Explorer 557/567

Chartplotter

Installation and Operation Manual

NORTHSTAR★
www.northstarnav.com

Important

The choice, location, angle and installation of the instrument & GPS antenna are critical to performance of the system as intended. Follow instructions in this manual carefully. If in doubt, consult your Northstar dealer.

Ensure that any holes cut are in a safe position and will not weaken the boat's structure. If in doubt, consult a qualified boat builder.

Global Position System: The global Position System (GPS) is operated by the U.S. Government which is solely responsible for its operation, accuracy and maintenance. The GPS is subject to changes which could affect the accuracy and performance of all GPS equipment anywhere in the world, including the 557/567 and 650, 657, 660. To reduce the risk of misusing or misinterpreting the 557/567 and 650, 657, 660, you must read and understand all aspects of this Installation & Operation Manual. We also recommend that practice all operations using the built-in simulator before using the 557/567 or 650, 657, 660.

Electronic Chart: The electronic chart used by 557/567 or 650, 657, 660 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 557/567 or 650, 657, 660 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.

AIS: The AIS features on this chart-plotter are designed as a safety aid only and do not guarantee safety at sea. AIS transmission is mandatory on some, but not all, vessels. You should check your local laws and regulations for requirements in your area. As a result of different legal requirements, different vessel sizes and uses, you should not assume that your AIS equipped chart-plotter will show the location of ALL vessels in your area. Careful prudence, judgement, and safe navigation practices should be always be exercised. AIS should be used to complement radar, but AIS is not a substitute for radar.

Fuel Computer: Do not rely on the fuel computer as the sole source of information regarding available fuel onboard. Fuel economy can change drastically depending on boat loading and sea conditions. Fuel Computer information should be supplemented by visual or other checks of the fuel load. This is necessary due to possible operator errors such as forgetting to reset the fuel used when filling the tank, running the engine with the Fuel Computer not switched on, or on other operator actions that may render the device inaccurate. Always carry adequate fuel onboard for the intended trip, plus a reserve to allow for unforeseen circumstances.

Failure to adhere to these warnings may lead to death, serious injury or property damage. Northstar disclaims all liability for installation or use of this product that causes or contributes to death, injury or property damage or that violates any law.

The 557/567 is set up with default units. To change the units, see section 15-9

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1 Introduction

1-1 Overview

The Northstar 557/567 is a compact, rugged, highly integrated marine chartplotter. It is easy to use and has an easy to read color display. Complex functions can be performed with a few key presses, taking the hard work out of boating.

This manual covers:

557/567

Color display, external GPS antenna.

The available functions, displays and setup menus depend on the optional sensors and instruments that are installed:

1   The Fuel functions require optional petrol/gasoline or SmartCraft™ fuel sensors to be installed and set up.

2   SmartCraft™ engine functions require a SmartCraft™ system to be installed. For information on using SmartCraft™, see the

SmartCraft™ Gateway Installation and Operation Manual.

3   The 557/567 can send data to other instruments, such as an autopilot, and receive data from other instruments.

4   AIS functions require an optional AIS receiver to be installed.

For information on installing options, see section 16-2.

This manual describes how to install and operate the 557/567. Special terms are explained in Appendix C. For maximum benefit, please read this manual carefully before installing and using the unit. For more information on this instrument and other Northstar products, go to our website, www.northstarnav.com.

1-2 Cleaning and maintenance

The 557/567 screen is covered by a proprietary anti-reflection coating. To avoid damage, clean the screen only with a damp cloth and mild detergent when dirty or covered in sea salt. Avoid abrasive cleaners, petrol or other solvents. If a plug-in card gets dirty or wet, clean it with a damp cloth or mild detergent.

To optimize performance, avoid walking on or jamming cables and connectors.

Push the dust cover over the display when the 557/567 is turned off.

1-3 Plug-in cards

The 557/567 can use two kinds of plug-in card:

1   **C-MAP™ chart cards** have chart details required for navigating in a particular region. When a chart card is plugged in, the extra details automatically appear on the 557/567 chart window.

   The 557/567 can use NT, NT+, NT-MAX and NT-MAX2 cards.

2   **C-MAP™ user cards** are used to store navigation data. Each user card expands the 557/567 memory and allows the data to be transferred to another 557/567 easily (see section 12).

Note: The older 5 volt user cards are not supported.

Changing the plug-in card

> ### CAUTION
>
> Handle plug-in cards carefully. Keep them in their protective cases when not plugged into the 557/567.
>
> Keep the holder in place in the 557/567 at all times to prevent moisture from entering the card compartment.

Gold contacts under here
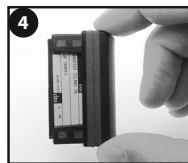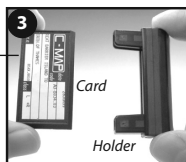
Turn the 557/567 off (see section 2-3).

Pull the card holder out of the 557/567 and pull any card out of holder.

Put the card in its case.

Push new card into holder. Ensure the gold contacts are on the outer edge and underneath (see above).

Keep the card's case.

Push card holder fully into 557/567

1-4 Removing and replacing the display unit

If the display unit is bracket mounted then the display unit can easily be removed and replaced for security or protection.

Removing the display unit:

1 Turn the display unit off (see section 2-3) and put the dust cover on.

2 Loosen the knob on the mounting bracket and lift the unit off the bracket.

3 Unplug the connectors from from the display unit, turning each locking collar anticlockwise. Push the attached dust covers over the connectors.

4 Store the display unit in a dry clean place, such as the optional Northstar carry bag.

Replacing the display unit

1 Remove the dust covers from the connectors. Plug the connectors into the back of the display unit:

- Match the connector's color to the socket color.

- Insert each connector and turn the locking collar clockwise until it is finger tight.

Nothing will be damaged if a cable is plugged into the wrong socket by mistake.

2 Hold the display unit in place on the mounting bracket. Adjust the tilt of the display for best viewing, then hand tighten the knob on the mounting bracket. Remove the dust cover.

2 Basic Operation

Overview of the keys

ESC ESCAPE - Go back to an earlier menu or display. In chart mode, centres chart at boat's position.

DISP DISPLAY - Show a menu of the main displays. To go to a display, select it from the menu (see section 2-8).

⏶⏷⏴⏵ CURSOR KEYS - to move the cursor or the selection highlight.

MENU MENU - Show a menu of the options for the current window. Press **MENU** again to display the Setup menu (see section 15).

ENT ENTER - Start an action or accept a change.

➕ ➖ ZOOM - Zoom in or out to display different areas and detail on the chart.

WAYPOINT - Create an instant waypoint at the boat position (see section 5-2-1).

MOB - (Man Overboard, see section 2-5).

POWER - Turn 557/567 on and off (see section 2-3); adjust the backlighting (see section 2-4).

2-1 Using the keys

In this manual:

Press means to push the key for less than a second.

Hold means to hold the key down.

The internal beeper beeps when a key is pressed (to disable or enable the beep, see section 15-1).

Operate the 557/567 by selecting items from menus. Items can be submenus, commands or data.

Selecting a submenu

A ▶ after a menu item indicates a submenu, for example Chart ▶. Press 🔼 or 🔽 to move the highlight to the submenu, then press **ENT**.

Starting a command

Press 🔼 or 🔽 to move the highlight to the command, for example Goto cursor, then press **ENT**.

Changing data

First press 🔼 or 🔽 to move the highlight to the data to change, then:

a) To change a tick box

☑ means On or Yes

☐ means Off or No.

Press **ENT** or ▶ to change the tick box.

b) To select an option

1 Press **ENT** to display the menu of options.

2 Press 🔼 or 🔽 to move the highlight to the option you want, then press **ENT**.

Palette	Normal
Map datum	**Normal**
NMEA datum offset	Sunlight
Map shift	Night

c) To change a name or number:

1 Press **ENT** to display the name or number:

3000

2 Press ◀ or ▶ to select a letter or digit to change. Press 🔼 or 🔽 to change the letter or digit.

Repeat this to change other letters or numbers.

3 Press **ENT** to accept the new value. Or press **ESC** to ignore the changes.

d) To change a slider value

Press ◀ to decrease the value or ▶ to increase the value.

Backlight	11

2-3 Turning on and off / auto power

Turning on manually

If the 557/567 is not wired for auto power, press 🔘 to turn the unit on. If necessary, adjust the display to be easy to read (see section 2-4).

Note: If the 557/567 is not wired for auto power then the 557/567 does not record engine hours and might not record fuel consumption (see section 16-4).

Turning off manually

If the 557/567 is not wired for auto power or if the ignition switch is off, hold down 🔘 until the display turns off.

Auto power

If the 557/567 is wired for auto power (see section 16-4), then:

- The 557/567 automatically turns on when you turn the boat's ignition switch on.

- You can not turn the 557/567 off while the ignition switch is on.

- If Auto power off (see section 15-1) is ☑, the 557/567 automatically turns off when you turn the boat's ignition switch off.

- If Auto power off (see section 15-1) is ☐, the 557/567 stays on when you turn the boat's ignition switch off. You can now turn the 557/567 off manually.

2-4 Backlight and night mode

To go to the Backlight display, press 🔘 briefly.
When you have finished, press ⓔⓢⓒ.

Backlight

The display and keys are backlit. To change the backlight level, select Backlight, then press ◉ to dim or ◉ to brighten.

🔅 *Tip*: Press 🔘 twice to give the brightest screen, with maximum backlight and Night mode off.

Night mode

Night mode sets the palette for all displays.

☐ Normal palette, for daytime

☑ A palette optimised for night time.

To change mode, select Night mode, then press ◉. To change only the chart palette, see section 15-2.

2-5 Man overboard (MOB)

The MOB feature saves the boat's position and then navigates back to this point.

⚠WARNING

MOB will not work if the 557/567 does not have a GPS fix.

1 Press ✖.

   The 557/567 stores the boat's position as a waypoint called MOB.

2 The 557/567 changes to the chart window, with the MOB waypoint at the centre of the chart.

   The chart zooms in for accurate navigation. If the chart can not show the required small scale, the 557/567 changes to plotter mode (a white display with crosshatching and no chart details, see section 15-2).

3 The 557/567 sets the MOB waypoint to be the destination to navigate to.

   If the NMEA output (autopilot) is off (see section 15-10) use the 557/567 to manually navigate to the destination MOB waypoint (see sections 3-1-1 and 3-1-2).

   If the NMEA output (autopilot) is on, the 557/567 asks if the autopilot is active. Select:

No : Use the 557/567 to manually navigate to the destination MOB waypoint (see sections 3-1-1 and 3-1-2).

Yes : The 557/567 asks if the boat is to go to the MOB waypoint.

   Select:

   Yes : to immediately start navigating to the MOB waypoint.

⚠WARNING

This might result in a sudden and dangerous turn.

   No : disengage the autopilot; then use the 557/567 to manually navigate to the destination MOB waypoint (see sections 3-1-1 and 3-1-2).

To cancel MOB or set another MOB

1 Press ✖ again to display a menu.

2 Select an option from the menu.

🔅 *Tip*: The MOB waypoint remains on the chart after the MOB has been cancelled. To delete the MOB waypoint, see section 5-2-5.

2-6 Alarms

When the 557/567 detects an alarm condition, it displays a warning message on the display, the internal beeper sounds and any external beepers or lights operate.

Press ⓔⓢⓒ to clear the alarm. The alarm will sound again if the alarm condition occurs again.

The 557/567 has user settable alarms plus an alarm for loss of GPS fix (see section 15-8).

2-7 Simulate mode

In Simulate mode, the 557/567 ignores data from the GPS antenna and other transducers and sensors and the 557/567 generates this data itself. Otherwise, the 557/567 functions normally.

There are two simulate modes:

- `Normal:` Allows a user to become familiar with the 557/567 off the water.
- `Demo:` Simulates a boat moving along a route and automatically displays different 557/567 functions.

To start and stop Simulate mode, and for more information, see section 15-13. In simulate mode, `Simulate` or `Demo` flashes at the bottom of the display.

⚠ WARNING

Never have Simulate mode on when the 557/567 is navigating on the water.

2-8 The main windows

The display menu allows quick access to the main windows and favorites. Full-screen Chart is at the top of the menu followed by favorites. Other windows are available from the `More...` sub menu.
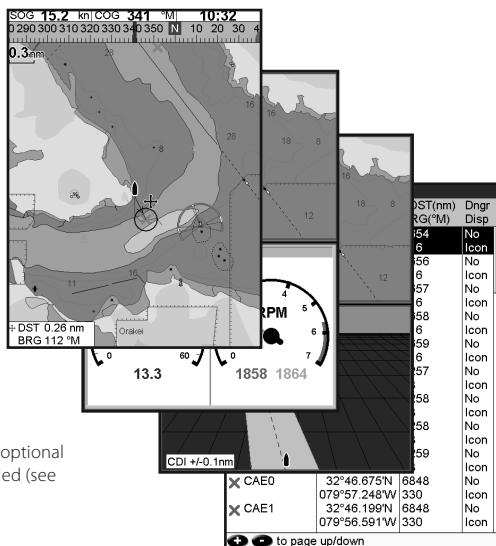
Note:

The windows available depend on the optional sensors and instruments that are installed (see section 1-1).

Note: The windows below the menu divider can only be shown full screen without a data header. (see section 2-8-3).

Display
Chart
Chart + Gauges
Chart + Highway
Waypoints
More... ▶
Replace Chart ▶
Add window ▶
Split ratio
Data header ▶
Save this display

Display
Gauges
Highway
Fuel
Data
Tanks
Waypoints
Routes
Satellite
Tides
User card
AIS
DSC
Engine faults

Water speed kn — kn — 13.4
RPM — RPM — 1897 1809
Trim — 6.6 5.2
Fuel flow G/h — 11.6 11.1
Voltage V — 13.8
Depth ft — ft — 60.1

341 °M
325 °M

CDI +/-0.1nm — 34 — 1.45

72.0 — 64.0
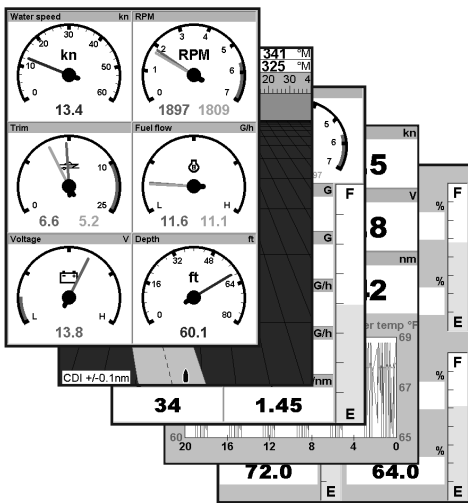
Waypoints			
▼Name	Latitude Longitude	DST(nm) BRG(°M)	Dngr Disp
✕ AKL0	36°50.338'S 174°46.495'E	7654 116	No Icon
✕ AKL1	36°49.945'S 174°49.021'E	7656 116	No Icon
✕ AKL2	36°49.079'S 174°49.695'E	7657 116	No Icon
✕ AKL3	36°47.849'S 174°49.200'E	7658 116	No Icon
✕ AKL4	36°46.974'S 174°49.081'E	7659 116	No Icon
✕ AMS0	53°19.180'N 007°18.545'E	5257 18	No Icon
✕ AMS1	53°19.762'N 007°14.141'E	5258 18	No Icon
✕ AMS2	53°19.927'N 007°10.720'E	5258 18	No Icon
✕ AMS3	53°19.927'N 007°07.868'E	5259 18	No Icon
✕ CAE0	32°46.675'N 079°57.248'W	6848 330	No Icon
✕ CAE1	32°46.199'N 079°56.591'W	6848 330	No Icon

to page up/down

018°30.000'E

Routes: 0 Track 4: 0
Track 1: 7 Track 5: 0
Note: All times are in local time, not the time at the tide station

to page up/down

Collision

to page up/down   for details

2-8-1 Multi window displays

The 557/567 can show two windows at once.
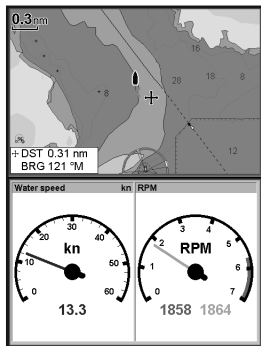
Adding a window to the display

Press **DISP**, select Add window and select a window to add. The 557/567 automatically rearranges the display to show the new window.

Changing window size

1 Press **DISP** and select Split ratio.

2 Press ⬆ or ⬇ to change the height of the windows.
   Note: Some windows are fixed in size.

3 Press **ENT**.

Exchanging two windows on the display

1 Press **DISP** twice to change the active window.

2 Press **DISP**, select Replace and select the second window.

   The 557/567 exchanges the two windows.

Replacing a window on the display

1 Press **DISP** twice to change the active window.

2 Press **DISP**, select Replace and select a new window that is not currently visible.

Note: When some windows are small then not all the data is shown.

The active window

If there is more than one window displayed, the active window is indicated by a red border. Press **DISP** twice to change the active window.

Pressing **MENU** will display the options menu for the active window.
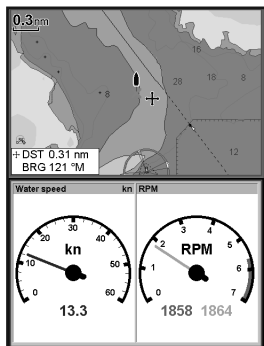
Chart is active
Red border
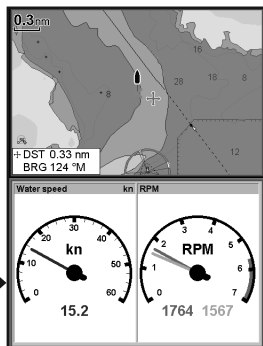
Gauges is active
Red border

2-8-2 Favorite displays

The 557/567 has a list of commonly used displays, called favorite displays. There can be up to six favorite displays.

Chart, Gauges, Highway, Fuel, Data, and Tanks windows can be combined in a display. Each of these displays can have a data header (see section 2-8-3) and a compass (see section 2-8-4).

Selecting a favorite display

Press **DISP** and select a favorite from the menu.

Display
Chart
Chart + Gauges
Chart + Highway
Waypoints
More... ▶
Replace Chart ▶
Add window ▶
Split ratio
Data header ▶
Save this display

Adding a favorite display to the list

1 Set up the display with the window or windows you want in the new favorite (see sections 2-8-2 and 2-8-3).

2 Press **DISP** and select Save this display. The 557/567 displays the favorites list.

3 Select where in the list to add the new favorite. If you select an existing favorite display then the new favorite will replace the existing favorite in the list.

Favourites
Name
1 Chart + Gauges
2 Chart + Highway
3 Waypoints
4 -
5 -
6 -
MENU for options

Deleting a favorite display from the list

1 Press **MENU** twice then select Favorites.

2 Highlight the display to delete, press **MENU** and select Delete.

Favourites
Name
1 Chart + Gauges
2 Chart + Highway
3 Waypoints
4 -
5 -
6 -
MENU for options
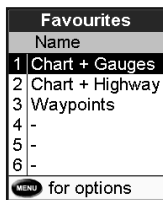
Changing the order of the favorites list

1 Press **MENU** twice then select Favorites.

2 Highlight the display to move, press **MENU** and select Move up or Move down.

2-8-3 Data header

The displays can show data at the top, called the data header.

When you select a window from the display menu (see section 2-8) the 557/567 displays an appropriate data header for the window.

Each favorite display (see section 2-8-2) has its own data header. When you select a favorite display, the 557/567 recalls the data header for this favorite.

Setting the data header for a display

1 Press **DISP** and select Data header.

2 To turn the data header on or off:
   i Select Data.
   ii Select ☑ or ☐

3 To select the size of the data:
   i Select Size.
   ii Select the size to display.

4 To change the data displayed:
   i Select Data setup.
   ii Change a data field:
      a Press the cursor keys to highlight the field.
      b Press **ENT** to display a menu of data items.
      c Select a data item that is available on your system or select None to leave the field empty.
   iii Repeat the above step to set the other data fields.

🔆 **Tip**: If all fields in a line are None then the line will not be displayed and the data header will take less space on the display.

5 Press **ESC**.

🔆 **Tip**: The data header will change when you select another display. To set a data header that you can recall later, set the header as part of a favorites display (see below).

Favorites displays and data headers

To set a data header for a favorites display, follow the steps to add a favorite (see section 2-8-2 - Adding a favorite display to the list). In step 1, set the data header for the favorite as described above.

Note: Only the Chart, Gauges, Highway, Fuel, Data, and Tanks windows can have a data header.

2-8-4 Compass

The chart, sonar and highway displays can show a compass at the top of the window.

The compass always shows the boat's course over ground (COG), a black symbol in the middle. When the boat is navigating to a point, the compass also shows bearing to the destination (BRG), a red symbol.

In this example, BRG is 332°M and COG is 341°M.

To turn the compass off or on:

1 Press **MENU** and select Data header.

2 Set Compass to ☐ or ☑.
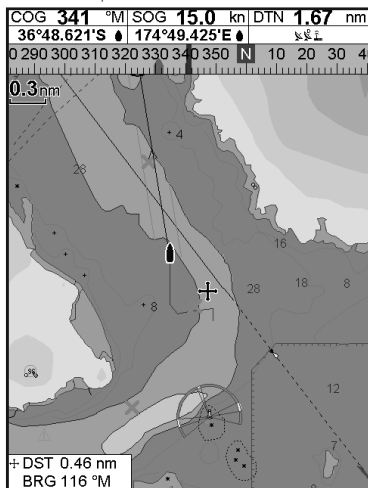
3 Navigation: Chart

The chart window shows the chart, the boat's position course and navigation data.

3-1 Overview of navigating

The 557/567 has two ways of navigating, going straight to a point or following a route.

3-1-1 Navigating to a point

When the 557/567 is navigating to a point, the chart and highway windows show navigation data:
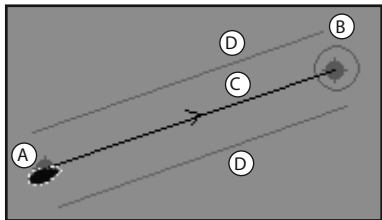
A   The boat position ⬛.

B   The destination point marked with a circle.

C   The boat's plotted course to the destination.

D   Two CDI lines, parallel to the boat's plotted course, which indicate the maximum expected deviation from the plotted course.

For more information, see appendix C.

If the 557/567 is connected to an autopilot, the 557/567 will send data to the autopilot to steer the boat to the destination. Start the autopilot before starting to navigate to the point.

If the 557/567 has no autopilot, steer the boat manually:

a   use the boat position and destination on the chart or highway windows

b   or use navigation data window on the data header (see section 2-8-3)

c   or use COG and BRG on the compass (see section 2-8-4).

Note:

1   If the XTE alarm is enabled, an alarm will sound if the boat deviates too much from its intended course (see section 15-8).

2   If the arrival radius alarm is enabled, then an alarm will sound to show that the boat has reached the destination (see section 15-8).

3-1-2 Going to a waypoint or to a point on the chart

A waypoint is a position that you can set on the 557/567 chart, for example a fishing spot. (see section 5).

Going to a waypoint from the chart window

1   Go to the chart window.

2   Move the cursor to the waypoint: either use the cursor keys or use Find (see section 3-2-5).

3   Press MENU and select Goto.

Going to a waypoint from the waypoints window

1   Go to the waypoints window.

2   Press ⏶ or ⏷ to highlight the waypoint to go to.

3   Press MENU and select Goto.

Going to a point on the chart

1   Switch to a chart window.

2   Move the cursor to the destination point: either use the cursor keys or use Find (see section 3-2-5).

3   Press MENU and select Goto cursor.

> ### ⚠ **WARNING**
>
> Make sure the course does not pass over land or dangerous waters.

Navigating

The 557/567 navigates to the point as described in section 3-1-1.

Cancelling navigating

Go to a Chart window, press MENU and select Cancel goto.

💡 *Tip*: Before starting, create waypoints at points of interest. Create a waypoint at the start of the trip for you to navigate back to (see section 5-2-1).

3-1-3 Following a route

Preparing

A route is a list of waypoints that the boat can follow (see section 6).

- To create waypoints before creating the route, see section 5-2-1.
- To create a route, see section 6-2-1.

Starting a route from the chart window:

1. Go to the chart window.
2. Press **MENU** and select Start Route.
3. Press ⬆ or ⬇ to highlight the route to follow. Press **ENT**.
4. The 557/567 asks for the direction to traverse the route.

   Select Forward (the order the route was created) or Reverse.
5. The 557/567 displays the chart with the route marked and starts navigating from the start of the route.

Starting a route from the routes window:

1. Go to the routes window.
2. Press ⬆ or ⬇ to highlight the route to follow. Press **MENU** and select Start.
3. The 557/567 asks for the direction to traverse the route.

   Select Forward (the order the route was created) or Reverse.
4. The 557/567 displays a chart with the route marked and starts navigating from the start of the route.

Navigating

The 557/567 navigates to each waypoint on the route in turn as described in section 3-1-1.

The 557/567 stops navigating to the waypoint at the end of the current leg and starts the next leg of the route:

a   when the boat comes within 0.025 nm of the waypoint

b   or when the boat passes the waypoint

c   or if you skip the waypoint.

Skipping a waypoint

To skip a waypoint, go to a chart window, press **MENU** and select Skip. The 557/567 starts navigating straight towards the next waypoint on the route.

> ⚠ **WARNING**
>
> Skipping a waypoint with the autopilot on might result in a sudden course change.

Cancelling a route

When the boat has reached the final waypoint, or to stop the boat following the route at any time, cancel the route. Go to a chart window, press **MENU** and select Cancel route.

To go to the Chart window, press **DISP** then select Chart.

A typical chart window shows:
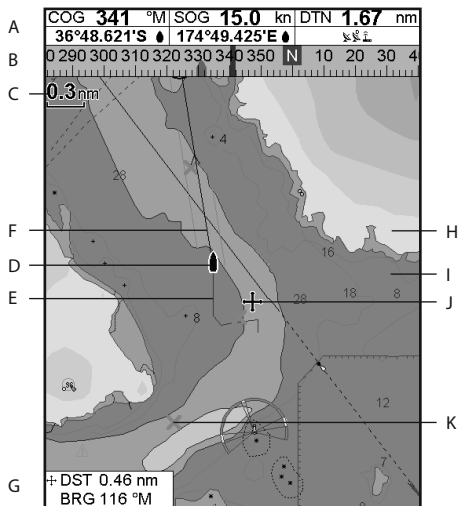
A	Data header. To turn the data off or on or to change what data is displayed (see section 2-8-2)
B	Compass (see section 2-8-3)
C	Chart scale (see section 3-2-3)
D	Boat position (see section 3-2-1)
E	Boat track (see section 3-5)
F	Boat course and CDI lines (see Appendix C, CDI)
G	Distance and bearing of cursor from boat
H	Land
I	Sea
J	The cursor (see section 3-2-1)
K	A typical waypoint (see section 5)
Note: To change the types of information displayed on the chart (see section 15-2)		

3-2-1 Chart modes

The Chart has two modes:

Centre on boat mode

To switch to centre on boat mode in the chart window, press ESC. The boat ▲ is at the centre of the chart. As the boat moves through the water, the chart automatically scrolls to keep the boat in the centre of the chart. The cursor (see below) is turned off.

Cursor mode

The keys ▲ ▼ ◀ and ▶ are called cursor keys. To switch to cursor mode in the chart window, hold down a cursor key. The cursor ✛ appears and moves away from the boat:

- Press the key which points in the direction that the cursor will move, for example press ▼ to move the cursor down.

- Press midway between two of the cursor keys to make the cursor move diagonally.

- Hold a cursor key down to make the cursor move continuously across the display.

In Cursor mode:

- The distance (✛DST) and bearing (✛BRG) of the cursor from the boat are displayed at the bottom, left corner of the display.

- The chart does not scroll as the boat moves.

- If the cursor reaches the edge of the display, the chart will scroll.

  For example, hold down ▶ to move the cursor to the right side of the display and the chart will scroll to the left.

3-2-2 Latitude and longitude

Latitude and longitude can be displayed in the data header. The display is degrees and minutes to three decimal places, about 2 m (6 ft) resolution. Normally the position is the boat's position, and the latitude and longitude has a boat symbol to show this:

⌂ 36° 29.637' N or S   Latitude

⌂ 175° 09.165' E or W   Longitude

If the cursor has been moved in the last ten seconds, then the position is the cursor's position, and the latitude and longitude has a cursor symbol to show this:

✛ 36° 29.841' N or S   Latitude

✛ 175° 09.012' E or W   Longitude

⚠ WARNING

When reading the boat position, make sure the position is not the cursor position.

3-2-3 Chart scale

Press ⊕ to zoom in and display a smaller area of the chart in more detail. Press ⊖ to zoom out and display a bigger area in less detail.

The chart scale is displayed at the top left of the chart:

2 nm

3-2-4 Chart symbols and information

The chart will show symbols, such as waypoints and chart symbols (for example buoys, beacons, wrecks and marinas). When the cursor is placed over a symbol for at least two seconds, a data window appears at the bottom left of the display with information about the symbol.

To see stored information about a point on the chart (for example, a chart symbol):

1. Move the cursor to that point on the chart.
2. Press MENU and select Chart info.
3. A menu of objects is displayed:
   i. Select an object to display.
   ii. Press ESC to return to the menu. Select other objects.
   iii. Finally, press ESC to return to the chart.

3-2-5 Finding a chart symbol

To find and display a chart symbol:

1. Press MENU and select Find.
2. Select the type of symbol: Waypoints, Routes, Ports by name, Ports & services, Tide stations or AIS Vessels.
3. For Ports & services: select the type of service to find.

   For Ports by name: press ◀, ▶, ▲ or ▼ to enter a name or letters contained in the port name, then press ENT.
4. A list of items is displayed. If there are more items than will fit on the display, press ⊕ or ⊖ to page up and down.

For Ports by name: to search for a different port name, press **ESC**, change the name, then press **ENT**.

5 Select the item and press **ENT**. The chart window changes to show the item in the middle of the display.

To see stored information about the item, press **ENT** (see section 3-2-4).

3-2-6 Perspective view

Perspective view shows the chart from an angle instead of from straight above. To turn perspective view on or off, press **MENU** and set Perspective to ☑ or ☐.

3-3 Distance and bearing calculator

The distance and bearing calculator can plot a course of one or several legs and show the bearing and length of each leg, as well as the total distance along the course. The completed course can be converted into a route.

To use the distance and bearing calculator:

1 Press **ESC** until the chart window is displayed. Press **MENU** and select Distance.

2 Move the cursor to the start of the first leg. It does not matter if this point is a waypoint or not. Press **ENT**.

3 To add a leg to the course, move the cursor to the end of the leg. It does not matter if this point is a waypoint or not. The display shows the bearing and length of the leg, as well as the total distance along the course. Press **ENT**.

4 To remove the last leg from the course, press **MENU** and select Remove.

5 Repeat the above two steps to enter the whole course.

6 To save the new course as a route, press **MENU** and select Save. This also saves any new points on the course as new waypoints, with default names. If necessary, edit the route later (see section 6-2-2) and edit any new waypoints later (see section 5-2-3).

7 Finally, press **ESC** to return to the chart window.

3-4 Projected course

If Projected course is turned on, then the 557/567 will display the projected position based on the course over ground (COG), speed and a specified time. To turn Projected course on and off and to set the time, see section 15-2.

A Projected position
B Boat's projected course
C Boat position
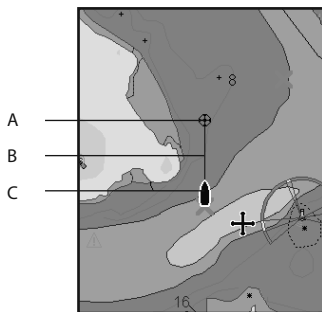
Tracking records the boat's position to memory at regular intervals, which can be:

- Time intervals.
- Or distance intervals.

The track of where the boat has been can be displayed on the chart. The 557/567 can display one track while recording another.

To work with tracks, see section 15-5.

The 557/567 can store five tracks:

- Track 1 can hold up to 2000 points and is intended to record the normal progress of the boat.
- Tracks 2, 3, 4 and 5 can hold up to 500 points each and are intended to record sections to be retraced accurately, for example entering a river mouth.

☀ *Tip*: Record the tracks in good conditions.

When recording is on and the track becomes full then recording continues and the oldest points in the track are deleted. The maximum length of a track depends on the selected track interval: a small interval will give a shorter, more detailed track and a long interval will give a longer, less detailed track, as shown in these examples:

The track lengths are in the current distance units, for example nm.

Time intervals		
Interval	Track 1	Track 2, 3, 4 or 5
1 sec	33 minutes	8 minutes
10 sec	5.5 hours	1.4 hours
1 min	33 hours	8 hours
Distance intervals		
Interval	Track 1	Track 2, 3, 4 or 5
0.01	20	5
1	2,000	500
10	20,000	5,000

4 Navigation: Highway window
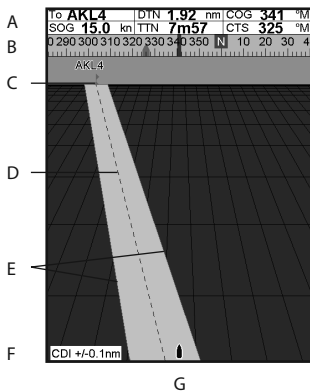
The highway window has a bird's eye view of the boat's course to a destination. To go to the Highway window, press **DISP**, select Other, then select Highway.

The highway window shows:

A   Optional data header (see section 2-8-3)

B   Optional compass (see section 2-8-4)

C   Destination waypoint

D   Boat's plotted course to destination

E   CDI lines, parallel to the boat's plotted course (see Appendix C, CDI). The CDI lines are like a highway over the water where the boat will move.

F   CDI scale

G   The boat position is at the bottom, centre of the display.

⚠ WARNING

The highway window does not show land, dangerous waters or chart symbols.

5 Navigation: Waypoints

A waypoint is a position that you can set on the 557/567 chart for example a fishing spot or a point on a route. The 557/567 can have up to 3000 waypoints. A waypoint can be created, changed or deleted. A waypoint has:

- A name (up to eight characters).
- An icon showing what kind of waypoint it is. The available icons are:
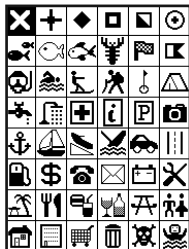
- A position.
- A color for the waypoint symbol and name on the chart.

- A type:

  Normal: A normal waypoint can be navigated to or included in a route.

  Danger: A danger waypoint is a point to avoid. If the boat comes within the danger radius of a danger waypoint the unit can sound an alarm (see section 15-8).

- A display option:

  Controls how the waypoint is displayed when the Waypoints setup option is set to Selected (see section 15-2):

  Off: The waypoint is not displayed.

  Icon: The waypoint icon is displayed.

  I+N (Icon and Name): The waypoint icon and name are displayed.

  If there are many waypoints, use this feature to select which waypoints are displayed on the chart.

Note: The other choices for Waypoints are Hide all and Show all (see section 15-2).

5-1 Waypoints window

To go to the waypoints window, press
DISP, select Other, then select `Waypoints`.
The waypoints window is a list of the waypoints
that have been entered, each with waypoint
symbol, name, latitude and longitude, distance
and bearing from the boat, type and display
option.

If there are more waypoints than will fit on the
display, press ⊕ or ⊖ to scroll up or down a
page at a time.

Waypoints			
▼Name	Latitude	DST(nm)	Dngr
	Longitude	BRG(°M)	Disp
✕ AKL0	36°50.338'S	7654	No
	174°46.495'E	116	Icon
✕ AKL1	36°49.945'S	7656	No
	174°49.021'E	116	Icon
✕ AKL2	36°49.079'S	7657	No
	174°49.695'E	116	Icon
✕ AKL3	36°47.849'S	7658	No
	174°49.200'E	116	Icon
✕ AKL4	36°46.974'S	7659	No
	174°49.081'E	116	Icon
✕ AMS0	53°19.180'N	5257	No
	007°18.545'E	18	Icon
✕ AMS1	53°19.762'N	5258	No
	007°14.141'E	18	Icon
✕ AMS2	53°19.927'N	5258	No
	007°10.720'E	18	Icon
✕ AMS3	53°19.927'N	5259	No
	007°07.868'E	18	Icon
✕ CAE0	32°46.675'N	6848	No
	079°57.248'W	330	Icon
✕ CAE1	32°46.199'N	6848	No
	079°56.591'W	330	Icon
⊕ ⊖ to page up/down			

5-2 Managing waypoints

5-2-1 Creating a new waypoint

**Creating and editing a new waypoint from
the chart window**

1 To create a waypoint at the boat position,
press **ESC** to switch the chart to centre on
boat mode (or press ◁, see above).

Or, to create a waypoint at a different point,
move the cursor to that point on the chart.

2 Press **ENT**.

3 A new waypoint, with the default name and
data is created.

4 Change the waypoint data if necessary (see
section 5-2-7). Select `Save`.

**Creating a new waypoint from the
waypoints window**

1 In the waypoints window, press **MENU** and
select `Create`.

2 A new waypoint, with a default name and
data, is created at the boat position.

3 Change the waypoint data if necessary (see
section 5-2-7). Select `Save`.

Note: Waypoints can also be created when a
route is created (see section 6-2-1).

> **⚠ WARNING**
>
> Do not create a navigation waypoint on land
> or in dangerous water.

5-2-2 Moving a waypoint

Moving a waypoint from the chart window

1 In the chart window, move the cursor to the
waypoint to move.

2 Press **MENU** and select `Move`.

3 Move the cursor to the new position and
press **ENT**.

**Moving a waypoint from the waypoints
window**

To move a waypoint from the waypoints window,
edit the waypoint (see section 5-2-3) and change
the latitude and longitude.

5-2-3 Editing a waypoint

Editing a waypoint from the chart window

1 In the chart window, move the cursor to the waypoint to edit.

2 Press **MENU** and select Edit.

3 Change the waypoint data (see section 5-2-7). Select Save.

Create waypoint: cursor		
WPT001	🎣	
33°45.023'S		
018°30.000'E		
Danger	No	
Display	I+N	
Save	**Cancel**	

◆ ➤ ◆ ▼ to select
ENT to enter
ESC to cancel

Editing a waypoint from the waypoints window

1 In the waypoints window, press ◆ or ▼ to highlight the waypoint to edit. Press **MENU** and select Edit.

2 Change the waypoint data (see section 5-2-7). Select Save.

5-2-4 Displaying a waypoint on the chart

This goes to the chart window, and shows the selected waypoint at the centre of the display.

1 In the waypoints window, press ◆ or ▼ to highlight the waypoint to display. Press **MENU** and select Display.

Or, in the Chart window, press **MENU**, select Find, then select Waypoints. Select a waypoint from the list.

2 The 557/567 switches to the chart window, with the selected waypoint at the centre of the chart.

5-2-5 Deleting a waypoint

A waypoint can not be deleted if the boat is navigating to it or if the waypoint is used in more than one route. A waypoint that is used in one route can be deleted.

⚠ WARNING

When a waypoint is deleted from a route, check that the changed route does not cross land or dangerous waters.

Deleting a waypoint from the chart window

1 In the chart window, move the cursor to the waypoint to delete.

2 Press **MENU** and select Delete.

3 Select Yes to confirm.

Deleting a waypoint from the waypoints window

1 In the waypoints window, press ◆ or ▼ to highlight the waypoint to delete. Press **MENU** and select Delete.

2 Select Yes to confirm.

5-2-6 Deleting all waypoints

1 In the waypoints window and press **MENU** and select Delete all.

2 Select Yes to confirm.

5-2-7 Changing a waypoint's data

To change the waypoint data when it is displayed in a window:

1 Select the data to change.

Press **ENT**.

Use the cursor keys to change the data.

Press **ENT**.

2 If necessary, repeat the above step to change other data.

3 Select Save.

5-2-8 Sort Waypoints

To change how the waypoints list is displayed:

1 Press **MENU** and select Sort by.

2 Select how to display the list:

Name: In alphabetical order by name.

Icon: Grouped by icon type.

Distance: In order of distance from the boat.

An arrow at at the top of a column indicates how the waypoints are sorted.

5-2-9 Navigating to a waypoint

See section 3-1-2.

6 Navigation: Routes

A route is a list of waypoints that the boat can navigate along. Routes can be created, changed and deleted.

The 557/567 can have up to 25 routes. Each route can have up to 50 waypoints.

A route can:

- Start and stop at the same waypoint .
- Include waypoints more than once.

The 557/567 can navigate along a route in either direction. Waypoints on the route can be skipped.

Routes are a powerful feature when the 557/567 is connected to an autopilot, allowing the vessel to be automatically guided along the route.

⚠ **WARNING**

Make sure that routes do not cross land or dangerous water.

6-1 Routes window

The routes window is a list of the routes that have been entered, each with route name, start waypoint, end waypoint, number of legs and total distance.

To go to the routes window, press **DISP**, select More, then select Routes.

If there are more routes than will fit on the display, press ⊕ or ⊖ to scroll up or down a page at a time.

Routes		
Name	Start	End
AKLDEMO	AKL0	AKL4
AMSDEMO	AMS0	AMS3
CAEDEMO	CAE0	CAE4
CPTDEMO	CPT0	CPT4
GOADEMO	GOA0	GOA4
LRHDEMO	LRH0	LRH4
OSLDEMO	OSL0	OSL5
SFODEMO	SFO0	SFO5
SOUDEMO	SOU0	SOU4
SYDDEMO	SYD0	SYD4

⊕ ⊖ to page up/down

⚠ **WARNING**

After creating or changing a route, display the route on the chart and check that it does not cross land or dangerous water.

6-2-1 Creating a new route

A. Creating a new route from the chart window

While creating the route:

- Press ⊕ or ⊖ to change the range; scroll the chart by moving the cursor to the edge of the chart.
- A data box at the bottom left of the display shows the route name and total distance. If the cursor is near a leg, it shows the length and bearing of the leg as well.
- The legs of a route must start and end at waypoints. If a leg does not start or end at an existing waypoint then a new waypoint will be created automatically (to change the new waypoint data, see section 5-2-7).
- You can not use a Danger waypoint in a route.

1. In the chart window, press **MENU** and select New route.
2. The route is given a default name:
   i. Change the name if necessary.
   ii. Select OK.
3. To enter the legs of the route:
   i. Move the cursor to the start of the route and press **ENT**.
   ii. A waypoint is created with a default name. to save this waypoint press enter, to edit the waypoint refer to 5-2-7
   iii. Press **ENT** a dotted leg line is displayed from the cursor to the previous waypoint
   iv. Move the cursor to the end of the first leg and press **ENT**.
   v. Repeat i to iv until the last waypoint in the route is placed and saved
   vi. Press **ESC** to complete the route

Menu options while creating a route:

1. To add a waypoint to the route
   i. Press **MENU** and select Add.

2. To insert a waypoint in the route by breaking one leg into two:
   i. Move the cursor to the leg you want to break.
   ii. Press **MENU** and select Insert.
   iii. Move the cursor to where the new route waypoint will be.
   iv. Press **ENT**.
3. To move a waypoint in the route:
   i. Move the cursor to the waypoint to move.
   ii. Press **MENU** and select Move.
   iii. Move the cursor to where the waypoint will be.
   iv. Press **ENT**.
4. To remove a waypoint from the route:
   i. Move the cursor to the waypoint to remove from the route.
   ii. Press **MENU** and select Remove. The waypoint is removed from the route, but the waypoint is not deleted.
5. To start navigating the route
   i. Press **MENU** and select Start
6. To end creating the route
   i. Press **MENU** and select End
7. To delete the route
   i. Press **MENU** and select Delete
   ii. Select yes to confirm.

💡 *Tip*: The distance and bearing calculator can also be used to enter a course and save it as a route (see section 3-3).

B. Creating a new route from the routes window

1. In the routes window, press **MENU** and select Create.
2. A new route, with a default name and no waypoints, is displayed.
3. To change the route name:
   i. Select the route name at the top of the display and press **ENT**.
   ii. Change the name if necessary.
   iii. Press **ENT**.

4 To insert a waypoint in the route:

   i   Select where the waypoint will be:

- To insert the first waypoint in a new route, select Leg 1.

- To insert a waypoint at the end of the route, select the unused leg at the end of the list of waypoints.

- Otherwise, select the waypoint to insert the new waypoint in front of.

   ii Press **ENT**. A list of waypoints is displayed. Select the waypoint to use.

       As waypoints are inserted, the distance and bearing of each leg is shown automatically. If the route has more waypoints than will fit on the display, press ⬆ or ⬇ to see them.

5 To remove a waypoint from the route:

   i   Select the waypoint to remove.

   ii Press **MENU** and select Remove.

6 Repeat this process until the route is finished.

7 Press **ESC** .

8 Display the route on the chart (see section 6-2-3) and check that the route does not cross land or dangerous water.

See section 3-1-3.

6-2-2 Editing a route

Editing a route from the chart

1 In the routes window, select the route to edit. Press **MENU** and select Edit on chart.

2 The selected route is displayed on the chart, with a circle around the first waypoint.

3 Edit the route as described in section 6-2-1 A, starting at step 4.

Editing a route from the routes window

1 In the routes window, press ⬆ or ⬇ to highlight the route to edit. Press **MENU** and select Edit.

2 The selected route is displayed: the route name and a list of the waypoints.

3 Edit the route as described in section 6-2-1 B, starting at step 3.

6-2-3 Displaying a route on the chart

To view the selected route at the centre of the display:

1 In the routes window, press ⬆ or ⬇ to highlight the route to display. Press **MENU** and select Display.
Or, in the Chart window, press **MENU**, select Find, then select Route. Select a route from the list.

2 The 557/567 displays the selected route on the chart.

6-2-4 Deleting a route

1 In the routes window, press ⬆ or ⬇ to highlight the route to delete. Press **MENU** and select Delete.

2 Select Yes to confirm.

6-2-5 Deleting all routes

1 In the routes window, press **MENU** and select Delete all.

2 Select Yes to confirm.

6-2-6 Navigating a route

See section 3-1-3.

7 Satellites

GPS worldwide navigation

The US Government operates the GPS system. Twenty-four satellites orbit the earth and broadcast position and time signals. The positions of these satellites are constantly changing. The GPS receiver analyses the signals from the closest satellites and calculates exactly where it is on earth. This is called the GPS position.

The accuracy of the GPS position is typically better than 10 m (33 ft) for 95% of the time. A GPS antenna can receive signals from the GPS satellites when it is almost anywhere on earth.

DGPS

A DGPS system uses correction signals to remove some of the errors in the GPS position. The 557/567 can use one of two types of DGPS system:

- WAAS and EGNOS DGPS

  WAAS and EGNOS are two satellite based DGPS systems. The correction signals are broadcast by satellites and are received by the 557/567's standard GPS antenna. The accuracy of the corrected GPS position is typically better than 5 m (15 ft) for 95% of the time.

  WAAS covers all of the USA and most of Canada. EGNOS will cover most of Western Europe when it becomes operational.

- Differential beacon DGPS

  Differential beacons are land based radio transmitters that broadcast correction signals that can be received by a special receiver on the boat. Differential beacons are usually only installed near ports and important waterways, and each beacon has a limited range. The accuracy of the corrected GPS position is typically better than 2 to 5 m (6 to 16 ft).

GPS receiver

Northstar GPS units have a sensitive 12-channel receiver, which tracks signals from all GPS satellites visible above the horizon and uses measurements from all satellites more than 5° above the horizon to calculate the position.

Each time a GPS receiver is turned on, it normally takes about 50 seconds before it outputs the first position. Under some circumstances it will take up to two minutes or longer.

7-1 Satellite window

The satellite window has information about the GPS satellites and GPS position.

To go to the satellite window, press **DISP**, select More, then select Satellite.

The satellite window shows:

A Simulate

B 10:32:31
01/Jan/05

C HDOP 1.25

Used in fix
Not used
No signal

D

E 33°44.464'S
018°30.000'E

F

G
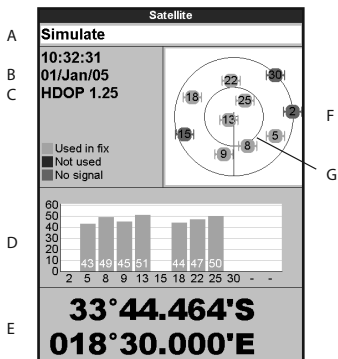
A Status of GPS antenna, for example Acquiring, GPS fix, No GPS. If the unit is in Simulate mode it displays Simulate (see section 2-7)

B Time and date from GPS satellites. Time is local time (UTC [GMT] plus local offset, see section 15-12)

C HDOP: The error in the GPS position caused by satellite geometry. A low value indicates a more precise fix, a high value a less precise fix

D Signal strengths of up to twelve visible GPS satellites. The higher the bar the stronger the signal

E Boat position

F Positions of visible GPS satellites:
- Outer circle is horizon
- Inner circle is 45° elevation
- Centre is directly above
- North is at top of display

G If the boat is moving, COG is a line from centre

8 Gauges window

The Gauges window shows boat data, such as water speed, as analog gauges. To select the Gauges window, press **DISP**, select More, then select Gauges. Before using the Gauges window, set Speed range, Max RPM and Max fuel flow (see section 15-4).
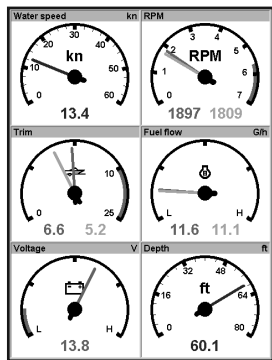
Selecting a gauges layout

To select a layout from the Gauges window, press **MENU**, select Layout, then select a layout from the list.

Changing a gauge layout

You can change the data displayed on each gauge in a layout.

1 Select the layout to change (see above).

2 Press **MENU** and select Gauge setup.

3 Highlight the gauge to change. Press **ENT** and select the data to display in the gauge.

4 Repeat the above step to change other gauges.

5 Press **ESC**.

9 Data window

Depth	ft	Water speed	kn
80.0		**13.5**	
Water temp	°F	Voltage	V
68.0		**13.8**	
Trip dist	nm	Total dist	nm
0.42		**0.42**	
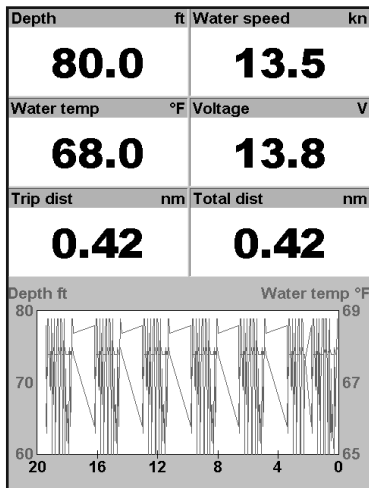
The data window has large numeric data fields and a graph of depth and water temperature if available. To go to the data window, press **DISP**, select More, then select Data.

To select what data is displayed:

1 Press **MENU** and select Data setup.

2 Change a data field:

   i   Press the cursor keys to highlight the field.

   ii Press **ENT** to display a menu of data items.

   iii Select a data item that is available on your system or select None to leave the field empty.

3 Repeat the above step to set the other data fields.

4 Press **ESC**.

10 Fuel functions and display

The Fuel functions require optional petrol/gasoline, diesel or SmartCraft™ fuel sensors to be installed and set up.

10-1 What the fuel computer does

Each engine has a flow sensor installed to measure the engine's fuel flow.

The 557/567 uses these flows, together with boat speed and engine RPM if available to estimate the fuel remaining in the tank(s), fuel used, range and fuel economy. This data is displayed on the fuel window (see section 10-2).

You can:

- display the fuel used during a trip (see section 10-2)
- set low fuel alarms (see section 10-4)
- make fuel consumption curves - graphs of fuel consumption and boat speed as a function of engine RPM - to monitor and optimise boat performance. (see section 10-6)

10-2 Fuel window

To go to the Fuel window, press **DISP**, select More, then select Fuel.

The display differs according to the number of engines and tanks. If engine RPM is available and if you have made and selected a Fuel Consumption Curve (see section 10-6), press ▷ to switch between a Summary or a Fuel curve display.

The Fuel window shows
Speed

To select a boat speed sensor, see section 10-5-1.

RPM (if available)

If engine RPM is not available, the display shows depth.

Remaining

The fuel remaining in the tank(s) is shown as a vertical gauge on the right of the display. The height of the yellow bar(s) show how much fuel remains in the tank(s). If you have set a low fuel alarm (see section 10-4), a red bar shows the level at which the alarm will trigger. If there are two tanks, the left bar shows the port tank, the right bar shows the starboard tank.

⚠ WARNING

To ensure the fuel data is accurate:

- When you add or remove fuel from a tank, tell the 557/567 (see section 10-3)
- If the boat has petrol/gasoline sensors, calibrate them during installation or if the fuel readings seem inaccurate (see section 10-7)
- Choose an appropriate type of boat speed sensor to calculate economy, range and the fuel consumption curve (see section 10-5)
- If the boat uses a paddlewheel sensor to measure speed, calibrate it during installation or if the speed readings seem inaccurate.

Used

The fuel used during a trip. On a multi-engine boat, the data for the port engine is on the left of the display.

When you want to start measuring how much fuel is used, go to the Fuel window and:

- In a single engine boat, press **MENU** and select Clear used.
- In a multi-engine boat, the fuel used by each engine and the total fuel used are shown. Press **MENU**, select Clear used and select:
- Port or Starboard to clear the fuel used by one engine
- Both to clear the total fuel used.

Fuel flow

The fuel flow for the engine(s). On a multi engine boat, the data for the port engine is on the left of the display. Use the flows to check the load of each engine.

Fuel window

Range

The estimated boat range at the current fuel flow. The value can depend on the type of speed sensor (see section 10-5).

Economy

The distance travelled per unit of fuel used. The value can depend on the type of speed sensor (see section 10-5). The larger the value, the better the fuel economy. Adjust the throttle and trim to achieve the best economy.

Fuel consumption curve

A graph of fuel consumption and boat speed as a function of engine RPM. Use the curve to monitor and optimise boat performance (see section 10-6).

10-3 When you add or remove fuel

When you add or remove fuel, you must tell the 557/567, otherwise the fuel data will be meaningless.

A   When you completely fill a tank

Go to the fuel window and press MENU.

Then:

- On a single-tank boat, select Fill tank.
- On a multi-tank boat, select Fill tank, then select the tank you have filled.

Note: Underfloor fuel tanks are often difficult to refill to the same level twice, due to air pockets.

With underfloor fuel tanks:

- Trim the boat to the same angle in the water each time you follow procedure A.
- Mostly use procedure B below when adding fuel, but completely fill the tank and follow procedure A about every tenth time you add fuel.

B   When you partially fill a tank

1   Add fuel to a tank and write down how much fuel you add.

2   From the Fuel window, press MENU and select Add fuel.

3   On a multi-tank boat, select the tank that you have added fuel to.

4   Change the number to the amount of fuel that you added.

Note: If you follow procedure B every time you add fuel, then a small error will accumulate, because it is hard to measure exactly how much fuel you add. To avoid this, completely fill the tank and follow procedure A about every tenth time you add fuel.

C   When you remove fuel

1   Before removing fuel, go to the Fuel window, press MENU and select Set remaining.

2   On a multi-tank boat, select the tank that you are removing fuel from.

3   Write down the value of Remaining for the tank; this is the amount of fuel originally in the tank.

---

4   Remove fuel from the tank and write down how much fuel you remove.

5   Subtract the amount of fuel you removed from the amount of fuel originally in the tank to calculate the amount of fuel now in the tank.

6   Change the number on the Set Remaining menu to the amount of fuel that you calculated was now in the tank.

7   Press **ENT**

Note: You can also use this procedure when you add fuel to a tank. In this case, add the fuel you have added to the amount of fuel originally in the tank to calculate the amount of fuel now in the tank.

10-4 Low fuel alarm

To set a low fuel alarm for a tank:

1   Press **MENU** twice, select Fuel then select Setup tanks.

2   On a multi-tank boat, select the tank to set the alarm for.

3   Select Tank alarm and enter a fuel level to trigger the low fuel alarm.

When a low fuel alarm is set, the alarm's fuel level is shown on the fuel window tank levels as a red bar. The alarm can also be set using the Alarms setup menu (see section 15-8)

10-5 Boat speed sensors

10-5-1 Selecting a boat speed sensor

The fuel calculations can use boat speeds from the GPS, or from a paddlewheel sensor or pitot sensor if these optional sensors are installed:

- Paddlewheel and pitot sensors measure the speed through the water; GPS speed is speed over ground; these sensors can give different values for Range, Economy and the fuel consumption curves (see section 10-5-2).

- A pitot sensor is more accurate than a paddlewheel sensor at high speeds but is not accurate at low speeds. A paddlewheel sensor is more accurate than a pitot sensor at low speeds.

To select an optional speed sensor

1   Press **MENU** twice, select Fuel and select Speed source.

2   To use a paddlewheel or pitot sensor, select Water speed, otherwise select Ground speed to use GPS speed.

3   If you selected Water speed and you have both a paddlewheel sensor and a pitot sensor:

   i   Press **ESC**, select SmartCraft and select Speed type

   ii Select Paddlewheel or Pitot.

:ʘ: *Tip*: You can select a different speed sensor during a trip.

10-5-2 Water speed and ground speed

A paddlewheel sensor and a pitot sensor measure water speed, the boat speed through the water. A GPS measures ground speed, the boat speed over the bottom of the water. If there is a current, then these speeds will be different, and the log, trip log, economy and range will be different, as shown below.

Water speed is better for measuring the boat's potential performance, Ground speed is better for going to a destination because it takes currents into account. To select a speed sensor, see section 10-5-1.

When the current is from ahead, ground speed is less than water speed

Water speed 10 knots

Current 4 knots

Gives a ground speed of 6 knots

Water speed 10 knots

Gives a ground speed of about 8 knots

Current 4 knots at 45º
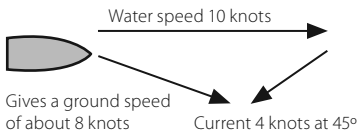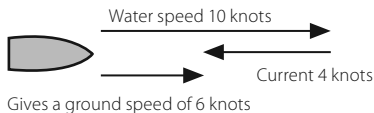
For this example:

If the boat travels for one hour, uses 3 gallons of fuel per hour and has 50 gallons of fuel left:

	Speed	Log	Economy	Range
Using water speed:	10 knots	10 nm	3.3 nm / gal	165 nm
Using ground speed:	6 knots	6 nm	2.0 nm / gal	100 nm

When the current is from behind, ground speed is more than water speed

Water speed 10 knots

Current 4 knots

Gives a ground speed of 14 knots

Water speed 10 knots

Current 4 knots at 45º

Gives a ground speed of about 13 knots
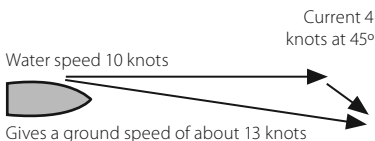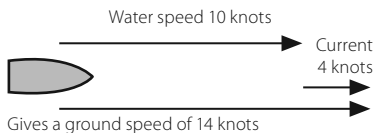
For this example:

If the boat travels for one hour, uses 3 gallons of fuel and has 50 gallons of fuel left:

	Speed	Log	Economy	Range
Using water speed:	10 knots	10 nm	3.3 nm / gal	165 nm
Using ground speed:	14 knots	14 nm	4.7 nm / gal	235 nm

A fuel consumption curve shows fuel consumption (fuel used per unit of distance travelled) and boat speed as a function of engine RPM. Fuel consumption curves require engine RPM, which requires SmartCraft™ to be installed. Fuel consumption curves are powerful tools for assessing boat performance in different conditions and for helping you to run at the most economical speed and trim for the conditions.

10-6-1 Making a fuel consumption curve

To make a fuel consumption curve you will need to run the boat in a straight line for about 15 minutes using the engine's full RPM range. For your first curve, choose a calm day with light wind and little current; have a typical load and a freshly cleaned hull. Later, you can make fuel consumption curves for different boat, weather or sea conditions. Compare these with your first curve to see how your boat's performance changes with conditions.

Making a curve

1 Start running the boat in a straight line.

2 Choose a speed source for the curve (see section 10-5-1). Normally choose Water speed to measure the boat's potential performance.

3 Press **MENU** twice, then select Fuel.

4 Select Fuel consumption curve, then select New.

5 Enter the comfortable maximum RPM you know you can achieve for the engine rather than the maker's value.
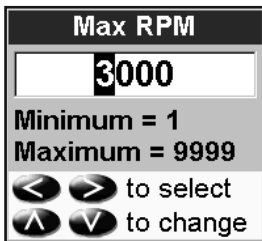
6 The 557/567 then asks you to set the minimum RPM. Set the throttle to idle; on a multi engine boat set all engines to about the same idle RPM.
Now, do not change the engine speed. Wait for about 60 seconds for the boat to stabilise, then press **ENT**. Wait while the fuel computer records the data.

7 The 557/567 then asks you to set the throttle to achieve a vessel RPM. On a multi engine boat set all engines to about the vessel RPM. When the engine RPMs are correct, the Vessel RPM box will turn green.
Now, do not change the engine speed. Wait for about 60 seconds for the boat to stabilise, ensuring the Vessel RPM box stays green. Then press **ENT**. Wait while the fuel computer records the data.
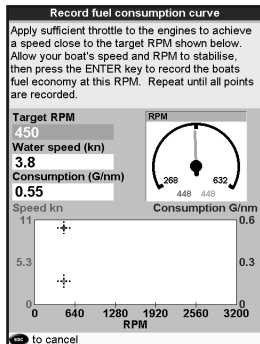
8 The 557/567 repeats the above step to record data up to the maximum RPM. Then the 557/567 asks if you want to save the curve. Select Yes. The fuel computer asks for a name for the curve. Change the default name if required. Then press **ENT**. The 557/567 stores the new curve.

Note To interrupt making the curve at any time, press **ESC**.

10-6-2 Managing fuel consumption curves

Renaming a curve

1 Press **MENU** twice, then select Fuel.

2 Select Fuel consumption curve. Select Name and select the name of the curve to rename.

3 Select Rename and press **ENT**. Change the name.

10-6-3 Using fuel consumption curves

Deleting a curve

1 Press **MENU** twice, then select Fuel.

2 Select Fuel consumption curve. Select Name and select the name of the curve to delete.

3 Select Delete.

Selecting a curve

1 You must make a fuel consumption curve before you can use it (see section 10-6-1).

2 On the Fuel window, press **MENU**, select Fuel consumption curve and select the name of the curve to use.

3 On the fuel window, press ▶ if necessary to select Fuel curve and display the fuel consumption curve.

Note

a On a multi engine boat, keep the RPM of all engines similar while using a curve.

b The shape of the curve depends on the type of speed sensor you selected when making the curve (see sections 10-5-1 and 10-5).

Using a curve
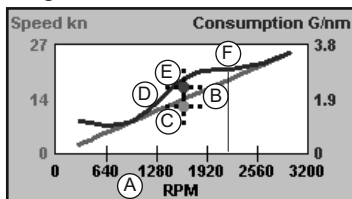
Compare your boat's performance now, at the current RPMs, with the boat's performance when you made the curve. You can compare your boat's performance now with a curve made under ideal conditions or with a curve made under similar conditions.

Information in a curve

A RPM of the boat now. For a twin engine boat, the RPM is the average of the two RPMs.

B Red curve: boat speeds at different RPMs recorded when you made this fuel consumption curve.

C Red marker: the boat speed now. This marker is below the red curve, showing that the boat speed now at this RPM is less than when you recorded the curve.

D Blue curve: fuel consumption at different RPMs recorded when you made this fuel consumption curve.

E Blue marker: the fuel consumption now. This marker is below the blue curve, showing that the fuel consumption now at this RPM is better than when you recorded the curve.

F If the blue curve has a dip, then running the boat at this RPM will give the best speed for the least fuel consumption.

Calibrate petrol/gasoline fuel flow sensors during installation, or if the fuel readings seem inaccurate and the other troubleshooting suggestions do not help (see appendix B troubleshooting).

Note

- SmartCraft™ fuel sensors are factory calibrated and should never need recalibrating.

- On a multi engine boat, calibrate each engine's sensor. This can be done at the same time with a portable tank for each engine or at different times using one portable tank.

- Calibrating a sensor requires accurate measurement of the fuel consumption. This is best done using a small portable tank. At least 4 gallons (15 litres) of fuel should be used to ensure an accurate calibration.

- It is often very difficult to fill underfloor tanks to the same level twice due to air pockets, so the more fuel used, the more accurate the calibration.

To calibrate the sensor(s):

1. Record the level of the fuel in the tank(s).

2. Connect the portable tank(s) to the engine through the fuel sensor(s).

3. Run the engine at normal cruising speed until at least 4 gallons (15 litres) of fuel has been used per engine.

4. Check the actual amount of fuel used per engine by refilling the portable tank(s) to the original level and noting the reading(s) of the fuel dispenser's gauge.

5. Press **MENU** twice, select Fuel then select Setup engines.

6. On a single engine boat, select Calibrate and change the displayed value to be equal to the reading of the fuel dispenser's gauge, then press **ENT**.

   On a multi-engine boat select the engine. Select Calibrate and change the displayed value to be equal to the reading of the fuel dispenser's gauge, then press **ENT**. Repeat for the other engines.

11 Tides window

The tides window is available on C-MAP charts. The tides window shows tide information at a tide station for the selected date.

Note: The tides window requires the local time offset to be set to work correctly (see section 15-12)

To show the tides window for the tide station nearest to the boat, press **DISP**, select More, then select Tides.

To go to the tides window for any tide station:

1 From the chart window, press **MENU** and select Find.

2 Select Tide stations.

3 A list of tide stations are displayed. Select the tide station to display. The chart redraws with the tide station centred.

4 Press **MENU** and select Chart info.

5 Select Tide height.

Choosing the date of the tide chart

1 Press **MENU**.

2 Select Today, Next day or Prev day.

   To choose a different date from these, select Set date, edit the date, press **ENT**.

The tides window shows data for the chosen date

A	Tide station name and distance from boat
B	Current time and chosen date for display
C	Tide chart
D	Night
E	Dawn
F	Day
G	Dusk
H	Tide height
I	Time cursor, a vertical dotted line. Press ◁ or ▷ to move cursor sideways
J	Time of cursor and tide height at that time
K	Data for the chosen date
L	Tide height cursor, a horizontal dotted line. Press ▲ or ▼ to move cursor up and down.
M	Height of cursor on the tide chart
N	Moon phase for moon at the current time on the chosen date

CAUTION

The tides window requires the local time offset to be set to work correctly (see section 15-12)

A C-MAP™ user card is an optional plug-in card that can store data files (see section 1-3). There are three types of files: waypoints, routes or a track.

To go to the user card window, press **DISP**, select `More`, then select User card.

> ***Note:***
>
> 1   Before using a user card, remove any chart card and plug the user card in. When you have finished with the user card, remove the user card and replace the chart card (see section 1-3).
>
> 2   The older 5 volt cards are not supported.

The user card window has:

File list

A list of the files on any user card in the 557/567. If there are more files than will fit on the display, press **+** or **−** to scroll up or down a page at a time.

Waypts, Routes

The number of waypoints and routes currently in the 557/567.

Track 1 to Track 5

The number of points in tracks 1 to 5 currently in the 557/567.

Note:

1   To save 557/567 data onto the user card, use the Save command (see below).

2   Data stored on the user card and shown on the file list is not available to be used by the 557/567 until loaded into the 557/567 with the LOAD command (see below).

Saving data to the user card

This saves all the 557/567's waypoints, all the 557/567's routes or one of the 557/567's tracks to one file on the user card.

1   Press **MENU** and select `Save.`

2   Select `Waypts`, `Routes` or Tracks.

3   For `Tracks`, select the track number to save.

4   The new file is created. Change the name if required. The new file appears in the file list.

User card			
▼Name	Type	Date	Time
Device not formatted			

In memory		Track 2:	0
Waypts:	0	Track 3:	0
Routes:	0	Track 4:	0
Track 1:	7	Track 5:	0

Loading data from the user card to the 557/567

This loads one file from the user card to the 557/567:

- A waypoints file: The new waypoints are added to any existing waypoints in the 557/567. If a new waypoint has the same name as an existing waypoint but has different data, the 557/567 displays both waypoints. Select:

  `Skip:` Do not load the new waypoint.

  `Replace:` Load the new waypoint and replace the existing one.

  `Skip all:` Do not load any new waypoints which have the same names as existing waypoints.

  `Rplc. all:` Load all new waypoints which have the same names as existing waypoints; the new waypoints replace the existing waypoints.

- A routes file: The new routes are added to any existing routes in the 557/567. If a new route has the same name as an existing route but has different data then the 557/567 asks which route to keep.

- A track file: The new track will replace the existing track in the 557/567.

To load a file to the 557/567:

1 Select the file to load.

2 Press **MENU** and select Load.

Deleting a file from the user card

1 Select the file to delete.

2 Press **MENU** and select Delete.

3 Select Yes to confirm.

Reading the file information

This reads the file names from the user card and displays them. Reading does not load any file data into the 557/567.

1 Press **MENU** and select Card.

2 Select Read.

Formatting the user card

Formatting prepares a user card for use. Format the card if there is an error message saying that the card is not formatted. Any data files on the card are deleted.

1 Press **MENU** and select Card.

2 Select Format.

3 Select Yes to confirm.

Sorting the file names

This sorts the displayed file names.

1 Press **MENU** and select Sort.

2 Select sort by Name, Type or Time.

> ### ⚠ CAUTION
>
> Before using a user card, remove any chart card and plug the user card in. When you have finished with the user card, remove the user card and replace the chart card (see section 1-3).

13 AIS

AIS is short for Automatic Identification System. The International Convention for Safety of Life At Sea (SOLAS) requires all vessels greater than 300 tons and all passenger vessels to be equipped with AIS Transponders. All vessels equipped with AIS permanently broadcast via one or more of the two dedicated VHF channels. This transmission may include information about the vessels MMSI-number, its call sign, name, position, course, heading, speed, rate of turn and type of vessel.

This unit can receive and display AIS information when connected to an AIS receiver. Available AIS vessels transmitting in the local area are show on the chart when this feature is enabled.

The following AIS receivers are supported by this unit:

- Comar SLR200 (external GPS).

- Weatherdock Two Channel AIS Receiver "EASY AIS", Part No. 5-A-013 (external GPS).

- NASA Marine AIS Engine 2 channel Receiver (external GPS).

Other AIS receivers may work but have not been tested with this unit.

To enable AIS from the system menu check the AIS box. (see section 15-1)
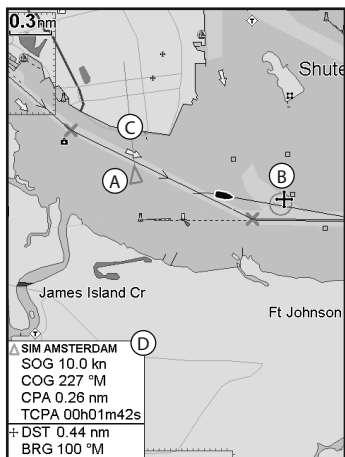
A   AIS Vessel

B   Dangerous Vessel

C   Projected Course

D   Data Box

When the cursor is placed over an AIS vessel for at least two seconds, a data box appears at the bottom of the window with information about the AIS vessel.

For complete AIS information on the AIS vessel place the cursor over an AIS vessel for at least two seconds and press **ENT**.

Press either **ENT** or **ESC** to clear the information.

13-2 Dangerous Vessels

The 557/567 calculates the time of closest point of approach (TCPA) and closest point of approach (CPA) for each AIS vessel.

This is used to determine potential dangerous vessels. If the TCPA and the CPA is below the trigger values then it will be considered dangerous. (See section 15-8 for setting the dangerous vessel alarm.)

A dangerous vessel is indicated on the chart by a red circle around the icon.
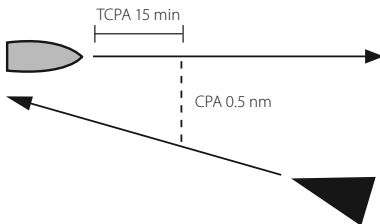
13-3 AIS Windows

To go to the AIS windows, press DISP, select More, then press ◄ or ► to select one of the two windows: Vessels or Safety msgs (rx).

If there are more items than will fit on the window, press ⊕ or ⊖ to see the others.

AIS			
Vessels		**Safety msgs (rx)**	
DST (nm) BRG (ºM)	SOG (kn)	MMSI Name	CPA (nm) TCPA
7624 116	21.5	498121654 SIM LA ROCHE..	Invalid Invalid
7632 116	0.0	496819156 SIM OSLO	Invalid Invalid
7635 116	21.4	123456789 SIM CHARLES..	6490 121h35m12s
7641 116	9.9	894351656 SIM GENOVA	7129 262h46m36s
7672 116	2.1	156649841 SIM CAPETOW..	Invalid Invalid
7678 116	10.0	721198100 SIM AMSTERD..	2665 574h10m46s
7683 116	15.9	891316884 SIM SAN FRAN..	Invalid Invalid
⊕ ⊖ to page up/down			

Vessels

This is a sorted list of vessels currently being received by the AIS receiver. The maximum number of vessels that the system will support is 250. Once maximum is reached, vessels furthest away from the current location will be replaced. A vessel will be removed from the list if no information is received within 6 minutes from the last message.

Displaying an AIS vessel on the chart

1 Press ⊙ or ⊙ to select a vessel.
2 Press MENU and select Display. The Instrument switches to chart window, with the selected vessel position in the middle.

Displaying Full AIS Details

1 Press ⊙ or ⊙ to select a vessel.
2 Press MENU and select More Info or press ENT.

This window displays all information for the selected AIS vessel provided by the AIS receiver.

Sorting Vessels

Press MENU, select Sort and select one of the options.

This sorts the list based on the chosen category.

Safety msgs (rx)

AIS		
Vessels		**Safety msgs (rx)**
Time	MMSI	Message
09:35:01 02/May/87	546946501	Iceberg, right ahead!
10:42:34 08/Nov/88	594988954	Man overboard! Man overboard!
⊕ ⊖ to page up/down		

Safety msgs (rx) are broadcasted messages received by the AIS receiver. This window displays the date and time of message received, MMSI of AIS vessel that broadcasted the message, and the message itself. Safety msgs (rx) list will store up to 10 messages. The oldest message is replaced when the list is full.

14 DSC/Buddy track windows

Buddy track requires an optional Northstar DSC VHF radio (with NavBus functionality) to be installed. Buddy track tracks other boats which have DSC radios connected to their GPS receivers by NavBus and are in VHF range. For information on setting up and using the VHF radio for buddy track, see the radio's operation manual.

To go to the DSC windows, press DISP, select More, then press ◄ or ► to select one of the three windows: Distress, Poll or Buddy track.

If there are more items than will fit on the window, press ➕ or ➖ to see the others.

14-1 The windows

DSC/Buddy track		
Distress	**Poll**	**Buddy track**
Date	Latitude	Name
Time	Longitude	MMSID
01/Jan/05	00°00.666'N	Bob
10:31:07	000°00.666'E	124122316
01/Jan/05	00°00.666'N	Bob
10:30:08	000°00.666'E	124122316
Collision		
➕ ➖ to page up/down		

DSC/Buddy track		
Distress	**Poll**	**Buddy track**
Date	Latitude	Name
Time	Longitude	MMSID
01/Jan/05	00°00.000'N	Peter
10:31:27	000°00.000'E	513318886
01/Jan/05	00°00.000'N	Shane
10:31:17	000°00.000'E	143053013
01/Jan/05	00°00.000'N	Mark
10:31:08	000°00.000'E	422782911
01/Jan/05	00°00.000'N	John
10:30:57	000°00.000'E	126643621
01/Jan/05	00°00.000'N	Reuben
10:30:47	000°00.000'E	105285716
01/Jan/05	00°00.000'N	Paul
10:30:37	000°00.000'E	447427149
01/Jan/05	00°00.000'N	Peter
10:30:27	000°00.000'E	513318886
01/Jan/05	00°00.000'N	Shane
10:30:17	000°00.000'E	143053013
01/Jan/05	00°00.000'N	Mark
10:30:08	000°00.000'E	422782911
➕ ➖ to page up/down		

DSC/Buddy track		
Distress	**Poll**	**Buddy track**
Mark Position: 33°44.995'S 018°30.000'E Time: 10:31:47 MMSID: 422782911		
Peter Position: 00°01.320'N 000°01.320'E Time: 10:31:47 MMSID: 513318886		
Paul Position: 00°01.980'S 000°01.980'W Time: 10:31:47 MMSID: 447427149		
Reuben Position: 00°02.640'S 000°02.640'E Time: 10:31:47 MMSID: 105285716		

Distress

Boats that have sent DSC distress messages and their positions.

Poll

Boats you have manually polled on the VHF radio, and their position at that time.

Buddy track

Buddy boats from your DSC radio. The radio regularly calls the boats and updates their positions.

When your DSC radio receives a distress message, the Instrument creates a distress waypoint at the boat position. Distress waypoints have default names like DSTRSS01. The Instrument displays a Distress warning.

Select:

- **OK** to return to what you were doing.
- **Display** to switch to Chart and display the position of the boat sending the distress message.

Distress
00°00.666'N
000°00.666'E
Collision
MMSID: 124122316   10:31:07
Bob   01/Jan/05
OK   Display

Boat positions

The boat positions on the Instrument can differ from the true boat positions:

Distress: The position is the distress waypoint, which is where the boat was when it sent the distress message.

Polled boats: The position is where the boat was when you last polled the boat.

Buddy track: The position is where the boat was when your radio last polled the boat.

Displaying a boat on the chart

1 Press ⬆ or ⬇ to select a boat.

2 Press **MENU** and select Display. The Instrument switches to chart window, with the selected boat position in the middle (see Boat positions above).

Going to a boat

1 Press ⬆ or ⬇ to select a boat.

2 Press **MENU** and select Goto. The Instrument starts navigating to the boat's position (see Boat positions above).

Creating a waypoint

Polled and buddy track boats are not waypoints. To create a waypoint at the position of a polled boat (see Boat positions above):

1 Press ⬆ or ⬇ to select a boat.

2 Press **MENU** and select Create waypoint. Edit the waypoint data if required (see section 5-2-7).

Editing a waypoint

A distress message creates a waypoint for the boat or you can create a waypoint at a polled boat's position. To change the data of these waypoints:

1 Press ⬆ or ⬇ to select a boat.

2 Press **MENU** and select Edit waypoint. Edit the waypoint data if required (see section 5-2-7).

Deleting a boat

At the Distress or Poll windows:

1 Press ⬆ or ⬇ to select a boat.

2 Press **MENU** and select Delete. The boat is deleted from that window. Delete any boat waypoint manually (see section 5-2-5).

Buddy track boats automatically disappear from the Buddy track window when your DSC radio can not pick up their signal.
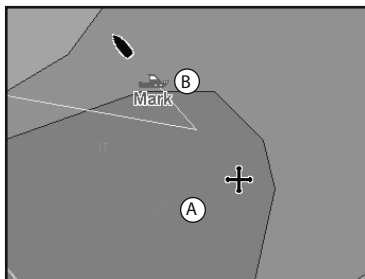
On a chart window:

A   Distress boats are distress waypoints

B   Buddy track boats are buddy symbols

Deleting all boats

At the Distress or Poll windows:

1 Press ⬆ or ⬇ to select a boat.

2 Press **MENU** and select Delete all. All boats are deleted from that window and any boat waypoints are deleted.

15 Setting up the 557/567

The 557/567 has a number of advanced features which are set up through the setup menu. We recommend that you become familiar with the operation of the unit using the default settings before making any changes to the data in these menus.

To go to a setup option menu, press (MENU) twice, then select an option.

Note:

1   The Setup menu options are explained in the following sections.

2   Section 2-1 describes how to set or change data in the setup menus.

3   The setup data available will depend on the optional sensors and instruments installed.

Setup
System ▶
Chart ▶
GPS ▶
Fuel ▶
SmartCraft ▶
Track ▶
AIS ▶
Logs ▶
Alarms ▶
Units ▶
Comms ▶
Calibrate ▶
Time ▶
Favorites
Simulate ▶

Setup option menus

Factory default settings are shown. The setup data available will depend on the optional sensors and instruments installed.

General (see 15-2)

General	
Plotter mode	☐
Mixing levels	☐
AntiClutter	☐
Value added data	☐
Projected course	Off
CDI scale	0.1 nm
Lat/lon grid	☐
Boundaries	Auto
Text/Icon Size	Small

Water (see 15-2)

Water	
Water features	☑
Bathymetric lines	☑
Spot soundings	☑
Bath & sndgs min	0 ft
Bath & sndgs max	50 ft
Tidal Stream	☑

Land (see 15-2)

Land	
Land features	☑
Land elevation	☑

Other (see 15-2)

Other	
Waypoints	Selected
Names	☑
Lights	On
Nav-aids	INT
Attention areas	☑

System (see 15-1)

System	
Language	English
Backlight	15
Night mode	☐
Key beep	☑
Auto power off	☐
Factory reset	
About	
SmartCraft	☑
AIS	☑
Buddy track	☑

Chart (see 15-2)

Chart	
Rotation	North up
Palette	Normal
Map datum	WGS-84
NMEA datum offset	☐
Map shift	Off
General	▶
Water	▶
Land	▶
Other	▶

SmartCraft™

(see the *SmartCraft™ Gateway Installation and Operation Manual*)

GPS (see 15-3)

GPS	
GPS source	NMEA
DGPS source	WAAS/EGNOS
Restart GPS	
Static navigation	Off
Speed filter	5
Course filter	4

Fuel (see 15-4)

Fuel	
Source	Gasoline
Num engines	1
Num tanks	1
Setup engines	▶
Setup tanks	▶
Diesel sensors	
Fuel consumption curve	▶
Speed source	Ground speed
Max fuel flow	26 G
Max RPM	3000

Track (see 15-5)

Track	
Record	1
Display	1
Plotting interval	Distance
Distance	0.1 nm
Time	10 sec
Memory used	0%
Send track	
Delete track	

Favorites (see 15-13)

Favourites	
Name	
1	Chart + Gauges
2	Chart + Highway
3	Waypoints
4	-
5	-
6	-
MENU for options	

AIS (see 15-6)

AIS	
Filter by distance	300 nm
Filter by speed	0 kn
Show dangerous only	☐
Dangerous vessel alarm	☐
TCPA limit	2 min
CPA limit	0.1 nm
Projected course	Off

Logs (see 15-7)

Logs	
Reset trip dist	
Reset total dist	
Reset engine hours	
Trip dist	0.00 nm
Total dist	0.00 nm
Engine hours	0.0 hrs

Alarms (see 15-8)

Alarms	
Arrival radius	▶
Anchor alarm	▶
XTE	☐
Danger	▶
DGPS	☑
AIS	▶
Low battery	▶
Fuel	▶

Units (see 15-9)

Units	
Distance	nm
Distance small	ft
Speed	kn
Depth	ft
Fuel	USGal
Compass	°M
Temperature	°F
Wind	TRUE
Pressure	kPa
Baro	mB

Comms (see 15-10)

Comms	
NMEA out	☐
NMEA data	▶
Lat/Lon d.p's	3
NavBus	☑
NavBus group	0

Calibrate (see 15-11)

Calibrate	
Speed	
Speed filter	Off
Temperature	
Temp filter	5 sec
Keel offset	0.0 ft
Speed range	Low

Time (see 15-12)

Time	
Local offset	+00:00
Time format	24 hour
Date format	dd/MMM/yy

Simulate (see 15-14)

Simulate	
Simulate	☐
Mode	Normal
Speed	1.0 kn
Course	0 °M
Route	

Press **MENU** twice, then select System:

System	
Language	English
Backlight	15
Night mode	☐
Key beep	☑
Auto power off	☐
Factory reset	
About	
SmartCraft	☑
AIS	☑
Buddy track	☑

Language

Select the language for the displays.

💡 *Tip*: In case you can't read the current language, the language setting is found at the top of the system menu.

Backlight

Select the backlight level for the keys and display (see also section 2-4).

Night mode

Night mode sets the palette for all displays.

☐ Normal palette, for daytime.

☑ All displays have a palette optimised for night time.

See also section 2-4. To change only the chart palette, see section 14-2.

Key beep

Enables or disables the beep when a key is pressed.

Auto power off

See section 2-3.

Factory reset

This option returns all of the 557/567 settings (except the language, waypoints and routes) to the default factory settings shown on the setup menus.

About window

The about window shows:

- The versions and dates.
- The world chart version.
- Any card fitted.

- The number of waypoints, routes and tracks you have stored.
- Connector wiring information.

In the unlikely event of having to contact a Northstar dealer for service, quote the software version number and date.

About	
Copyright © 2004-2006 Northstar	
Model	557
Software	1.0.0, Aug 18 2006
Hardware	2.18.10
Bootloader	1.0.0
Cartography	7.0.8.25R
SmartCraft	-.-

World chart
World Wide Background (CF95W02) 1.67
Slot 1: No card

Waypoints	3000	0	Used
Routes	25	0	Used
Tracks	5	1	Used

Power/comms cable ■ Black
1 ■ Black	Ground
2 ■ Brown	Not used
3 ☐ White	NMEA out
4 ■ Blue	NavBus-
5 ■ Red	+12/24V in
6 ☐ Orange	NavBus+
7 ☐ Yellow	Ignition
8 ☐ Green	Ext Alarm

GPS/Fuel/AIS cable ☐ Yellow
Refer to manual

SmartCraft™

☐ No SmartCraft™ gateway is fitted. Disable SmartCraft™ functions.

☑ SmartCraft™ gateway is fitted. Enable SmartCraft™ operation.

See section 16-7.

AIS

☐ No appropriate AIS receiver is fitted. Disable AIS.

☑ An appropriate AIS receiver is fitted. Enable AIS.

See section 16-10.

Buddy track

☐ No appropriate Northstar DSC VHF radio is fitted. Disable Buddy track.

☑ An appropriate Northstar DSC VHF radio is fitted. Enable Buddy track.

See section 14.

Press **MENU** twice, then select Chart:

Chart	
Rotation	North up
Palette	Normal
Map datum	WGS-84
NMEA datum offset	☐
Map shift	Off
General	▶
Water	▶
Land	▶
Other	▶

General	
Plotter mode	☐
Mixing levels	☐
AntiClutter	☐
Value added data	☐
Projected course	Off
CDI scale	0.1 nm
Lat/lon grid	☐
Boundaries	Auto
Text/Icon Size	Small

Water	
Water features	☑
Bathymetric lines	☑
Spot soundings	☑
Bath & sndgs min	0 ft
Bath & sndgs max	50 ft
Tidal Stream	☐

Other	
Waypoints	Selected
Names	☑
Lights	On
Nav-aids	INT
Attention areas	☑

Land	
Land features	☑
Land elevation	☑

Rotation

The options for chart rotation are:

"North up:" North is always at the top of the chart window.

"Track up:" The chart is rotated so that the boat direction is to the top of the display. This option is useful for navigating narrow harbours or rivers. The 557/567 asks for a course deviation; this is how much the boat direction needs to change to make the chart redraw.

Tip: If the chart redraws too frequently, increase the course deviation setting.

"Course up:" This option is only available if the boat is navigating to a destination. The chart is rotated so that the plotted course to the destination is vertical.

Palette

Select the color scheme for the LCD display. The options are:

"Normal:" For viewing in normal conditions.

"Sunlight:" Brighter colors, more visible in sunlight.

"Night:" Reversed colors for night, to preserve night vision.

Map datum

557/567 GPS positions are based on a worldwide reference (datum) known as WGS 84. Most paper charts are based on WGS 84. However, some paper charts are based on other datums In these cases, the latitude and longitude coordinates of objects on the 557/567 chart window are different to the latitude and longitude coordinates of these objects on the paper chart. This applies to all objects, such as the boat, waypoints, tracks, lines of latitude and longitude and cartographic features such as land, rocks, buoys and depth contours.

Use "Map datum" to select the 557/567 map datum to match the datum of the paper chart. Then, the latitude and longitude coordinates of objects displayed on the 557/567 will change to match the corresponding coordinates on the paper chart.

Setting map datum

1   In the Chart setup menu, select "Map datum."

2   Select the map datum for the paper chart you are using.

3   If you select a datum other than WGS 84 the 557/567 asks if you want to apply the NMEA datum offset (see below).

⚠ **WARNING**

When you change to a chart with a different datum, change the 557/567 map datum again.

NMEA datum offset

If you select a map datum other than WGS 84, the map datum offset can be applied to latitude and longitude coordinates sent on the 557/567 NMEA output:

☐ Latitude and longitude coordinates displayed on any NMEA repeater do not match the coordinates on the 557/567. Latitude and longitude coordinates broadcast on any NMEA VHF transmitter will be the same as the coordinates on a WGS 84 chart.

☑ Latitude and longitude coordinates displayed on any NMEA repeaters match the coordinates on the 557/567. However, latitude and longitude coordinates broadcast on any NMEA VHF transmitter will be slightly offset from coordinates on a WGS 84 chart.

Map shift

> ⚠ **WARNING**
>
> Map shift is for eliminating minor offsets. It should not be used if the correct datum is available. Use map shift with caution: incorrect application will cause incorrect boat positions.

Some charts have consistent position errors. To correct this, apply a map shift. After a map shift:

- The positions of cartographic features (such as land, rocks, buoys and depth contours) move on the 557/567 chart window to where they should be.
- The positions of the boat, waypoints, tracks, and lines of latitude and longitude on the 557/567 chart window remain unchanged.

Applying a map shift

1. Move the boat to a known point on the chart, for example a marina berth.
2. In the Chart setup menu, select Map shift.
3. Move the cursor to the position on the chart where the boat actually is.
4. Press **MENU** and select Set.
5. Press **ESC** to set the new map shift. The boat will now be displayed at its actual location.

Clearing the map shift

Clearing the map shift removes any map shift from the cartographic features on the 557/567 chart window.

1. In the Chart setup menu, select Map shift.
2. Press **MENU** and select Clear.
3. Press **ESC**.

General submenu	
Plotter mode	☐ Normal: only scales available on the chart card can be displayed. ☑ If you press ⊕ or ⊖ to select a chart scale which is not available, on the chart card, the chart window will change to this scale but will only display the boat position and track (if enabled). The rest of the display is white with black crosshatch lines and no chart information is displayed. This is useful to zoom to a small scale to track small boat movements or if there is no detailed chart for an area.
Anticlutter	☐ Names and icons shown. **Note:** this is independent of the change in detail shown at different zoom levels. ☑ Hides some less important names and icons to make the chart clearer.
Value added data	☑ Non marine chart data shown
Projected course	The 557/567 can estimate the course after a given time, based on the current speed and heading (see section 3-4). The options are 2 minutes, 10 minutes, 30 minutes, 1 hour, 2 hours or Off.
CDI scale	See Appendix C. The options are 0.05, 0.1, 0.2, 0.5, 1.0, 2.0, 4.0 and 10.0 distance units.
Lat/lon grid	☑ Displays a latitude and longitude grid.
Boundaries	Displays boundaries around areas where more detailed chart coverage is available: Auto shows the next four detail levels; On shows all.
Text/icon size	Select the size of chart text and icons.
Water submenu	
Water features	☑ Displays marine sediment labels (for example, M shows areas of mud) and tide station icons ⟨⟡⟩
Bathymetrics	Displays underwater depth contours between Bath & sndgs min and max.
Spot soundings	Displays depth soundings between Bath & sndgs min and max.
Bath & sndgs min	The minimum depth for Bathymetrics and Spot soundings.
Bath & sndgs max	The maximum depth for Bathymetrics and Spot soundings.
Tidal flow	☑ Displays dynamic tide flows: arrows on a chart showing the present tide stream and orientation (requires a GPS fix and an NT-MAX card)
Other submenu	
Waypoints	Displays waypoints: Hide all only displays waypoints on any selected route; Selected displays waypoints with their display option set to Icon or I+N (Icon and Name) (see section 5).
Names	☑ Displays place names.
Lights	Displays lighthouses: No sector hides any light sectors; On shows all data.
Nav-aids	Displays signals (fog, radar, radio stations) and bouys. Int and US select the icon format; Smpl draws simpler icons.
Attention areas	☑ Displays attention area boundaries and information icons ⓘ; attention areas are important areas, such as restricted anchorages or shallow areas.
Land submenu	
Land features	☑ Displays land features, for example regions, rivers, roads, railways, airports.
Land elevation	☑ Displays land contours, shaded like depths (requires an NT Max card)

Press **MENU** twice, then select GPS:

GPS	
GPS source	NMEA
DGPS source	WAAS/EGNOS
Restart GPS	
Static navigation	Off
Speed filter	5
Course filter	4

GPS Source

- NMEA: Use an external GPS or DGPS source connected via NMEA (see section 16-10).
- NavBus: Use an external GPS or DGPS source connected via NavBus (see section 16-8).

DGPS Source

Enables or disables the satellite based DGPS correction (see section 7). The options are None or WAAS/EGNOS. Do not enable WAAS/EGNOS outside their coverage areas or the accuracy of the position might be degraded.

WAAS covers all of the USA and most of Canada. To use WAAS, the GPS antenna must have a clear view of the sky towards the equator. EGNOS will cover most of Western Europe when it becomes operational.

Restart GPS

Restarts the internal GPS receiver for servicing or troubleshooting. The GPS receiver takes up to three minutes to restart. The satellite window shows the status of the GPS receiver (see section 7). Restart the GPS if the receiver has not been used for some time and is taking a long time to get a GPS fix.

Static Navigation

When the boat stops or moves very slowly, the calculated GPS speed and course become erratic. Static navigation is a number, and the options are:

- 0.01 to 99.9: If the boat speed is slower than this, the speed is displayed as zero and the course stays unchanged.
- 0 (Off): The calculated speed and course are always used.

Speed and Course Filter

Waves and wind cause the boat speed and course to fluctuate slightly. To give stable readings, the 557/567 calculates these values by taking several measurements and averaging them.

- A lower value averages measurements over a shorter period of time. This gives the most accurate value but has the most fluctuations.
- A higher value averages measurements over a longer period of time. This gives the most stable value but will ignore some true speed changes.

Set the Speed and Course filters to the lowest values which give stable readings. The range of each filter is 1 to 60 seconds or Off (0).

⚠ **WARNING**

Fuel consumption can change drastically depending upon the boat loading and the sea conditions. Always carry adequate fuel for the journey, plus a reserve.

Fuel functions require optional fuel flow sensors to be installed. Press **MENU** twice, then select Fuel:

Fuel	
Source	Gasoline
Num engines	1
Num tanks	1
Setup engines	▶
Setup tanks	▶
Diesel sensors	
Fuel consumption curve	▶
Speed source	Ground speed
Max fuel flow	26 G
Max RPM	3000

Source

Select the fuel flow sensors to use if the boat has more than one set of fuel sensors. Normally select Auto.

Num engines

Set the number of engines, or select 0 to disable the fuel functions. If there are two engines they are called port and starboard.

Num tanks

Set the number of fuel tanks. If there are two tanks they are called port and starboard.

Setup engines

If the boat has more than one engine, select Engine and select each engine in turn.

For the selected engine, you can enter:

Setup engines	
Engine	Single
From tank	Single
Calibrate	
Flow filter	5
Clear used	
Used	0.0 G

From tank: The fuel tank the engine is connected to.

Flow filter: Most engines do not draw fuel from the tank at a steady rate. To give a stable fuel flow reading, the 557/567 calculates the flow by taking several measurements and averaging them. Use the Flow filter to set the period over which the fuel flow is averaged.

The Flow filter can be set from 0 to 30 seconds. Use the lowest value which gives a stable flow. Usually a value of 5 to 10 seconds will give a satisfactory result for two-stroke carburettor engines. Fuel injected or four-stroke engines may require a larger value.

This setting affects the Fuel flow and Fuel economy reading on the Fuel window but it does not affect the Fuel used reading.

Setup tanks

If the boat has more than one tank, select Tank and select each tank in turn.

For the selected tank, you can enter:

Setup tanks	
Tank	Single
Add fuel	
Fill tank	
Set remaining	0 G
Tank alarm	☐
Tank alarm	Off
Tank size	0 G

Add fuel, Fill tank, Set remaining: See section 10-3.

Tank alarm: See section 10-4.

Tank size: The tank capacity. Northstar recommends measuring tank size by draining the fuel tank, filling it to capacity and using the fuel dispenser's reading. Beware of air pockets, especially in underfloor tanks.

Fuel consumption curve

See section 10-6.

Speed source

If both water speed and ground speed are available, select which to use for fuel calculations (see section 10-5-1).

Max fuel flow

The maximum fuel flow from a fuel tank to be displayed on an analog fuel flow gauge (see section 8)

15-5 Setup > Track

Press **MENU** twice, then select Track:

Track	
Record	1
Display	1
Plotting interval	Distance
Distance	0.1 nm
Time	10 sec
Memory used	0%
Send track	
Delete track	

Tracking records and displays the boat's course on the chart (see section 3-5). Five different tracks can be recorded: track 1 has up to 2000 points and tracks 2, 3, 4 and 5 have up to 500 points each.

Record

Off: The 557/567 stops recording a track.

1 to 5 (select a track number): The 557/567 starts recording the boat's course into the selected track.

Display

Off: No track is shown on the chart.

1 to 5 (select a track number): The selected track is shown on the chart.

Plotting Interval

The options are Distance or Time.

Distance

Select the distance plotting interval: 0.01, 0.05, 0.1, 0.5, 1.0, 2.0, 5.0 or 10.0 distance units.

Time

Select the time plotting interval: 1, 5, 10 or 30 seconds or 1 minute.

Memory used

The percentage of memory used in the track being recorded.

💡 *Tip*: Use the user card window to check the number of points recorded in each track (see section 12).

Send track

This option is included for compatibility with older units. For information, see your Northstar dealer.

Delete track

The data in the track selected for Record (see above) is deleted.

Note: This feature requires an AIS receiver.

AIS	
Filter by distance	300 nm
Filter by speed	0 kn
Show dangerous only	☐
Dangerous vessel alarm	☐
TCPA limit	2 min
CPA limit	0.1 nm
Projected course	Off

There are multiple methods to filter AIS vessels that are displayed onto the charts.

Filter by distance

Vessels outside the radius selected from our current position is filtered off the chart. Default value is set to 300 nm allowing all vessels to be displayed onto the chart within that distance.

Filter by speed

Vessels with speed below value selected by user is filtered off the charts. Default is set to 0 kn allowing all vessels to be displayed onto the chart.

Show Dangerous Only

Show vessels that have a TCPA/CPA below the trigger values. This filter will override any other filter option.

Dangerous Vessel Alarm

When enabled an alarm will activate when both the TCPA and CPA is less than the trigger values. Even when this setting is disabled the dangerous vessels will still be indicated on the chart.

TCPA Limit

Set the Time of Closest Point of Approach limit.

CPA Limit

Set the Closest Point of Approach limit.

Projected Course

Show the estimated course of all vessels based on their current SOG and COG.

Press **MENU** twice, then select Logs:

Logs	
Reset trip dist	
Reset total dist	
Reset engine hours	
Trip dist	0.00 nm
Total dist	0.00 nm
Engine hours	0.0 hrs

The values can be changed independently of each other. These log values are saved when the unit is turned off.

Reset trip dist

This resets the trip distance to zero.

Reset total dist

This option resets the total distance to zero.

Reset engine hours

Use this option to reset the engine hours to zero. This can be useful after an engine service or to count the engine hours between service intervals.

Press (MENU) twice, then select Alarms:

Alarms
Arrival radius ▶
Anchor alarm ▶
XTE ☐
Danger ▶
DGPS ☑
AIS ▶
Low battery ▶
Fuel ▶
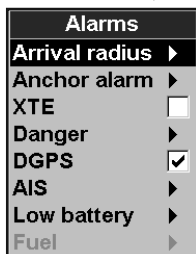
All alarms except Loss of GPS fix can be turned on (enabled) or off (disabled).

For all alarms select ☑ to turn the alarm on or select ☐ to turn the alarm off.

For most alarms there is a trigger value. The alarm will sound each time the alarm value equals the trigger value. For example, the Danger alarm will sound if the boat comes closer to a danger waypoint than the trigger value and the Anchor alarm will sound if the boat moves by more than the trigger value.

Icons for alarms that are on can be displayed in the data header (see section 2-8-2). An alarm icon is normally black and turns red when the alarm sounds.

Symbol	Alarm	Alarm sounds when it is on and the:
🚩	Arrival radius	boat is closer to the destination or to a waypoint than the alarm trigger value
⚓	Anchor alarm	boat moves by more than the alarm trigger value
〵	XTE	boat moves off course by more than the CDI scale (see section 15-2)
!	Danger	boat comes closer to a danger waypoint than the alarm trigger value
🛰	Loss of DGPS fix	557/567 can not receive the DGPS signal (beacon, WAAS or EGNOS)
🛰	Loss of GPS fix	557/567 can not receive the GPS signal (this alarm is always on)
🗼	Loss of AIS receiver communication	557/567 is no longer receiving communication from the AIS receiver (Alarm is on when AIS is enabled)
⚡	Dangerous vessel	The TCPA/CPA of another vessel is less than the trigger values (see section 13)
🔋	Low battery	Battery voltage is less than the alarm trigger value
⛽	Low fuel	Low fuel remaining equals the alarm trigger value; on a multi-tank boat you can set separate alarms for each tank (see section 10-4)

Press MENU twice, then select Units:

Units	
Distance	**nm**
Distance small	ft
Speed	kn
Depth	ft
Fuel	USGal
Compass	°M
Temperature	°F
Wind	TRUE
Pressure	kPa
Baro	mB

The default units are shown above.

Distance
nm (nautical miles), mi (miles) or km (kilometres)

Distance small
ft (feet) or m (metres)

Speed
kn (knots), mph (miles per hour) or kph (kilometres per hour)

Depth
ft (feet), m (metres) or fa (fathoms)

Fuel
Litres, USGal (US gallons) or ImpGal (Imperial Gallons)

Compass
°T (True north) or °M (Magnetic north)

Temperature
°F (Fahrenheit) or °C (Celsius)

Wind (optional)
Requires a wind instrument: True or App (Apparent)

Note: that the units for wind speed are the speed units.

Pressure
Requires SmartCraft™: kPa or psi

Baro (Barometric pressure)
Requires a Northstar VHF receiver connected by NavBus: InHg or mB.

15-10 Setup > Comms

Use this feature when the 557/567 is connected to other Northstar instruments through NavBus or any compatible NMEA instrument.

Press MENU twice, then select Comms:

Comms	
NMEA out	☐
NMEA data	▶
Lat/Lon d.p's	3
NavBus	☑
NavBus group	0

NMEA out
NMEA is generally used with third party instruments (see section 16-10). Select this to transmit NMEA sentences, for example to an autopilot.

NMEA data
Use this to specify which NMEA sentences will be transmitted (see section 16-9 and Appendix A).

Lat/lon dps
Select the number of decimal points used for latitude and longitude transmitted in NMEA sentences.

NavBus
NavBus is the preferred method for connecting the 557/567 to other Northstar instruments. Select this if the instruments are connected using NavBus.

NavBus Group
Use this when a group of Northstar instruments are connected together using NavBus, to specify a group of instruments for backlighting, if required. Then, if the backlight setting on one instrument in the group is adjusted, the other instruments change automatically. Otherwise, select 0. See section 16-8.

Press **MENU** twice, then select Calibrate:

Calibrate	
Speed	
Speed filter	Off
Temperature	
Temp filter	5 sec
Keel offset	0.0 ft
Speed range	Low

Speed

This calibrates the speed from a paddlewheel sensor connected to the Instrument. Calibration may be required because different hull shapes have different flow characteristics. Obtain an accurate measurement of the boat's speed from a GPS receiver; or by following another boat travelling at a known speed; or by making a timed run over a known distance.

Note: for accurate calibration:

• The speed from a GPS receiver should be greater than 5 knots.

• The speed from another paddlewheel transducer should be between 5 and 20 knots.

• Best results are achieved in calm conditions where there is minimal current (best at high or low tide).

Calibrating speed:

1 Travel at a constant, known speed.

2 In the Calibrate menu, select Speed.

3 Press ◄ or ► to change the displayed speed to the true value.

4 Press **ENT**.

Speed filter

Waves and wind cause the boat speed from the paddlewheel transducer to fluctuate slightly. To give stable readings, the Instrument calculates these values by taking several measurements and averaging them. Set the Speed filter to the lowest value which gives stable readings. The range is 1 to 30 seconds or Off (0).

Temperature

The factory settings should be sufficiently accurate for normal usage. To calibrate the temperature readout, first measure the water temperature with a thermometer known to be accurate.

Use the cursor keys to display the temperature readout box, then increase or decrease the value to match the measured temperature. The temperature can be set from 32° to 99.9°F (0° to 37.7°C) with a resolution of 0.1° unit.

To change the units between °F (Fahrenheit) or °C (Celsius), see section 15-9.
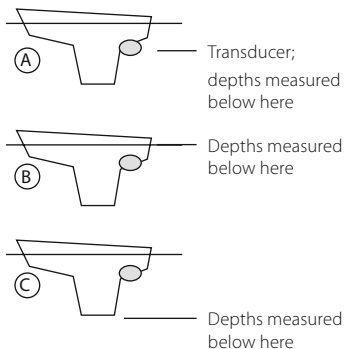
Temperature filter

Water turbulence and currents cause the water temperature to fluctuate slightly. To give stable readings, the Instrument calculates these values by taking several measurements and averaging them. Set the Temperature filter to the lowest value which gives stable readings. The range is 1 to 30 seconds or Off (0).

Keel Offset

A depth transducer measures depths below where the transducer is mounted on the boat, usually the bottom of the boat. The Instrument calculates the depths to display by adding the keel offset to all measured depths.

A   Have a zero keel offset to display depths below the transducer.

B   Enter a positive keel offset to increase the displayed depth. For example to display the total depths below the surface, enter the depth of the transducer below the surface.

C   Enter a negative keel offset to decrease the displayed depth. For example, to display the depths of clear water below the boat, enter minus the depth of the deepest part of the boat below the transducer.

Ⓐ   Transducer; depths measured below here

Ⓑ   Depths measured below here

Ⓒ   Depths measured below here

Speed range

The maximum reading to display on an analog boat speed gauge (see section 10-7). Choose a range suitable for your boat.

Fuel

See section 10-7, Calibration

15-12 Setup > Time

Press **MENU** twice, then select Time:

Time	
Local offset	+00:00
Time format	24 hour
Date format	dd/MMM/yy

Local offset

The difference between local time and UTC (GMT). Change local offset when daylight saving time starts and ends. The range is 0 to ± 13 hours, in 30 minute steps.

Time format

The options are 24 hour or 12 hour.

Date format

The options are dd/MMM/yy, MMM/dd/yy, dd/MM/yy or MM/dd/yy.

```
┌─────────────────────────┐
│      Favourites         │
├─────────────────────────┤
│  Name                   │
├─────────────────────────┤
│ 1 Chart + Gauges        │
│ 2 Chart + Highway       │
│ 3 Waypoints             │
│ 4 -                     │
│ 5 -                     │
│ 6 -                     │
├─────────────────────────┤
│ MENU  for options       │
└─────────────────────────┘
```

See section 2-8-2.

Simulate mode is a way of becoming familiar with the 557/567 (see section 2-7).

Press **MENU** twice, then select Simulate:

```
┌─────────────────────────┐
│       Simulate          │
├─────────────────────────┤
│ Simulate  ☐             │
├─────────────────────────┤
│ Mode      Normal        │
├─────────────────────────┤
│ Speed     1.0 kn        │
│ Course    0 °M          │
│ Route                   │
└─────────────────────────┘
```

Simulate

☐ Turn simulate mode off.

☑ Turn simulate mode on.

> ⚠ **WARNING**
>
> Never have simulate mode on when the 557/567 is navigating on the water.

Mode

There are two choices for Mode:

1 Normal

Simulates the boat moving from the selected start point at the given speed and heading. The options required for Normal are:

> Speed: The simulated boat speed to use.
>
> Course: The simulated bearing for the boat to follow.

Note: To select the start point, go to the chart window before starting the simulation. Then:

- To start the simulation from the boat position, press **ESC** to switch to centre on boat mode.

- To start the simulation from a different point, move the cursor to that point on the chart.

💡 *Tip*: To calculate a course, use the cursor (see section 3-3).

💡 *Tip*: As the boat moves, vary Course to simulate the boat moving off course.

2 Demo

Simulates a boat moving along a route and automatically displays different 557/567 functions.

> The options required for Demo are:
>
> Speed: The simulated boat speed to use.
>
> Route: The route to follow.

16 Installation

Correct installation is critical to the performance of the unit. It is vital to read the entire installation section of this manual and the documentation that comes with the antenna and any other units before starting installation.

16-1 Installation: What comes with the 557/567

557/567 display unit	
Dust cover for display unit	
Blanking caps for unused connectors	
Power cable	
Mounting bracket (screws included)	
Flush mounting kit	
Northstar 124 GPS antenna for 557 and 567	
Warranty registration card	
This Installation and Operation Manual	

16-2 Installation: Options and Accessories

- C-MAP™ NT-MAX, NT+ or NT chart cards.
- C-MAP™ user cards (3 V) for storing data. (The older 5 volt cards are not supported)
- Northstar carry bag.
- Northstar NavBus junction boxes simplify wiring, particularly if several instruments are connected. For more information, see the *NavBus Installation Manual*.

Optional sensors and instruments

Fuel sensors: These optional fuel flow sensors can be fitted to up to two engines:

•   Northstar petrol/gasoline sensors (see section 16-6).

    Engine types supported:

        Outboard carburetted two stroke and EFI petrol/gasoline engines: 50 hp to 300 hp.

        Outboard four stroke petrol/gasoline engines: 90 hp to 300 hp.

        Inboard petrol/gasoline engines: 70 hp to 400 hp.

Flow rate (per engine):

    Minimum: 5 litres per hour (1.3 U.S. gallons per hour).

    Maximum: 130 litres per hour (34 U.S. gallons per hour).

•   SmartCraft™ fuel sensors (see section 16-9)

Connections

GPS antenna (16-5)

Power (16-4)

External alarms (16-4)

NavBus instruments (16-10)

NMEA out to instruments (16-9)

Petrol/gasoline sensors (16-6), NMEA in (16-9)

Display unit (16-3)

Black

Yellow
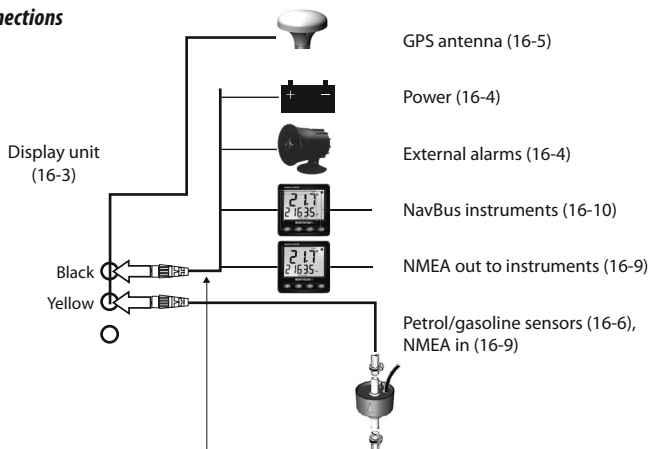
Power/data cable

Pin	Wire	Function
1	Black	Ground: - power in, NMEA ground. (The cable has two black wires which are connected inside the cable and it does not matter which black wire you use)
2	Brown	Not used
3	White	NMEA out
4	Blue	NavBus-
5	Red	Power in, +10.5 to +30.5 V DC
6	Orange	NavBus+
7	Yellow	Auto power in
8	Green	External alarm out, 30 V DC 200 mA maximum.

Select a position for the display unit:

- At least 4" (100 mm) away from the compass, at least 12" (300 mm) away from any radio transmitter and at least 4 ft (1.2 m) away from any antenna.

- Easy to read and operate. If possible, mount the display unit in front of the navigator or to the right of the navigator because the LCD display is more readable from these positions.

- Not exposed to the direct sun or water and protected from physical damage during rough sea passages.

- Easy to access the 12/24 V DC power source and convenient to route the transducer cables.

There are two mounting arrangements:

1 Flush Mounting

Requires a solid panel with access behind for wiring and mounting screws. After flush mounting, the display unit cannot be tilted or moved after installation to reduce any unwanted glare or reflections. Carefully select the best viewing position before installation. This would generally be in a shaded area.

1 Cut a hole in the bulkhead for the display unit using the flush mount template.

2 Drill four holes for the mounting studs using the flush mount template.

3 Screw the four studs into the brass inserts in the back of the display unit.

4 Sit the display unit in place and fit the washers and nuts to the studs.
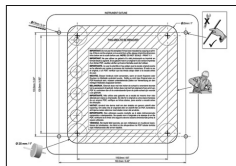
2 Bracket Mounting

Requires a panel for mounting the bracket. Ensure that the panel is not likely to deform and is not subject to excessive vibration. The bracket can be tilted and rotated. The display unit can be removed when it is not in use.

1 Hold the bracket in place and mark the screw holes.

2 Drill the screw holes and screw the bracket in place. Do not overtighten the screws or the display unit might not rotate.

3 Hold the display unit in place on the mounting bracket shaft. Hand tighten the knob on the mounting bracket.

Knob

Mounting bracket

16-4 Installation: Power/Data cable

The power/data cable has a black locking collar and flying leads.

1 Wire the 557/567 for auto power to have the 557/567 turn on with the boat's ignition switch or to record engine hours or to record the total fuel used. Otherwise wire for basic power (for more information, see section 2-3).

Basic power

Power/data cable

Black

Red

Fuse 2A

Yellow

Black

Main switch

12 /24V DC
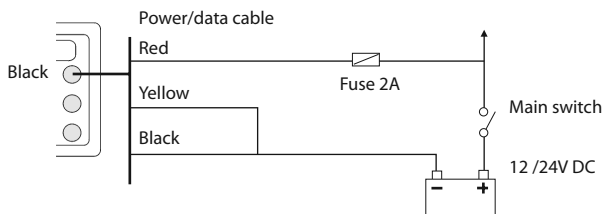
Auto power

During setup, set up Auto power off (see sections 2-2 turning on and off and 14-1 Setup system)

Power/data cable

Black

Yellow

Fuses 2A

Red

Black

Ignition

Ignition switch

Main switch

12/24 V DC
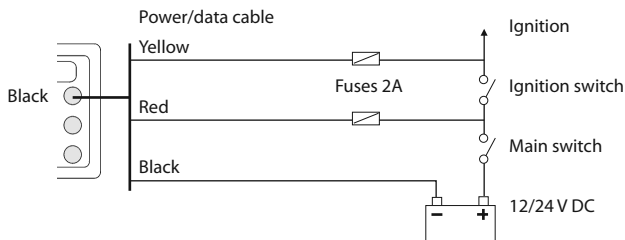
2 Wire any external alarm beepers or lights. The alarm output switches to ground to sound the alarm. If the current is more than 200 mA, fit a relay.

3 Connect the power/data cable to the black display unit connector; turn the collar to lock the connector.

Power/data cable

Black

Red

Green

External beepers or lights
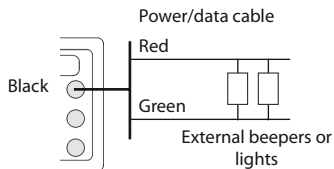
Selecting an antenna

Fit one of these GPS antennas:

- Normally use the GPS antenna supplied.

- An optional differential beacon DGPS antenna to give enhanced accuracy within range of land based differential beacons in areas where WAAS or EGNOS are not available. Such a DGPS antenna has both a GPS receiver and a beacon receiver, and it automatically applies the beacon correction to the GPS position.

- A compatible GPS or DGPS instrument or antenna connected by NavBus (see section 16-8) or NMEA (see section 16-9). In this case, the 557/567 does not need its own antenna.

Note:

- To configure the 557/567 for different antenna options, see section 16-5.

For more information, contact your Northstar dealer.

DGPS Source:

Enables or disables the satellite based DGPS correction (see section 7). The options are None or WAAS/EGNOS. Do not Enable WAAS/EGNOS outside their coverage areas or the accuracy of the position might be degraded.

WAAS covers all of the USA and most of Canada. To use WAAS, the GPS antenna must have a clear view of the sky towards the equator. EGNOS will cover most of Western Europe.

Restart GPS:

Restarts the GPS receiver, satellite reception will be lost until the receiver completes its restart and acquires the satellites.

Select restart GPS and press **ENT**

> **⚠️WARNING**
>
> MOB will not work if the Instrument does not have a GPS fix.

Installing an antenna

If an external antenna is required, install the antenna and fit the antenna cable back to the display unit. Follow the instructions in the manual supplied with the antenna. Fit an optional Northstar extension cable if required.

If a SmartCraft™ system or Northstar petrol/gasoline sensors are fitted as well, fit a AIS cable:

GPS antenna
Yellow
GPS/fuel AIS cable
White
Other connections

Otherwise:

Yellow   GPS antenna
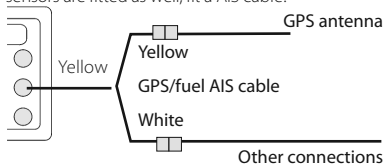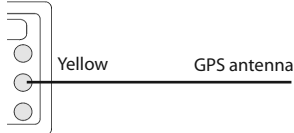
During setup, configure the 557/567 for the chosen antenna, see section 16-5.

16-6 Installation: Northstar petrol/gasoline sensors

Fit the optional petrol/gasoline fuel kit following the instructions supplied with the kit.

Note:

- Fit one kit for each engine, up to two engines.

- SmartCraft™ engines have fuel flow sensors, therefore Northstar fuel sensors are not required as well.

- Wire for auto power (see section 16-4).

During setup enter fuel setup data
(see section 15-4)

GPS antenna (optional)
Yellow
GPS/fuel AIS cable
White
Fuel sensor cable
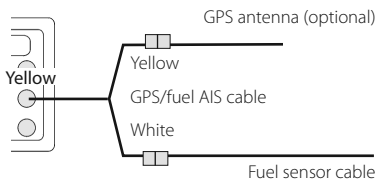
The 557/567 can be connected to up to two SmartCraft™ capable Mercury petrol/gasoline engines. The 557/567 can display engine data and trim and can control troll speed.

Note:

- Connect the 557/567 to the SmartCraft™ engines with a Northstar SmartCraft™ gateway:
  - i For single engine fit a single gateway
  - ii For dual engines fit a dual gateway
- SmartCraft™ engines have fuel flow sensors, therefore Northstar fuel sensors are not required as well.
- Wire the unit for auto power (see section 16-4).

During setup

- a Enter fuel setup data (see section 15-4)
- b Set NavBus and SmartCraft™ to ☑ (see section 15-1)
- c Enter SmartCraft™ setup data (see the *SmartCraft™ Gateways Installation and Operation Manual*)

For information on installing, setting up and using SmartCraft™, see the *SmartCraft™ Gateways Installation and Operation Manual*.

GPS antenna (optional)

Yellow

Yellow

GPS/fuel AIS cable

White

SmartCraft™ Gateway
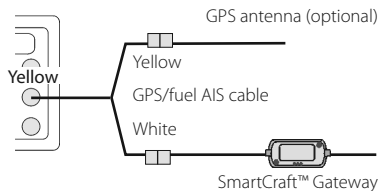
NavBus is Northstar's system for connecting instruments together to interchange data and share transducers. When instruments are connected by NavBus:

- If the units, alarms or calibration are changed in one instrument, then the values will automatically change in all other instruments of the same type.

- Each instrument can be assigned to a group of instruments. If the backlight is changed in an instrument in group 1, 2, 3 or 4 then the backlight will automatically change in the other instruments in the same group.

   If the backlight is changed in an instrument in group 0 then no other instruments are affected.

- If an alarm sounds, mute it by clearing the alarm on any instrument which can display that alarm.

NavBus and the 557/567

The 557/567 can:

- Display wind speed and direction from an optional Northstar Wind instrument.

- Receive and display depth from an optional Northstar depth instrument.

- Receive and display boat speed and water temperature from a paddlewheel sensor on an optional Speed instrument.

- Receive data from an optional Northstar VHF radio (with NavBus functionality). The 557/567 can display:

   Baro: barometric pressure

   Baro history: barometer history

   Weather: a predication, based on changes in barometric pressure

   Fish forecaster: a prediction based on changes in barometric pressure

   DSC/Buddy Track: (see section 14)

- Receive data from an optional GPS or GPS/DGPS source.

- Send data to optional Northstar instruments, for example to a repeater.

During setup for NavBus instruments, set NavBus to ☑ and assign the instrument a NavBus group number (see section 15-10)

Other NavBus instrument
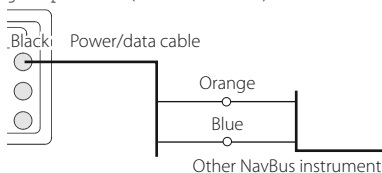
16-8-1 Installation: Northstar VHF radio

Fit and set up the optional Northstar VHF radio (with NavBus functionality) following the instructions supplied with the radio.

Radio data cable
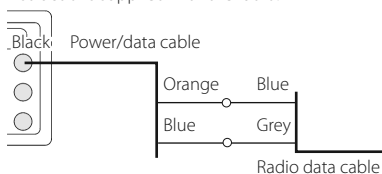
16-9 Installation: Other NMEA instruments

NMEA is an industry standard for interconnecting instruments. It is not as flexible or as easy to install as NavBus. The 557/567 can:

- Receive and display wind speed and direction from an optional compatible wind instrument.

- Receive and display depth, paddlewheel boat speed and water temperature from an optional compatible instrument.

- Receive data from an optional compatible GPS or GPS/DGPS source.

- Send GPS position and other navigation data to an autopilot or other instrument. An autopilot requires APB, APA and VTG sentences (see section 15-10).

- Receive data from an optional AIS receiver.

For information on sending NMEA data to the 557/567, see your Northstar dealer.

During setup to send NMEA data to other instruments, set NMEA out to ☑ and specify the NMEA data to send (see section 15-10).

Power/data cable
- White NMEA out
- Black NMEA ground
- GPS antenna
- Black
- Yellow
- Yellow
- GPS/fuel AIS cable
- White
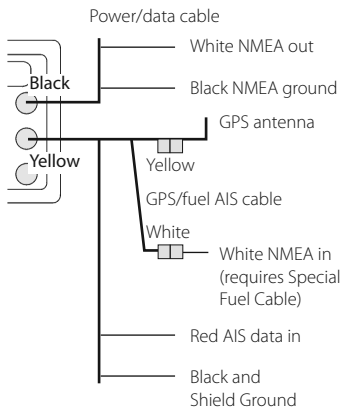- White NMEA in (requires Special Fuel Cable)
- Red AIS data in
- Black and Shield Ground

16-10 Installation: Setup and test

Setup and test

1 Put a blanking cap on any unused connector on the back of the display unit. Ensure all connectors are plugged in and the display unit is in place.

2 If the display unit is bracket mounted, adjust tilt and rotation for best viewing and hand tighten the knob.

3 Insert any required C-MAP chart card (see section 1-3).

4 Turn the instrument on (see section 2-3). When the 557/567 is turned on for the first time, it displays an installation menu:

   i Select the language to use.

   ii Change the data if necessary (see section 2-1)

   iii When the setup data is correct, press **ESC**.

This data can be changed later (see section 15).

5 Enter setup data to set up the 557/567 to your requirements and to set up any optional sensors or instruments (see section 15).

6 At the satellite window, check that it picks up GPS satellites. Wait for the GPS receiver to start up and the fix type to change from 'Acquiring' to 'GPS fix'. This should take less than two minutes (see section 7).

7 Go on a test run to check that the navigation equipment works correctly, particularly when a radio transmitter or radar is used.

Appendix A - Specifications

GENERAL

Size:

557: 5.9" H x 6.5" W x 2.6" D
(150 mm H x 164 mm W x 65 mm D)

567: 7" H x 7.7" W x 2.1" D
(179 mm H x 195 mm W x 54 mm D)

Display:

557: 5" diagonal, TFT color, 480 x 640 pixels

567: 6.4" diagonal, TFT color, 480 x 640 pixels

Backlight: Display and keys

Supply voltage

10.5 to 32 V DC.

Supply current: at 13.8 V

300 mA min - no backlighting

550 mA max - full backlighting

External beeper or light output: Switched to ground to sound alarm, 30 V DC, 200 mA maximum.

Operating temperature

32°F to 122°F (0°C to 50°C)

ALARMS:

- User set: Arrival radius, anchor, XTE, danger, dangerous AIS vessels, low fuel (optional), loss of DGPS fix

- Fixed: Loss of GPS fix

GPS NAVIGATION

Chart card: C-MAP™ NT-MAX, NT+ or NT

User card: 3.3 V C-MAP™

Waypoints: Up to 3000, with default or user-defined alphanumeric names up to eight characters.

Routes: 25 Routes, with up to 50 points each

Tracks: By time or distance, one track of 2000 points and four of 500 points.

Chart datums

- 121 Chart datums (see next page)

- One user-defined map shift.

Chart scale: 0.05 to 4096 nm for chart (chart dependent) down to 0.01 nm in plotter mode.

COMMUNICATIONS

NavBus

Connection to other Northstar instruments.

NMEA

- NMEA 0183 ver 2 4800 baud

- Inputs from compatible instruments: DBT, DPT (preferred), GGA, GLL, GSA, GSV, MTW, MWV, RMC, VHW, VTG

- Outputs, for compatible instruments: APA, APB, BWR, GGA, GLL, GSA, GSV, RMB, RMC, VTG, XTE
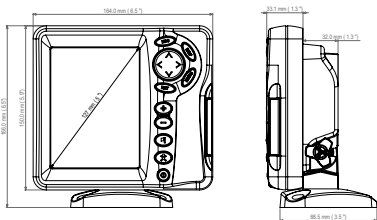
STANDARDS COMPLIANCE
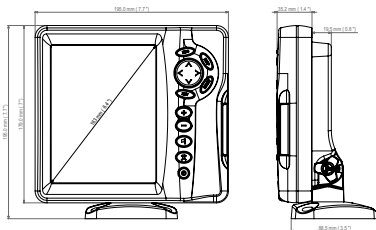
EMC:

- USA: FCC Part 15 Class B.

- Europe: (CE) EN301843-1:2004-06.

- New Zealand and Australia: (C Tick) EN60945 9.2 & 9.3.

Environment: IPx6/IPx7/CFR46 (with card holder and connections in place).

TRACKER 557

TRACKER 567

List of datums

Adindan	Afgooye	AIN EL ABD 1970
American Samoa 1962	Anna 1 Astro 1965	Antigua Island Astro 1943
ARC 1950	ARC 1960	Ascension Island 1958
Astro Beacon 'E' 1945	Astro DOS 71/4	Astro Station 1952
Astro Tern Island (Frig) 1961	Australian Geodetic 1966	Australian Geodetic 1984
Ayabelle Lighthouse	Bellevue (IGN)	Bermuda 1957
Bissau	Bogota Observatory	Bukit Rimpah
Camp Area Astro	Campo Inchauspe 1969	Canton Astro 1966
Cape	Cape Canaveral	Carthage
Chatham Island Astro 1971	Chua Astro	Co-ord. Sys.1937 Estonia
Corrego Alegre	Dabola	Deception Island
Djakarta (Batavia)	DOS 1968	Easter Island 1967
European 1950	European 1979	Fort Thomas 1955
Gan 1970	Geodetic Datum 1949	Graciosa Base Sw 1948
Guam 1963	Gunung Segara	GUX 1 Astro
Herat North	Hermannskogel	Hjorsey 1955
Hong Kong 1963	Hu-Tzu-Shan	Indian
Indian 1954	Indian 1960	Indian 1975
Indonesian 1974	Ireland 1965	ISTS 061 Astro 1968
ISTS 073 Astro 1969	Johnston Island 1961	Kandawala
Kerguelen Island 1949	Kertau 1948	Kusaie Astro 1951
L. C. 5 Astro 1961	Leigon	Liberia 1964
Luzon	M'Poraloko	Mahe 1971
Massawa	Merchich	Midway Astro 1961
Minna	Montserrat Island Astro 1958	Nahrwan Masirah Is. Oman
Nahrwan United Arab Emirates	Nahrwan Saudi Arabia	Naparima, BWI
North American 1927	North American 1983	North Sahara 1959
Observatorio Meteorolog. 1939	Old Egyptian 1907	Old Hawaiian
Oman	Ord. Survey Great Britain 1936	Pico de las Nieves
Pitcairn Astro 1967	Point 58	Pointe Noire 1948
Porto Santo 1936	Provis. South American 1956	Provis. South Chilean 1963
Puerto Rico	Pulkovo 1942	Qatar National
Qornoq	Reunion	Rome 1940
S-42 (Pulkovo 1942)	Santo (DOS) 1965	Sao Braz
Sapper Hill 1943	Schwarzeck	Selvagem Grande 1938
Sierra Leone 1960	S-JTSK	South American 1969
South Asia	Tananarive Observatory 1925	Timbalai 1948
Tokyo	Tristan Astro 1968	Viti Levu 1916
Voirol 1874	Voirol 1960	Wake Island Astro 1952
Wake-Eniwetok 1960	WGS 84	Yacare
Zanderij		

Appendix B - Troubleshooting

This troubleshooting guide is written with the assumption that the user has read and understood the relevant sections in this manual.

It is possible in many cases to solve difficulties without having to send the display unit back to the manufacturer for repair. Please follow this troubleshooting section before contacting the nearest Northstar dealer.

There are no user serviceable parts. Specialized methods and testing equipment are required to ensure that the display unit is reassembled correctly and is waterproof. Users who service the product themselves will void the warranty.

Repairs to the product may only be carried out by a service centre approved by Northstar. If the product must be sent into a service centre for repair, it is essential to send in the transducer(s) at the same time.

More information can be found on our Website: www.northstarnav.com.

B-1 General Problems

1-1 The 557/567 won't turn on:

a   The 557/567 is designed to operate on a 12/24 volt battery system, where the voltage may vary from 10.5 to 32 volts. If an excessive voltage is supplied, a fuse will be tripped, turning the display unit off. Check the fuse.

b   Check that the power cable connector at the back of the display unit is securely plugged in and the collar is locked in place. The collar must be secure for watertight connection.

c   Measure the battery voltage while the battery is under load - turn on some lights, radio or other electrical equipment connected to the battery. If the voltage is less than 10 volts:

-   the battery terminals or wiring on the terminals may be corroded.

-   the battery may not be charging correctly or may need replacing.

d   Inspect the power cable from end to end for damage such as cuts, breaks, squashed or trapped sections.

e   Ensure that the red wire is connected to the positive battery terminal and the black wire to the negative battery terminal. If wired for the Auto Power option, ensure the yellow wire is connected to the ignition circuit. Also check the boat's main switch circuit (see section 16-4).

f   Check for corrosion on the power cable connector and clean or replace if required.

g   Check fuses that are placed in line with the power cable. A fuse can be blown despite appearing to be good or the fuse may be corroded. Test the fuse or replace it with a fuse known to be good.

1-2 The 557/567 won't turn off:

The 557/567 may have been wired for Auto power. In this case, the 557/567 cannot be turned off while the ignition power is on (see section 2-3).

1-3 If the 557/567 beeps when turned on but nothing is displayed:

The 557/567 may be operating, but the backlight settings may have been set too low (see section 2-4).

1-4 The wrong language is displayed:

See section 15-1.

B-2 GPS navigation problems

2-1 No GPS fix or long time to get fix at startup:

a   May occur occasionally if the antenna does not have a clear view of the sky. The satellite positions are constantly changing.

b   Antenna cable not connected to display unit.

c   Restart the GPS (see section 15-3).

2-2 557/567 GPS position different from true position by more than 10 m (33 ft):

a   557/567 in simulate mode. Turn simulate mode off (see section 15-12).

b   The normal error in GPS position will exceed 10 m (33 ft) for about 5% of the time.

c   Under special circumstances the US Department of Defence may introduce a deliberate and changing error in the GPS positions of up to 300 m (1000 ft).

2-3 557/567 position different from same position on local charts:

a   557/567 in simulate mode. Turn simulate mode off (see section 15-12).

b   Incorrect chart datum. Select the correct chart datum (see section 15-2).

c   Map shift has been applied wrongly. Clear map shift, then reapply if necessary (see section 15-2).

2-4 Can not see boat on chart:

a   Press `ESC` to switch to centre on boat mode (see section 3-2-1).

2-5 The time or date on the satellite windows wrong or off:

a   No GPS fix.

b   In simulate mode. Turn simulate mode off (see section 15-12).

c   Local time offset is wrong (see section 15-11). The Local Time Offset must be changed when daylight saving time starts or ends.

2-6 Autopilot not responding to 557/567; no NMEA output:

a   NMEA output disabled or the required NMEA sentences are not turned on. Check NMEA settings (see section 15-10).

b   Check that the instrument is connected correctly.

2-7 No DGPS fix or loss of DGPS fix:

a   To receive a DGPS fix, WAAS/EGNOS must be enabled or an optional DGPS antenna fitted (see section 7).

b   With WAAS/EGNOS: Boat out of coverage area (see section 7).

c   With WAAS: GPS antenna does not have a clear view of the horizon towards the equator.

b   With beacon DGPS: boat out of range of a DGPS beacon.

B-3 Fuel consumption problems

3-1 Number of engines or tanks is wrong

Check that the number of engines and tanks is correct (see section 15-4).

3-2 Fuel flow(s) seem inaccurate:

a   Check that the fuel setup data is correct (see section 15-4).

b   Check that the fuel cable connectors are securely plugged in and the collar is locked in place. Check the fuel cable is not damaged or pinched.

c   A fuel sensor may be blocked.
A fuel filter must be installed between the fuel transducer and the fuel tank as described in the sensor installation manual.
Otherwise the warranty is void.

d   Recalibrate the fuel flow sensor(s) (see section 10-7).

e   Check that the fuel filter is clean.

f   In rough seas, fuel may surge back and forth through the fuel sensor(s), resulting in incorrect readings. Try installing a one-way valve between the fuel sensor(s) and the fuel tank.

3-3 Fuel remaining seems inaccurate:

a   The 557/567 is not wired for auto power (see section 15-4).

b   You added or removed fuel but did not tell the 557/567 (see section 10-3).

c   The fuel tank may not refill to the same capacity each time due to air pockets. This is a particular problem with underfloor tanks.

3-4 Erratic fuel flow readings:

a   The Flow filter value is not suitable for the engine. Check that the value is not set to zero, then try increasing the value until a steady flow rate is shown (see section 15-4).

b   The fuel flow sensor(s) may be too close to the fuel pump or may be subject to excessive vibration. Refer to the fuel sensor installation manual.

c   Check for leaks in the fuel line or in the fuel pickup in the tank.

3-5 There is no reading for fuel economy:

a   The boat must be travelling through the water to have a reading.

b   If you selected a paddlewheel sensor (see section 10-5-1), check that the paddlewheel spins freely.

Appendix C - Glossary and navigation data

Glossary

Attention Area - An important area on a chart, such as a restricted anchorage or a shallow area (see section 15-2).

AIS - Automatic Identification System. A System where vessel information (location, course, speed, etc.) is broadcast by VHF radio, for use by other vessels in navigation and collision avoidance.

Bathymetric line - A depth contour line on the chart.

Chart card - A plug-in card that stores chart data for a region (see section 1-3).

C-MAP™ chart card - See Chart card.

C-MAP™ user card - See User card.

CPA - Closest Point of Approach. The closest distance two vessels will come to each other based on their current course and speed.

Cursor - A ⊹ symbol on the display (see section 3-2).

DGPS - Differential Global Positioning System. A navigation tool based on GPS with some errors corrected (see section 7).

DSC - Digital Selective Calling. A feature of marine radios enabling communication between specific vessels, as well as distress alerts.

Goto - A simple way of navigating straight to a waypoint or to the cursor position (see section 3-1).

GPS - Global Positioning System. A satellite-based navigation tool (see section 7).

Leg - The straight segments of a route between waypoints. A route with four waypoints has three legs.

MMSI - Maritime Mobile Service Identity. Unique identification number for a vessel, for use in Digital Selective Calling.

MOB - Man overboard.

MOB function - Starts navigating back to the place where someone fell overboard (see section 2-5).

NavBus - A way of connecting Northstar instruments together to share data (see section 16-8).

NMEA - National Marine Electronics Association.

NMEA 0183 - A standard for interfacing marine electronic devices (see section 16-10).

Route - Two or more waypoints linked in sequence to form a course for the boat (see section 6).

SmartCraft - A feature of Mercury Marine engines for monitoring engine performance.

TCPA - Time to Closest Point of Approach. Time until the closest point of approach for two vessels.

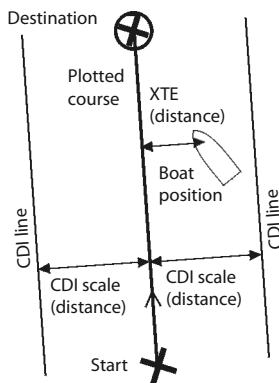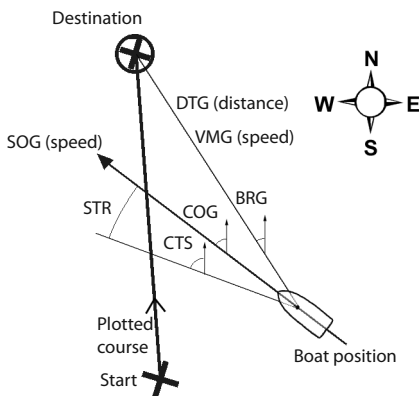**User card** - A plug-in card that stores waypoints, routes and tracks (see section 12).

UTC - Universal Time Coordinated or Coordinated Universal Time, which is a standard world time, formerly called Greenwich Mean Time (GMT).

VHF - Very High Frequency. The frequency range used by marine radios.

Waypoint - A position that you can set on the 557/567 chart, for example a fishing spot or a point on a route (see section 5).

Navigation data

BRG   Bearing to Destination: Bearing to the destination from the boat.

⊥BRG   Bearing to cursor: Bearing to cursor from boat (cursor mode, see section 3-2)

CDI   Course Deviation Indicator: When the boat is navigating to a point, the chart and highway windows show a parallel line on either side of the plotted course. These two lines are called the Course Deviation Indicator (CDI) lines. The distance from the plotted course to a CDI line is the CDI scale.

       Set the CDI scale (see section 15-2) to the maximum distance that the boat should deviate from the plotted course. The chart and highway windows show the CDI lines, which are like a highway over the water where the boat will move. The windows show how far the boat has deviated from the plotted course and if the boat is approaching a CDI line. If the XTE alarm is enabled (see section 15-7) an alarm will sound if the boat reaches a CDI line.

COG   Course Over Ground: Direction in which the boat is moving over the ground.

CTS   Course To Steer: Optimum course to steer to return to the plotted course.

DTG   Distance To Go: Distance from the boat to the destination.

ETA   Expected Time of Arrival: At the destination, assuming that SOG and COG remain constant.

⊥RNG   Range to cursor: Distance from boat to cursor (cursor mode, see section 3-2)

SOG   Speed Over Ground: Current boat speed over the ground. This is not necessarily the same as the boat speed through the water nor the speed at which it is approaching the destination.

STR   Steering: The difference between COG and CTS.

TTG   Time To Go: The estimated time to reach the destination.

XTE   Cross Track Error: The distance from the boat to the nearest point of the plotted course. XTE may have a letter: R means steer to the right to return to the plotted course, L means steer to the left.

VMG   Velocity Made Good: The speed at which the boat is approaching the destination.