:**
 - Select the track you want to move, then select **Move Track**.
 - Select **Up** or **Down** to move the track.
- **To select a Playlist:**
 - Select **Select Playlist** to show a list of available playlists in the Music Jukebox.
 - Click on a playlist to select it. (Select **Select Playlist** if you want to change the playlist).
 - Select **New Playlist** if you want to create a another playlist in the Music Library.
- **To Delete a Playlist:**
 - Select Playlist for deletion.
 - Select Delete Playlist to remove the Playlist from the Music Library.
- **To queue music:**
 - Select **Select Music**.
 - Select the new music items you want to add to the queue.
 - Select **Queue Selected Music**.
 - Select **OK**.

Entertainment: Music Jukebox - Music Library

You can change an album's name, artist's name, or track name.

- **To edit an item in the music library:**
- If the music jukebox:
 - is already playing, select **Select Music** from the main menu.
 - is NOT playing, select **Pages** then **Music JB**.
- Select **Playlist/Library** then **Music Library**. The **View By** button shows the current setting. Select it to change the setting. Use the:
 - single arrow buttons to step up or down through the Music Library
 - double arrow buttons to page up or page down through the Music Library
 - double arrow and bar buttons to go to the beginning or end of the Music Library
- Select the **+** button to open an item and rename it using the **Edit** button. Select the **-** button to close it.
- When you are finished, select **Return**.

Entertainment: Music Jukebox - select & play music

- **To select and play music from the music jukebox:**
- If the music jukebox:
 - is already playing, select **Select Music** from the main menu.
 - is NOT playing, select **Pages** then **Music JB**.
- The GB40 lists the contents of the Music Library according to the **View By** and **Filter By** settings.
- The **View By** button shows the current setting. Select it to change the setting.
- The **Filter By** button shows the current setting. Select it to change the setting. Only items within the range specified will be listed.
- Select the item (or items) that you want to play. Selected items have a black background.
- Select **Play Selected Music** to start playing.
The GB40 shows a progress bar at the bottom of the screen.

- **To skip forward or back, or stop playing:**
 - Select a position on the progress bar to show where you want to skip to.
 - Select **Pause** pause playback.
 - Select **Next** to stop playback of the current track and skip to the next track in the selected music list.
 - Select **Previous** to stop playback of the current track and return to the previous track.



Note: If you're playing music in a pane, the GB40 will continue to play the music - even if the pane is not active or not visible - until you pause the music or select another pane that has audio.

Entertainment: Music Jukebox - cover art

Store the replacement cover art on a USB drive or a USB memory stick. Connect this to the GB40.

- **To change an album's cover art:**
 - If the music jukebox:
 - is already playing, select **Select Music** from the main menu.
 - is NOT playing, select **Pages** then **Music JB**.
 - Select **Playlist/Library** then **Music Library**.
 - The **View By** button shows the current setting. If it's not set to **Album**, select **View By** then select **Album**.
 - Select the album whose cover art you want to change, then select **Edit Cover Art** to show the Art Image box.
 - Browse through the alternative album cover art images and select a replacement using **Set Image**.
 - Select **OK**.

10.5 Entertainment: DVD/CD

You can use the DVD/CD options to:

- play a music CD
- select a particular track on the music CD
- play tracks randomly on the music CD
- repeat the music CD
- play a DVD in a pane
- play a DVD in full screen mode
- fast forward or rewind through a DVD



Note: *You can't store DVDs in the video library unless they have been converted into a suitable file format.*

Note: *Software restart is necessary after the installation of a DVD/CD player.*

Entertainment: DVD/CD - play a music CD

➤ To play a music CD:

- Insert the music CD into the slot drive.
 - The GB40 will play the music CD (unless another *Entertainment* option with audio is already playing).
 - If the music CD does not start to play, select **Pages**, then **DVD/CD** then **Play**.
- If you want to display the tracks (listed as Track 1, Track 2, and so on), select **Pages** then **DVD/CD**.



Note: *If you are playing music in a pane, the GB40 will continue to play the music - even if the pane is not active or not visible - until you pause the music or select another pane that has audio.*

Entertainment: DVD/CD - control play



Note: *A DVD must be playing.*

- **To pause play, fast forward, rewind, stop, or fill the screen:**
- If you want to:
 - pause or resume play, select **Pause/ Play**.
 - stop playing, select **Stop**.

- **F/Forward.** Each button press will increase the DVD fast-forward speed by one step (x2, x4, x8, x16, x32, x64, then normal speed).
- **Rewind.** Each button press will change the DVD rewind speed by one step (1/2, 1/4, 1/8, 1/16, 1/32, 1/64, then normal speed).
- fill the screen with the DVD, select **Full Screen**. Press any button to return to the main menu.

Entertainment: DVD/CD - play a DVD

➤ To play a DVD:

- Select **Pages** then **DVD/CD**.
- Insert the DVD into the drive.
- Select **Play**.



Note: If you leave the DVD pane without pausing or stopping play, the GB40 will automatically pause the DVD.

11 Alarms

The GB40 has various alarms that you can switch On/Off and customize to suit your vessel.

These alarms can automatically:

- notify you of the vessel's status (for example, when you're approaching a waypoint)
- alert you to potentially dangerous situations (for example, when you're drifting off course).

When an alarm is triggered:

- an alarm icon flashes.
- the main menu area may be overlain by the Alarm Notification box (depending on the type of alarm).
- the alarm audio will sound once or continuously until you acknowledge it or it resets automatically. It will interrupt any other audio that is playing, such as the music jukebox. (You can choose not to sound the audio alarm.)

The alarm is recorded in the alarm log so that you can see the details, acknowledge the alarm, and take the appropriate corrective action.

11.1 Alarms: Alarm Log

The alarm log records all the alarms that have been triggered. The most recent alarm is at the top of the list.

The priority level of a new alarm is indicated by its color category. There are four color categories - red, orange, yellow, and blue. Red is the highest priority level and requires urgent corrective action.

Alarms that you have already acknowledged are shown in gray.

➤ To view the alarm log:

- Select **Alarms**. Use the arrow buttons to scroll up or down the alarm log list, if necessary.
- You can view all of the alarms or just the new alarms. The **Show** button displays the current setting. Select **Show** if you want to change the view.

11.2 Alarms: Customize

You can customize the settings for some of the alarms.

- **To customize the alarms:**
 - Select **Alarms** to show the alarm log.
 - Select **Edit Alarms** from the main menu.
 - Use the up and down arrows to locate an alarm. (Buttons not applicable to the selected feature are grayed-out.)
 - Select an alarm by clicking on and highlighting the row with the appropriate alarm name in the Alarm Setup page.
 - Use the buttons in the control panel to the right side of the page to change the settings for the selected alarm. (Buttons not applicable to the selected feature are grayed-out.)

Alarm Settings

- **To switch an alarm On/Off:**
 - The alarm button shows its current status as On or Off. Select it to change the setting.

- **To set the trigger limits for the alarm:**

Certain alarms are triggered by data readings that are outside user-defined limits.

- Select:
 - **Set Upper** to change the upper limit.
 - **Set Lower** to changes the lower limit.
- The current setting is displayed in the status bar of the button. To change the setting, click on the button to display the Up/Down arrow keys then use these to specify the new setting.
- Select **OK**.

- **To switch the alarm audio On/Off:**

Use this button to activate or turn Off the selected alarm.

You can set the audio to sound once, continuously, or not at all for some alarms. Audible alarms will interrupt any other audio playing through the GB40.

- The **Audible** button displays the current setting. Select it to change the setting.

- **To set the alarm delay:**
 - Select **Set Delay**. The GB40 shows the current delay setting as a line within a solid box of color and as a number. Each number corresponds to the number of sensor data readings to be ignored.
 - Drag the line to change the setting. Select **OK**.
- **To change the Alarm If No Data setting:**
 - The **Alarm If No Data** button shows the current setting. Select it to change the setting. This alarm is triggered if there is a loss of input data.
- When you are finished, select **Return**. Select **Return** again.

11.3 Alarms: Acknowledgement



Note: *Acknowledging an alarm is NOT the same as turning it Off.*

Depending on the type of alarm, the main menu area may be overlain by the Alarm Notification box. For some alarms, you must acknowledge an alarm to remove it from the screen. (You don't need to acknowledge the Waypoint Arrival alarm or the Waypoint Arrived End of Route alarm as these are cleared automatically.)

If there is no Alarm Notification box, you must acknowledge the alarm through the alarm log.

If another alarm is triggered when an alarm is already show in the Alarm Notification box, the GB40 checks the priority level of the new alarm. The alarm with the highest priority is displayed over any lower priority alarms.

If two (or more) alarms with the same priority level are activated they will be listed in the order they occur. The alarm activated first will be at the top.

➤ **To acknowledge an alarm in the Alarm Notification box:**

- Select **Acknowledge** in the Alarm Notification box. The Alarm Notification box disappears from the main menu area.
- Take any corrective action required.

➤ **To acknowledge an alarm in the Alarm Log:**

- Select **Alarms** to show the Alarm Log. The new alarms are shown in color.
- Select a new alarm message that you want to acknowledge then select **Acknowledge** OR select **Acknowledge All** to acknowledge ALL the new alarm messages.
- The acknowledged alarms immediately change to a gray color to confirm that they are acknowledged.
- Select **Return**.
- Take any corrective action required.



Note: The GB40 resets some alarms, such as the Waypoint Arrival alarm and the Waypoint Arrived End of Route alarm, automatically after a set time period.

The GB40 resets other alarms automatically when the sensor data is within the trigger settings again.

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