



STANDARD HORIZON

CP155C / CP175C / CP1000C

GPS Chartplotter

Owner's Manual



CP155C

CP175C

CP1000C

WARNING!!!

Electronic charts displayed by the chartplotter are believed to be accurate and reliable, but that are not intended to be a substitute for the official charts, which should remain your main reference for all matters related to the execution of safe navigation.

For this reason we would like to remind you that you should carry on board and use the official published and approved nautical charts.



FCC Compliance Statement

This device complies with Part 15 of the FCC limits for Class A digital devices. This equipment generates, uses, and can radiate radio frequency energy and, if not installed or used in accordance with the instructions may cause harmful interference with radio communications.

There is no guarantee that interference will not occur in a particular instance. If this equipment does cause harmful interference to other equipment, try to correct the problem by relocating the equipment.

Consult an authorized STANDARD HORIZON dealer or other qualified service technician if the problem cannot be corrected. Operation is subject to the following conditions: (1) This device cannot cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

*Congratulations on you purchase of the GPS chartplotter!
Whether this is your first chartplotter, or if you have other STANDARD HORIZON equipment, the STANDARD HORIZON organization is committed to ensuring your enjoyment of this chartplotter. STANDARD HORIZON technical support personnel stand behind every product we sell, and our Product Support team invites you to contact us should you require technical advice or assistance, at 800/767-2450.*

CLEANING PROCEDURE FOR THE CHART PLOTTER SCREEN

Cleaning of the chartplotter screen is a very important operation and must be done carefully. Since the surface is covered by a antireflective coating, the procedure for cleaning all the surfaces can be performed using the following procedure: You need a tissue or lens tissue and a cleaning spray containing Isopropanol (a normal spray cleaner sold for the PC screen, for example PolaClear by Polaroid). Fold the tissue or lens tissue into a triangular shape, moisten the tip and use the index finger behind a corner to move the tissue across the surface, in overlapping side to side strokes. If the tissue is too wet, a noticeable wet film will be left in its path and you will need to repeat the process. If too dry, the tissue won't glide easily, and may damage the surface.

CAUTION

- The chartplotter is designed for maritime use. Please give attention to avoid water intrusion into the C-MAP NT+ C-CARD cartridge holder.
 - Extensive exposure to heat may result in damage to the chartplotter.
 - The chartplotter contains dangerous high voltage circuits which only experienced technicians can handle.
 - STANDARD HORIZON will not be liable for errors contained herein, or for incidental or consequential damages in connection with the performance or use of this material.
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TABLE OF CONTENTS

1. INTRODUCTION	11
1.0 GENERAL INFORMATION	11
1.1 PACKING LIST	11
1.1.0 CP155C Packing List	11
1.1.1 CP175C Packing List	12
1.1.2 CP1000C Packing List	12
1.2 OPTIONAL ACCESSORIES	12
1.2.0a CP155C Optional Accessories	12
1.2.0b CP1000C Optional Accessories	12
2. GETTING STARTED	15
2.0 MOUNTING THE GPS CHARTPLOTTER	15
2.1 BRACKET MOUNTING	15
2.2 FLUSH MOUNTING	15
2.3 MOUNTING THE GPS SMART ANTENNA	16
2.3.0 Flush Mounting	17
2.4 CONNECTIONS	17
2.4.0a Connection Table for CP155C/CP1000C	18
2.4.0b Connection Table for CP175C	18
2.4.1a Connection for CP155C	19
2.4.1b Connection for CP175C	19
2.4.1c Connection for CP1000C	19
2.5 BATTERY CONNECTIONS	20
2.6 NMEA CONNECTIONS	20
2.7 GPS POSITION ON A VHF RADIO	20
2.8 OPTIONAL BLACK BOX FISH FINDER	21
2.9 CONNECTING DIGITAL INSTRUMENTS/AUTOPILOT/RADAR	21
2.10 OUTPUTTING NMEA TO A PERSONAL COMPUTER	21
2.11 NMEA DATA PAGE	22
2.12 VIDEO INPUT (for CP1000C only)	22
2.12.0 Video Camera Input	22
2.12.1 VCR or DVD Input	22
2.13 OPTIONAL C-MAP NT+ CARTOGRAPHY	24
2.14 INSERTING THE C-CARD	24
3. CONTROLS AND INDICATORS	25
3.0 CONTROLS AND CONNECTIONS	25
3.0a The alphanumeric keys on CP1000C	26
3.0b The soft keys on CP175C/CP1000C	26
3.1 GETTING STARTED	26
3.1.0 Power On, Off and ShuttlePoint operation	26
3.1.1 Cursor Vs. Home Mode	27
3.1.2 Cursor and Menu selection speed	28
3.1.3 Changing the Ships Icon	28
3.1.4 Changing the backlight and contrast	29
3.1.5 Selecting North Up or Course Up	29
3.2 ADJUSTING THE TIME	30
3.3 SELECTING LORAN TD OR OTHER COORDINATE SYSTEM	31
3.4 CHANGING THE CHART COLOR	32
3.5 SELECTING PAGES USING SOFT KEYS	32
3.6 CUSTOMIZING THE SOFT KEYS	33

3.7	OTHER SETTINGS IN GENERAL SETUP MENU	33
4.	USING FIND SERVICES & MORE FUNCTION	35
4.0	PORT SERVICES	35
4.1	OTHER AVAILABLE SEARCHES	35
5.	CREATING MARKS	37
5.0	CREATING A NEW MARK USING THE CHART PAGE	37
5.1	EDITING a MARK	37
5.1.0	Deleting a Mark or Waypoint	38
5.1.1	Moving a Mark or Waypoint	38
5.2	MARK/WAYPOINTS LIST	39
5.3	Creating a NEW MARK with the MARK/WAYPOINTS LIST	39
5.4	GOTO CURSOR	40
5.5	GOTO MARK	41
6.	Man Over Board (MOB) Function	43
6.0	DELETING A MOB POINT	43
7.	ROUTES	45
7.0	CREATING A ROUTE USING WAYPOINTS	45
7.1	MAKING ADDITIONAL ROUTES	46
7.2	CREATING A ROUTE USING MARKS ON THE CHART PAGE	46
7.3	INSERTING A WAYPOINT INTO A ROUTE	47
7.4	GOTO A ROUTE	47
7.4.0	By select Route	47
7.4.1	By Cursor key	47
7.5	OTHER SETTINGS IN ROUTE MENU	47
8.	TRACKS	49
8.0	TRACKING	49
8.0.0	Saving and starting a new Track	50
8.0.1	Other Settings in Track Menu	50
8.1	USING THE TRIP LOG	50
8.1.0	Resetting the Trip Log	51
9.	USER C-CARD	53
9.0	USER C-CARD MENU	53
9.0.0	Formatting the User C-CARD	53
9.0.1	Transferring files to the optional User C-CARD	54
9.0.2	Loading a file	54
9.0.3	Deleting a file from the User C-CARD	54
9.0.4	Changing the User C-CARD	54
10.	PAGES	55
10.0	CHART PAGE	56
10.0.0	Window Selections	56
10.0.1	Additional Functions on Chart Page	57
10.0.2	Turning Off Information on Icon Points	57
10.0.3	Setting up the Chart Page using the Map Setup Selection	57
10.0.4	Advanced Chart SetUp	58
10.0.5	Customizing the Data Windows	59
10.1	CUSTOMIZING CHART SETTINGS	60
10.2	NAVIGATION PAGE	60
10.3	HIGHWAY PAGE	61
10.4	CELESTIAL PAGE	62
10.5	GPS STATUS PAGE	62
10.6	NMEA DISPLAY PAGE	63
10.7	NMEA DATA PAGE	63
10.8	NMEA DEPTH, WIND SPEED, TEMP AND SOG TREND PAGES	64

10.9	VHF DIGITAL SELECTIVE CALLING	64
10.9.0	Interfacing	64
10.9.1	DSC Distress Call	65
10.9.2	Position Request	65
11.	ADVANCED SETTINGS	67
11.0	INPUT/OUTPUT (NMEA)	67
11.1	NAVIGATE	67
11.2	COMPASS	68
11.3	ALARMS	69
12.	TROUBLE SHOOTING	71
13.	TECHNICAL TESTS	73
13.0	SYSTEM TEST	73
13.0.0	RAM Menu (reset)	73
13.0.1	DIM Menu	73
13.0.2	Cartridges	74
13.0.3	Serial Ports	74
13.0.4	Modem test	74
14.	SPECIFICATIONS	75
14.0a	CP155C SPECIFICATIONS	75
14.0b	CP175C SPECIFICATIONS	76
14.0c	CP1000C SPECIFICATIONS	77
14.1	Smart WAAS Receiver Specifications	78
15.	APPENDIX: TERMS	79
INDEX	81

1. INTRODUCTION

1.0 GENERAL INFORMATION

The GPS chartplotter is a precision-crafted, high-performance receiver for the Global Positioning System (WAAS GPS) constellation of satellites, providing precise location data with a host of navigation features. Idea for nautical use and sealed against water ingress. The GPS chartplotter is housed in a rugged, impact-resistant case with outstanding ergonomic design, for effortless operation.

The advanced features of the GPS chartplotter include:

- Direct sunlight viewable color LCD display
- Capable of using the Optional FF520 50/200kHz black box 500W or 1KW Fish Finder
- C-MAP NT or NT+ cartography compatible
- Improved New Worldwide background showing C-MAP NT+ detail up to 2.0 NM
- 12 Channel WAAS GPS Smart antenna, bracket and flush mounting hardware
- for CP155C : 600 Waypoints (Marks) / 20 Routes storage
- for CP175C : 1000 Waypoints (Marks) / 20 Routes storage
- for CP1000 : 3000 Waypoints (Marks) / 50 Routes storage
- User selectable data fields
- NMEA Data pages
- 3 NMEA Output and 3 Inputs
- Connections to and from STANDARD HORIZON DSC VHF's for Distress and Position Request calls
- 3 year limited warranty, lifetime flat rate

1.1 PACKING LIST

When the package containing the chartplotter is first opened, please check for the following contents.

If any parts are missing contact the dealer this chartplotter was purchased from.

Accessories and replacement parts may be ordered from STANDARD HORIZON's Parts Department at 562/404-270 Ext. 351 or via the web at www.standardhorizon.com.

1.1.0 CP155C Packing List

REPLACEMENT PART	ITEM
TT150001CP	External bracket (includes the knob)
RR150002CP	Dust cover
TT90000001	Power data cable
UU90000001	Flush mounting screws
RR15000001	Flush mount template
XUS0003911	Smart DGPS WAAS Antenna
XUCMP0066	Owner's Manual
XUCMP0067	Quick Reference Guide

1.1.1 CP175C Packing List

REPLACEMENT PART	ITEM
RR16000001	Quick Disconnect Bracket
RR16000002	Protective Cover
UU90000001	Flush mounting screws
RR16000003	Flush mount template
Q0000003	2 amp fuse and holder
XUS0003911	Smart DGPS WAAS Antenna
XUCMP0066	Owner's Manual
XUCMP0067	Quick Reference Guide

1.1.2 CP1000C Packing List

REPLACEMENT PART	ITEM
XUS0003907	Bracket
XUS0003908	Protective Cover
XUS0003909	Flush mounting screws
XUS0003910	Flush mount template
XUS0003913	2 amp fuse and holder
XUS0003911	Smart DGPS WAAS Antenna
XUCMP0066	Owner's Manual
XUCMP0067	Quick Reference Guide

1.2 OPTIONAL ACCESSORIES

1.2.0a CP155C Optional Accessories

PART NUMBER	ITEM
RR150003CP	Overhead mounting bracket

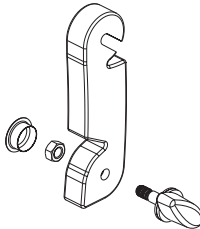


Figure 1.2.0a - CP155C Bracket

1.2.0b CP1000C Optional Accessories

PART NUMBER	ITEM
VC10	Color Video Camera with 40 feet of cable
ECVC10	34 feet Extension Cable
ACVC10	DVD or VCR adapter cable



Figure 1.2.0b - Color Video Camera



Figure 1.2.0ba - Extension Cable

2. GETTING STARTED

2.0 MOUNTING THE GPS CHARTPLOTTER

The GPS chartplotter is supplied with hardware for bracket or flush mounting. Below are pictures showing actual examples of the two types of installation.

2.1 BRACKET MOUNTING

The GPS chartplotter can be mounted using the supplied bracket. Before installing ensure the area the plotters bracket is mounted to is strong enough to support the weight of the chartplotter especially while under way.

After the location is found, attach the mounting base to the area using the supplied hardware.

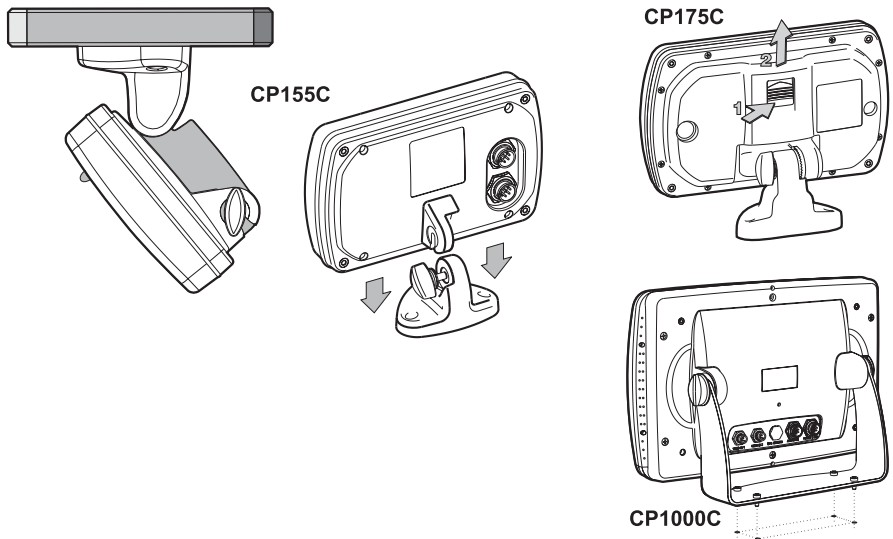


Figure 2.1 - Installing/removing chartplotter (Bracket)

2.2 FLUSH MOUNTING

The GPS chartplotter is supplied with a flush mount template for the cutout hole and screw holes required to install the chartplotter.

NOTE

Before drilling holes ensure there are no obstructions behind the location that could interfere with the mounting and there is physically enough room to mount the chartplotter.

1. After a location is found, peel the template label from the backing and apply the label to the mounting area.

2. Drill a hole in one area of the cut area that will allow the blade of a jig saw to be inserted. Insert and cut out the area on the panel using the jig saw.
3. Next drill the four holes required to insert the chartplotter with the mounting studs.
4. Install the mounting studs on the chartplotter and insert into the mounting hole.
5. Attach the chartplotter to the mounting location by attaching the supplied hardware to the mounting studs.

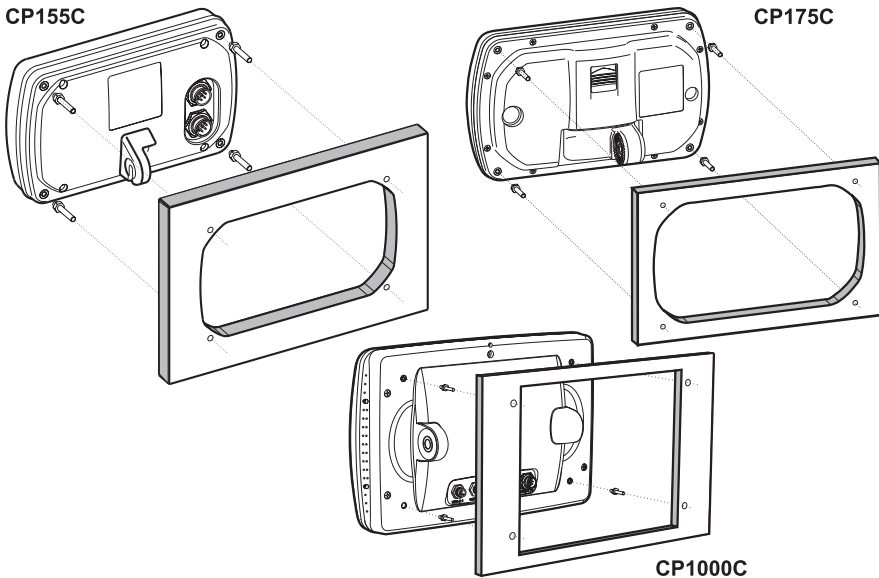


Figure 2.2 - Installing/removing chartplotter (Flush)

2.3 MOUNTING THE GPS SMART ANTENNA

The GPS chartplotter is supplied with a 12 Channel WAAS GPS Smart antenna. This antenna is designed to be mounted on a base, installed on an extension or even flush mounted.

Choose a location for the antenna that has a clear view of the sky and is not located within 3 FT of RADAR or other transmitting antenna. Ensure there are no major obstructions or fixtures in the immediate proximity to the antenna. The antenna relies on direct "line of sight" satellite reception. If you are unsure of the chosen location, temporarily mount the antenna in the desired location to verify correct operation. If mounted close to RADAR, and after the GPS chartplotter has a fix, turn on the RADAR to ensure the GPS chartplotter holds the fix (use the GPS Status Page).

The thread used on the antenna is an industry standard (1 inch 14TPI) used on a wide range of mounting brackets. Due to the manufacturing process of these mounting brackets you may see some slop when tightening down the antenna to the bracket. This is no concern however as the antenna must be tightened until the antenna stops rotating.

NOTE

The antenna cable can be cut and spliced to ease installation. Care must be taken when reconnecting the antenna cable to protect from water and corrosion.

2.3.0 Flush Mounting

NOTE

Before drilling holes, it is recommended the GPS antenna be positioned where the location is planned to be drilled, cable connected to the Plotter and the GPS chartplotter turned on to ensure a GPS FIX is received.

1. Remove the threaded base from the GPS antenna dome.
2. To ease installation a flush mounting template for the antenna has been included.
3. Apply the mounting template sticker to the area that was verified for GPS reception.
4. Then, drill out the 0.63" (16mm) and 0.16" (4mm) holes, and remove the template.
5. Insert the cable into the 0.63" (16mm) hole and route to the GPS chartplotter.
6. Apply a small amount of RTV to the under side of the antenna.
7. Place the antenna and then screw it into place using the screws. In some cases the screw may not be long enough, if this happens simply apply more RTV to the underside of the antenna to glue it into place.

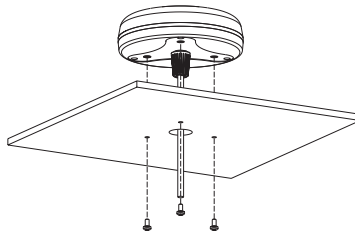


Figure 2.3.0 - Installing the GPS Smart antenna

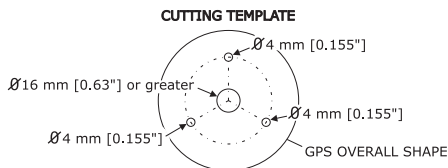


Figure 2.3.0 - Installing the GPS Smart antenna (Flush)

2.4 CONNECTIONS

The GPS chartplotter has a cable or connectors that are used to connect the chartplotter to Power Supply, to the GPS smart antenna, optional FF520 Black Box Fish Finder and to NMEA devices such as VHF's, digital instruments and autopilots.

NOTE

The GPS chartplotter can send many sentences to external NMEA devices. The NMEA output wires are Brown and White. If you have connected devices as shown in the below table and need to feed NMEA to other devices (Autopilot RADAR...) you can parallel wires from the Brown or White wires.

2.4.0a Connection Table for CP155C/CP1000C

12VDC Power and NMEA Cable

Pin	Wire Color	Description	Connection Example
1	Black	Battery Ground	Connect to battery ground and Black wire of GPS Antenna
2	Red	Battery Positive	Connect to Battery Positive and Red wire of GPS Antenna
3	Green	NMEA Common	Common for NMEA devices
4	Blue	VHF Input	Connect to VHF with DSC and DSE output
5	Brown	VHF output	Connect to VHF to supply GPS position data
6	Gray	Fishfinder Input	Standard Horizon Fishfinder, see FF520 owner's manual
7	White	Fish Finder Output	Standard Horizon Fishfinder, see FF520 owner's manual
8	Yellow	GPS Antenna Input	Connect to GPS Antenna Green wire

Smart GPS Cable

Pin	Wire Color	Description	Connection Example
1	Red	Battery Positive	Connect to Battery Positive and Red wire of GPS Antenna
2	Green	Smart GPS NMEA Input	Connect to Smart GPS Input
3	Brown	Smart GPS NMEA Output	Connect to Smart GPS Output
4		NC	
5		NC	
6	Black/Yellow	Battery Ground	Connect to battery ground and Black wire of GPS Antenna

NOTE

The CP155C and CP1000C have connectors on the rear panel that allow the GPS Smart antenna to be directly connected.

Video Connector for CP1000C

Pin	Description	Connection Example
1	Ground	Connect to Video Signal Ground of DVD/VCR/Video Cameras
2	+ 9 / 12 VDC	Connect to Video Cameras Power Input
3	Video Signal +	Connect to Video Signal + of DVD/VCR/Video Cameras

2.4.0b Connection Table for CP175C

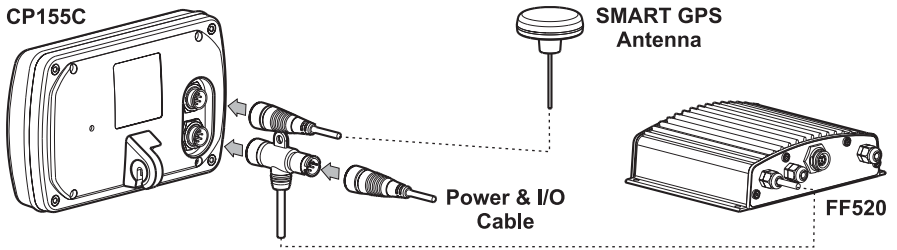
12VDC Power and NMEA Cable

Wire Color	Description	Connection Example
Black	Battery Ground	Connect to battery ground and Black wire of GPS Antenna
Red	Battery Positive	Connect to Battery Positive and Red wire of GPS Antenna
Green	NMEA Common	Common for NMEA devices
Blue	VHF Input	Connect to VHF with DSC and DSE output
Brown	VHF output	Connect to VHF to supply GPS position data
Gray	Fish Finder Input	Standard Horizon Fish Finder, see FF520 owner's manual
White	Fish Finder Output	Standard Horizon Fish Finder, see FF520 owner's manual
Yellow	GPS Antenna Input	Connect to GPS Antenna Green wire
Pink	GPS Antenna Output	Connect to GPS Antenna Brown wire
Orange	Not used	No connection

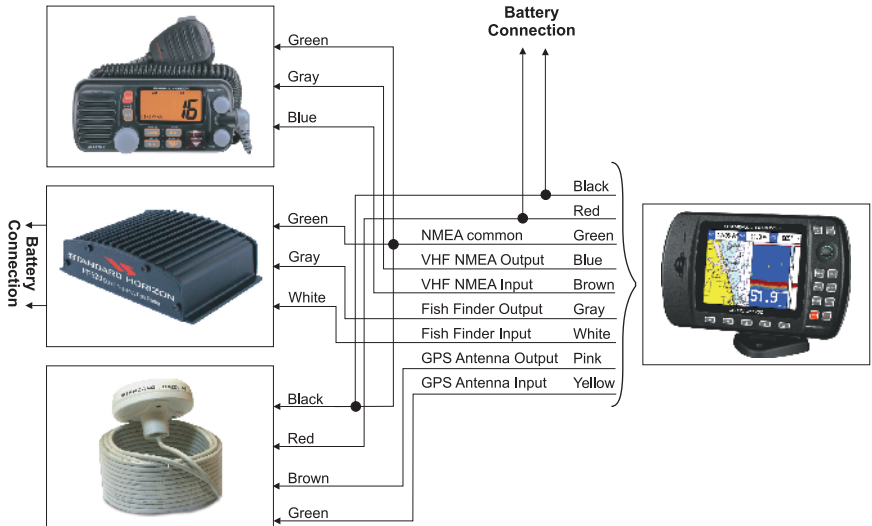
NOTE

For the CP175C the GPS Smart antenna should be wired according to the below diagram.

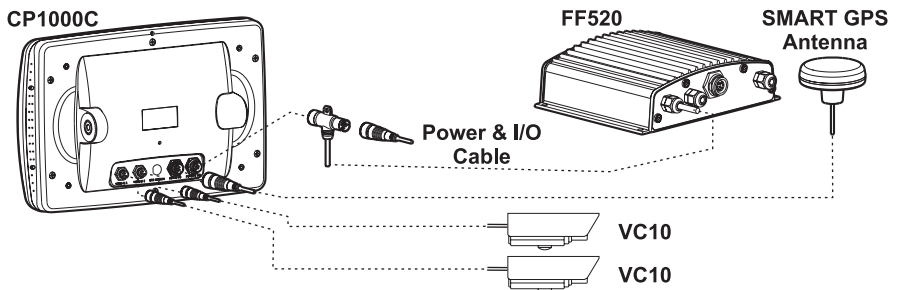
2.4.1a Connection for CP155C



2.4.1b Connection for CP175C



2.4.1c Connection for CP1000C



2.5 BATTERY CONNECTIONS

1. The GPS chartplotter is supplied with a fuse and holder. This fuse should be installed into the Black wire to protect the NMEA output/input circuits from becoming damaged.
2. Connect the Red and Black wires from the GPS chartplotter and the GPS antenna together and route to a 12VDC source as direct as possible,

2.6 NMEA CONNECTIONS

The GPS chartplotter can be connected external devices with NMEA and display information, examples:

- DSC VHF Radio
- Optional FF520 Dual frequency Black Box Fish Finder
- Depth Sounder, Speed Log, Wind Instrument, AutoPilot etc.
- Radar
- Personal Computer

2.7 GPS POSITION ON A VHF RADIO

STANDARD HORIZON has pioneered Digital Selective Calling (DSC) on VHF radios. Advancements in DSC have made it possible to show the coordinates of a vessel that has transmitted a DSC Distress Call or even Poll the location of another vessel and show the position of that vessel on the display of STANDARD HORIZON VHF's.

STANDARD HORIZON has taken this feature one step further, if the Standard Horizon GPS chartplotter is connected a STANDARD HORIZON DSC capable VHF, the vessel in Distress or the polled position of the vessel is shown on the display of the GPS chartplotter, making it easy to navigate to the location of the vessel. This is a great feature that could save someone's life or for anyone wanting to know the position of another vessel.

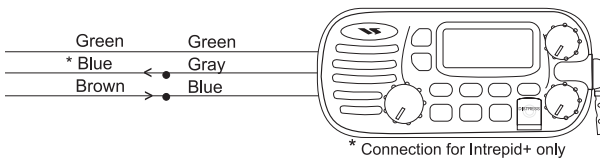


Figure 2.7 - GPS Position on a VHF Radio Connections

Other DSC VHF Manufactures

GPS Chartplotter	Description	VHF
Green	NMEA Common Ground	Connect to NMEA Ground
Brown	NMEA Positive Output	Connect to NMEA Input
Blue	NMEA Positive Input	* Connect to NMEA Output (if available)

* Some manufactures of DSC VHF's are not capable to receiving DSC information from the GPS chartplotter.
Refer to the owner's manual of the VHF.

NOTE

Refer to VHF Digital Selective Calling section for operation.

2.8 OPTIONAL BLACK BOX FISH FINDER

STANDARD HORIZON offers an optional black box fish finder called FF520. Pls refer to the manual supplied with the Fish Finder for connections and operation.



Figure 2.8 - Fish Finder FF520

2.9 CONNECTING DIGITAL INSTRUMENTS/AUTOPILOT/RADAR

The GPS chartplotter can be connected to any of the following instrument if they have NMEA output: Depth Sounder, Speed Log with temperature, Wind Speed and Direction, Flux Gate Compass, Auto Pilot and Radar.

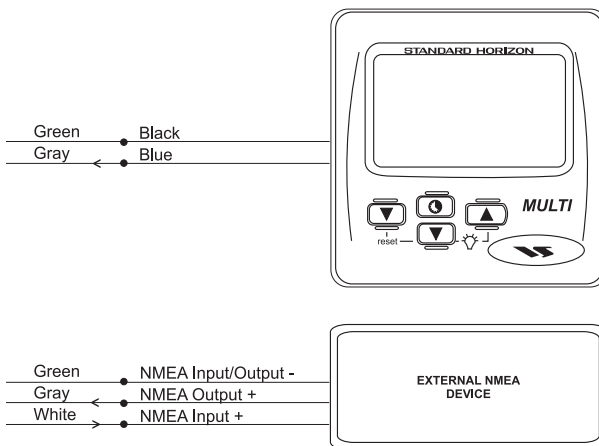


Figure 2.9 - Connecting Digital Instruments/Autopilot/Radar

2.10 OUTPUTTING NMEA TO A PERSONAL COMPUTER

The GPS chartplotter can be connected to output Marks, Routes and tracks to many PC programs available in the aftermarket. To send or receive User points the PC Program must be able to receive NMEA WPL and RTE sentences.

Pin	PC DB9 connection	NMEA connection	or	NMEA connection
2	Receive	Brown		White
3	Transmit	Blue		Gray
5	Signal ground	Green		Green

2.11 NMEA DATA PAGE

The NMEA Data Page is very useful to see if a External device (example: Depth Sounder) is transmitting NMEA sentences to the GPS chartplotter. This page can also be used to see if the GPS chartplotter NMEA output is being loaded down by a external NMEA device the GPS chartplotter is connected to.

Scenario:

VHF Radio connected but the radio is not receiving a GPS Position.

Usually the VHF radio will be connected to the Green and Brown wires. To check to see if the GPS chartplotter is transmitting the sentences:

1. Press **[MENU]** and highlight **NMEA DISPLAY** with the ShuttlePoint knob.
2. Press **[ENTER]** or move the ShuttlePoint knob to the right and highlight **DATA**
3. Press **[ENTER]** or move the ShuttlePoint knob to show the **NMEA DATA** page.
4. Connect the BLUE Wire on the GPS chartplotter to the junction of the Brown wire and the VHF wire. The display should look similar to the picture below.

```

NMEA DATA
#LCUTG,134,T,134,M,028.0,N,051.0,K#58
#GPRMB,075438,4343,869,N,01020.692,E,1,12,99,00,-15
.0,M,49.50,M,1812#66A
#LCBLL,4343.88,H,01020.68,E#7E.0,K#58
#GPRMC,075436,A,4343.880,N,01020.677,E,028.0,134,08
0900.00,A#0F
#LCUTG,134,T,134,M,028.0,N,051.0,K#58e φ
#GPRMB,075436,4343,890,N,01020.677,E,1,12,99,00,-15
.0,M,49.50,M,1812#6A
#LCBLL,4343.87,H,01020.69,E#700,R#RUV δ
#GPRMC,075438,A,4343.869,N,01020.692,E,028.0,134,08
0900.00,A#5D
ENTER TO STOP
ZOOM IN TO CHANGE Port: NMEA1

```

Figure 2.11 - NMEA Data page

2.12 VIDEO INPUT (for CP1000C ONLY)

2.12.0 Video Camera Input

STANDARD HORIZON offers a above deck waterproof color camera called VC10. Up to 2 cameras can be attached to the CP1000C with the rear panel connectors.



Figure 2.12.0 - Color Video Camera

2.12.1 VCR or DVD Input

A VCR or DVD may be connected to either Video1 or Video2 port. The CP1000C does not have speakers so the audio from the VCR or DVD would have to be routed to a stereo system.

Standard Horizon offers an optional cable called ACVC10 that allows any VCR or DVD to simply be plugged into the CP1000C.

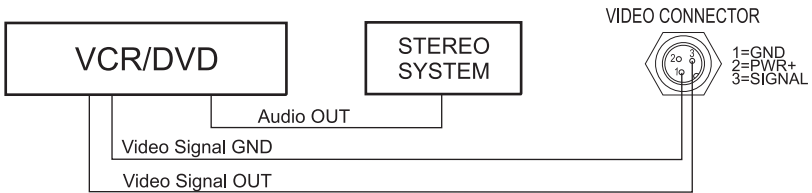


Figure 2.12.1 - VCR/DVD Input

The CP1000C has the capability to select the Video Input in three ways.

1. From the menu

Press **[MENU]**, select **SETUP**, press **[ENTER]**, select **VIDEO INPUT** press **[ENTER]**. A menu appears with the following options:

- a. **ACTIVATE VIDEO**, the possible choices are Input 1, Input 2, Auto Switch (*).
Activates the video mode to show the selected Video Input. If **Input 1** or **Input 2** is chosen, the chart plotter will show a warning message with the instructions to adjust the image from the selected Video Input. If the user agrees to proceed, the image from the selected video input will be shown. If **Auto Switch** is chosen, all the menus will be closed and the video input will be shown switching between the other Video Input (if connected) and the CHART page. See next section for details of setting up the switching times. If the user agrees to proceed, the image from the selected video input/s and the chart plotter page will be shown intermittently. The intermittence time is selected by Switching Timeout item.
- b. **SWITCHING TIMEOUT**, the possible choices are 5,10,30 sec, 1, 5, 10 min. Allows selecting the timing to change from Video inputs and chart plotter display.
- c. **RESTORE DEFAULTS**, the possible choices are Input 1, Input 2, All (*). Allows restoring the factory defaults for the Input 1 and Input 2 picture adjustment. The user can decide to reset the default for Input 1 or Input 2 individually, or to restore the defaults of the two Video Input simultaneously. When Restore default is executed, the message "OK" is shown next to the selected menu item.

NOTE (*)

If the video signal is not present on the video connector, the corresponding item in the menu will be shown with a light color (to identify that the option is not available).

2. Quick Activation by pressing **[CLEAR]** for 1 second

Pressing and holding **[CLEAR]** for 1 second from the Map Display or from any main page (Chart, Navigation, Highway, Celestial, GPS Status, DSC, NMEA DISPLAY); the following soft keys are shown: "INPUT 2", "INPUT 1", "AUTO SWITCH". If no video signal is detected on the Video Input connectors, the 3 soft keys will be shown in light color in order to identify that they are not active. If only one video signal is detected on the Video Input connectors, the corresponding soft key and "AUTO SWITCH" will be shown with dark color and the other soft keys will be shown with light color.

3. Quick Activation by soft keys

It will be possible to assign the possibility to set the Video Input mode to any of the 5 soft keys. Press one of the soft keys, the soft keys functions are shown. Pressing and holding for 1 second one of the soft keys, the soft key customization list will be shown. By selecting **VIDEO** option it will be possible to assign the soft key to execute the Video Input function. Once the soft key has been associate to Video Input, its label will show the message

“VIDEO”. If “VIDEO” is pressed, the soft keys will be assigned this way: “INPUT 2”, “INPUT 1”, “Auto SWITCH”. From now on, the functioning is identical to case 2.

2.13 OPTIONAL C-MAP NT+ CARTOGRAPHY

STANDARD HORIZON has taken advantage of C-MAP's experience with professional navigation, by allowing the use of the refined and improved cartography called NT+. The new cartography of NT+ makes creative use of colors, patterns and icons to increase the familiarity and usability of the much larger coverage database of NT+. NT+ is supplied by C-MAP in four sizes Local, Standard, Wide and SuperWide. For convenience the older NT and the NT+ are both compatible with all STANDARD HORIZON chartplotters. Contact C-MAP USA at (508) 477-8010 or visit www.c-map.com for further information on NT+.

2.14 INSERTING THE C-CARD

Hold the C-CARD by the long inclined side so that you can see the C-MAP label.

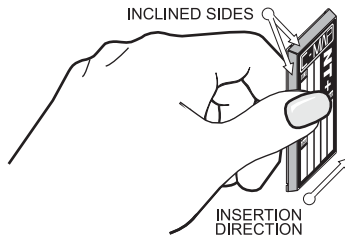


Figure 2.14 - Inserting C-CARD

Open the door, gently push the C-CARD into one of the two slots (one slot for CP155C): push the C-CARD in as far as it will go, then close the door.

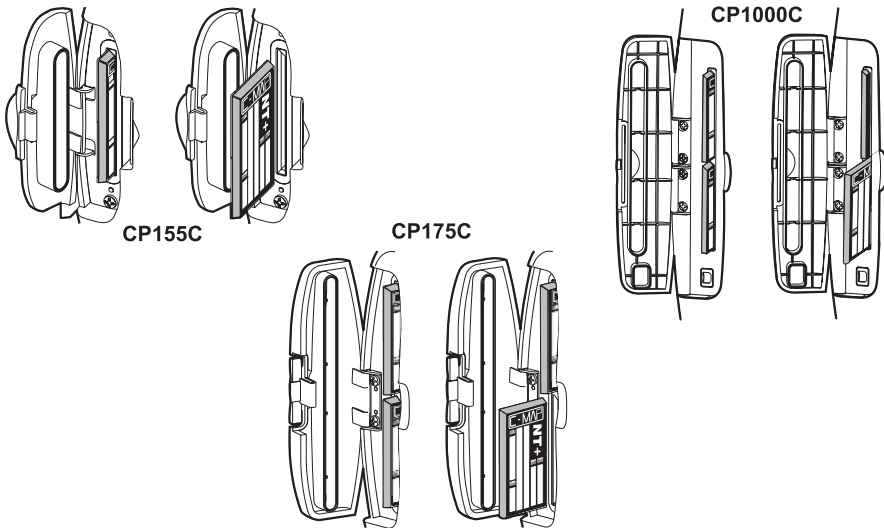


Figure 2.14a - Inserting C-CARD (Details)

3. CONTROLS AND INDICATORS

NOTE

This section defines each control of the chartplotter. For instructions, refer to Getting Started and Advanced Settings sections of this Owner's Manual.

3.0 CONTROLS AND CONNECTIONS

The chartplotter is controlled by using the keys located on the front panel. These labeled keys are dedicated to specific functions. As you press a key, a single audio beep confirms the key action; every time a key press is not valid, three rapid beeps sound to indicate that the key action is not valid. There is also a ShuttlePoint knob to move the cursor across the screen.

The ZOOM IN and ZOOM OUT keys

Pressing [**ZOOM IN**] shows more detail of a smaller area, by changing the chart scale and zooming in on your display. Press [**ZOOM OUT**] to change the scale and show a wider, otherwise less detailed view. Pressing and holding [**ZOOM IN**]/[**ZOOM OUT**] allows the quick zoom, that is the fast change of the chart scale where only the land areas are drawn. When [**ZOOM IN**]/[**ZOOM OUT**] is released all map details are shown.

NOTE

The GPS chartplotter contains a background map of North America that allows you to zoom into 2NM. For more detail, a C-MAP NT or NT+ card must be purchased and installed.

The ShuttlePoint knob

The ShuttlePoint knob moves the cursor about on the display screen, quickly and accurately. It also scrolls the desired option in the menu page(s). It allows to exit from Home mode to Cursor mode. When into menu pages moving it to right selects the desired option, as [**ENTER**], moving it to the left exits from menu, as [**CLEAR**]. For a detailed explanation of Cursor VS home mode refer to section: 3.1.1.

The ENTER key

Press [**ENTER**] to select the desired option or to confirm selection.

The CLEAR key

Press [**CLEAR**] to set Home mode. Also press [**CLEAR**] to exit from menu or data windows or to leave a menu without making changes, to abort selected function or to step backward from a selection made in the menu.

The MENU key

Selects the Main Menu. When in menu mode, moving the ShuttlePoint knob to the right enters a selection, moving the knob to the left clears the function.

Press and holding [**MENU**] for 3 seconds allows you to change the fields contained within the data windows while on the Chart, Navigation, Highway, GPS Status or NMEA Display Page. If pressing [**MENU**] for 3 seconds from Data pages (Navigation, Highway, GPS Status, NMEA Display) allows to customize all data fields shown in the selected page.

The GOTO key

This key is very useful when you desire to start navigating (goto) to a destination point. When pressed shows a popup window that allows you to select to start navigating to the position of the cursor, Mark or Route.

The MARK key

Places Mark under the ships position when in Home Mode (in Cursor Mode under the cursor).

The ROUTE key

When pressed places a Waypoint. Succeeding presses place more Waypoints to form a Route.

The PWR key and Lamp/Contrast

Press and hold **[PWR]** to turn the chartplotter on or off. Once on press **[PWR]** to show the Contrast and Lamp popup window. Press and immediately release **[PWR]** to adjust light and contrast on the display.

The MOB key

When pressed the GPS chartplotter automatically places a Mark on the Chart Page and all navigation is towards the position of the MOB Mark.

3.0a The alphanumeric keys on CP1000C

The 10 alphanumeric keys

The 10 alphanumeric keys are used for entering in alphanumeric data.

For alphanumeric input: pressing the key the first time enters the first letter, the second time it enters the second letter, the third time it enters the third letter; the fourth time it enters the number. After a short time the entered character (letter or number) is confirmed and the cursor is moved to the next location.

For numeric input: to enter a number in a Lat Lon: press the key of the number you wish to enter, continue pressing the numbered keys until the lat lon is entered. The cursor is moved to the next position. Pressing the ShuttlePoint knob up/down changes the value; pressing the ShuttlePoint knob left/right moves the cursor to the previous/next location.

3.0b The soft keys on CP175C/CP1000C

The 5 keys in the bottom part of the front panel (hereinafter named soft keys) have different functions associated depending on the software: their labels are shown on the screen immediately above the keys (the user can customize the function associated).

The soft keys

These keys allow quick selection to the many pages the GPS chartplotter has. These key can be customized to your preference, however from the factory the keys are preprogrammed with the following pages. From left to right CHART, NAV, HIGHWAY, CELESTIAL, NMEA DISPLAY. Press any of the keys and you will see popup windows above the keys. To go to a specific page press the key with the desired popup window. The popup windows will automatically disappear if a key is not pressed or can be removed by pressing **[CLEAR]**.

3.1 GETTING STARTED

The Getting Started section will take you through the frequently used operations and assist you to customize the look of the chartplotter.

Legend: **[MENU]**

If you see brackets around a bold and capital letter word this refers to a key press.

GENERAL SETUP When a word(s) is bold capital letters and underlined, this refers to a menu selection item.

3.1.0 Power On, Off and ShuttlePoint operation

1. Press and hold **[PWR]** until the display shows the startup page. To turn off, press and hold **[PWR]** until the display turns off.

- When the power is first turned on two pages are briefly shown before the GPS Status page.



Figure 3.1.0 - Start-Up pages

- When the GPS chartplotter is first turned on it will take some time for the GPS to acquire a fix of your position. Look closely at the GPS Status page and you will see satellites and relative signal strengths. After a fix is received the chartplotter will automatically switch to the Chart Page with a ships icon centered on the screen.

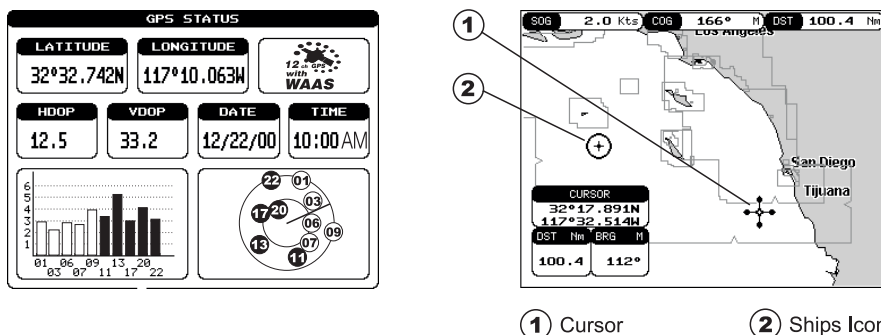


Figure 3.1.0a - GPS Status and Chart pages

- On the Chart Page the ShuttlePoint knob is used to pan around the chart. Move the ShuttlePoint knob to the left and you will notice a cross hair $\cdot\ddagger\cdot$ appears, this is called the cursor.
- When you move the ShuttlePoint knob you will notice DST and BRG values in the Data window change. This shows the Distance and Bearing from the GPS Fix of your vessel to the position of the Cursor.
- If the cursor is moved to the edge of the screen the chartplotter will automatically pan in the desired direction.

3.1.1 Cursor Vs. Home Mode

Cursor Mode


When the $\cdot\ddagger\cdot$ cursor is shown on the Chart Page, this is called Cursor mode.

In Cursor mode the position of the vessel will not stay in the center of the page and will move right off the edge of the screen (as your boat moves) Cursor mode allows you to pan around and look at areas on the map. In this mode you can also measure distance and bearings from your current position.

NOTE

To change from Cursor Mode to Home Mode press **[CLEAR]**.

Home mode

When the  ships icon is only shown on the Chart page (cursor is not shown) you are in home mode. Now as the ship moves through the water the vessels position will be kept in the center of the display.

3.1.2 Cursor and Menu selection speed

The chartplotter allows you to control the speed the Cursor moves when the ShuttlePoint knob is pressed. To change the speed:

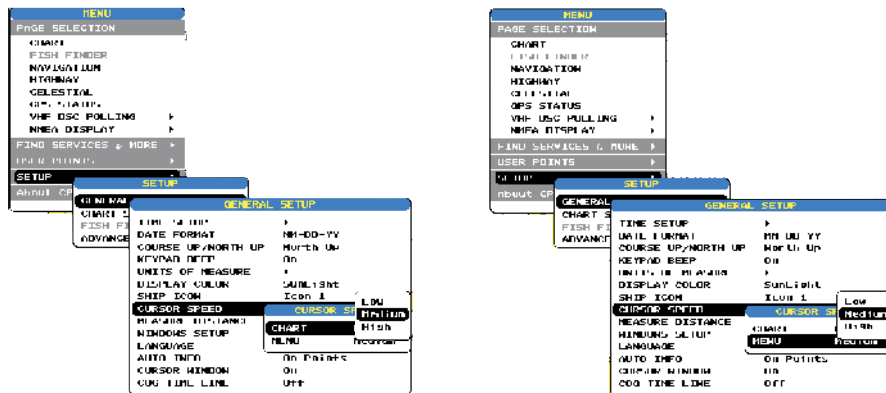


Figure 3.1.2 - Cursor Speed menu

1. Press **[MENU]**. Move the ShuttlePoint knob to **SETUP** and either press **[ENTER]** or move the ShuttlePoint knob to the right.
2. Move the ShuttlePoint knob to **CURSOR SPEED** and press **[ENTER]** or move the ShuttlePoint key to the right.
3. The menu now shows two selections, CHART and MENU which allows the cursor speed to be selected to High, Medium or low on Chart page or within the menus.
4. With **CHART** or **MENU** selected press **[ENTER]** or move the ShuttlePoint knob to the right. Move the ShuttlePoint knob to the desired setting and press **[ENTER]** or move the ShuttlePoint knob to the right.
5. Press **[CLEAR]** until the menu disappears or an easier method is to press the Shuttlepoint knob to the left a few times.
6. Move the cursor on the Chart page and see if the speed is to your liking.

3.1.3 Changing the Ships Icon

The cursor may be changed to any of the following:

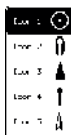


Figure 3.1.3 - Ships icons

1. Press **[MENU]** and move the ShuttlePoint knob to select **SETUP** and press **[ENTER]**.
2. Move the ShuttlePoint knob to select **GENERAL SETUP** and press **[ENTER]**.
3. Now select **SHIP ICON** and press **[ENTER]** or move the ShuttlePoint knob to the right to show the popup window with ship icons.
4. Move the ShuttlePoint knob to select the desired icon and press **[ENTER]** or move the ShuttlePoint knob to the right to select a new icon.
5. Press **[CLEAR]** or move the ShuttlePoint knob to the left to exit the menu and show the Chart Page.

3.1.4 Changing the backlight and contrast

With the chartplotter turned On, briefly press **[PWR]** to show the light and contrast popup window. Move the ShuttlePoint knob to the left or right to adjust the LCD backlight intensity or up or down to change the LCD contrast. Press **[ENTER]** to set.

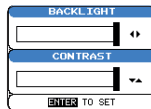


Figure 3.1.4 - Backlight and Contrast adjustment

3.1.5 Selecting North Up or Course Up

The default selection is **NORTH UP**, however you may want the top of the Chart Page oriented so it will always show the area ahead of the direction your vessel is traveling which is called **COURSE UP**.

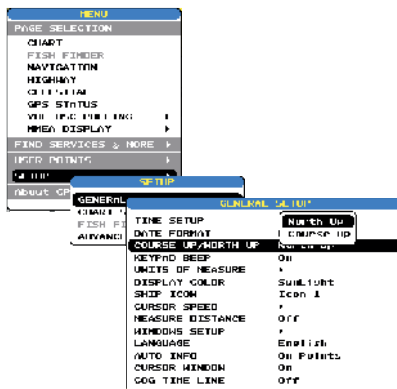



Figure 3.1.5 - General Setup menu

1. Press **[MENU]**, move the ShuttlePoint knob to select **SETUP** and press **[ENTER]** or move the ShuttlePoint knob to the right.
2. Move the ShuttlePoint knob to **GENERAL SETUP** and press **[ENTER]** or move the ShuttlePoint knob to the right.
3. A popup window will be shown, move the ShuttlePoint knob to **COURSE UP/NORTH UP** and press **[ENTER]** or move the ShuttlePoint knob to the right.
4. Another popup window will be shown with **NORTH UP** and **COURSE UP**, move the ShuttlePoint knob to the desired selection and press **[ENTER]** or move the ShuttlePoint knob to the right.

- Press **[CLEAR]** or move the ShuttlePoint knob to the left to exit the menu and show the Chart Page.

NOTE

When the chartplotter is in COURSE UP mode a small arrow icon  will be shown on the Chart page indicating the direction of North.

3.2 ADJUSTING THE TIME

The time information supplied by the GPS satellites is in Universal Time Coordinates (UTC or Greenwich England Mean Time). To change the chartplotter to read the correct time, first you must figure out the offset and if it is daylight savings time. For example on the West coast of the United States or Pacific Standard Time the offset needed would be -08:00 or -07:00 for daylight savings time, Eastern Standard Time -05:00 or -04:00 for daylight savings time.

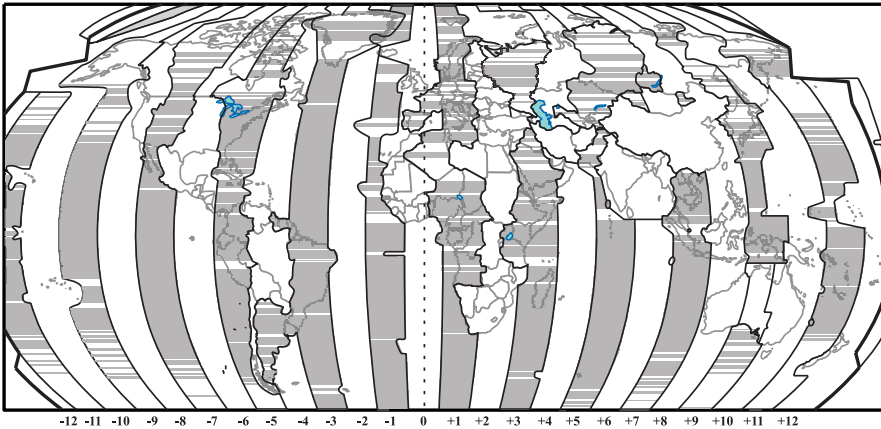


Figure 3.2 - Adjusting Time

NOTE

This map shows offset for standard time. For daylight saving time, subtract one hour from the offset time.

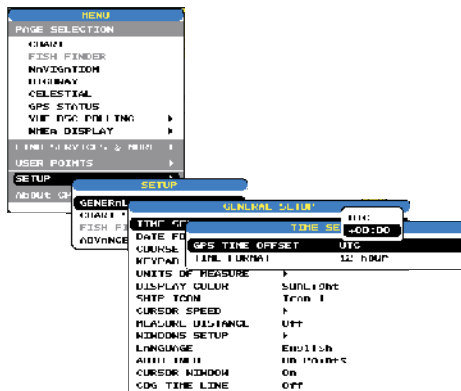


Figure 3.2a - General Setup/Time Settings menu

1. Press **[MENU]**, select **SETUP** and press **[ENTER]** or move the shuttlepoint knob to the right.
2. Move the ShuttlePoint knob to **GENERAL SETUP** and press **[ENTER]** or move the ShuttlePoint knob to the right.
3. Move the shuttlepoint knob to **TIME SETUP** and press **[ENTER]** or move the shuttlepoint knob to the right.
4. Move the shuttlepoint knob to **GPS TIME OFFSET** and press **[ENTER]** or move the shuttlepoint knob to the right.
5. Move the ShuttlePoint knob down to select **+00:00**, press **[ENTER]** and move the ShuttlePoint knob to the right to edit the number.
6. Look at the table and find the offset for your area. You will need to enter this offset to make the GPS chartplotter show the correct time.
7. Move the Shuttlepoint knob the **“+”**. Move the ShuttlePoint knob up or down to change to the desired offset.
8. Next move the ShuttlePoint to the right to select Hours and move the ShuttlePoint up or down to change the hour.
9. Repeat this method to change the minutes if necessary.
10. Once you have the correct GPS time offset, press **[ENTER]** to set.

3.3 SELECTING LORAN TD OR OTHER COORDINATE SYSTEM

The GPS Fix coordinates can be changed to show Latitude/Longitude, Loran TD's or UTM. Below is the window that will appear when customizing the coordinate system.

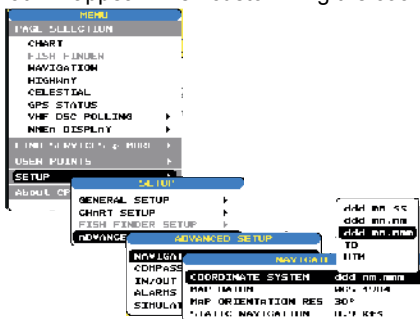


Figure 3.3 - Coordinate System Menu

1. Press **[MENU]** and move the ShuttlePoint knob to select **SETUP**.
2. Move the ShuttlePoint knob to **ADVANCED SETUP** and press **[ENTER]** or move the ShuttlePoint knob to the right.
3. Move the shuttlepoint knob the select **NAVIGATE**.
4. Press **[ENTER]** or move the ShuttlePoint knob to the right and select **COORDINATE SYSTEM**.
5. Press **[ENTER]** or move the ShuttlePoint knob to the right to show the coordinate selection popup window.
6. Move the ShuttlePoint knob to highlight the desired coordinate type and press **[ENTER]** or move the ShuttlePoint knob to the right.
7. Press **[CLEAR]** or move the ShuttlePoint knob to the left until the chart page is shown.

NOTE

If the TD is selected, you should set the Chain, Pair, ASF1, ASF2 and Alter. If the TD numbers are

not correct the Pair letters may be backwards. Reversing the two letters usually solves this issue.
Example Y/Z change to Z/Y.

3.4 CHANGING THE CHART COLOR

The GPS chartplotter has preprogrammed settings allowing you to customize the look of the Chart Page. The default is "Sunlight" however there are other settings; Normal, Classic and Night. Night is very useful during evening hours so not to impair night vision.

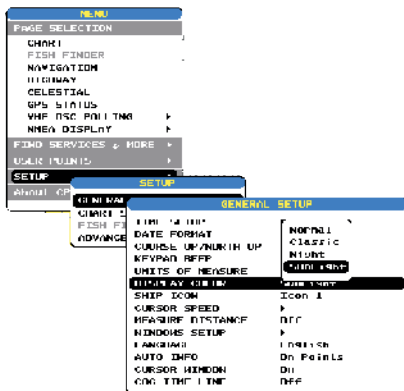


Figure 3.4 - Display Color menu

1. Press **[MENU]**, move the ShuttlePoint knob down to select **SETUP** and press **[ENTER]** or move the ShuttlePoint knob to the right.
2. Move the ShuttlePoint knob to select **GENERAL SETUP** and press **[ENTER]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to select **DISPLAY COLOR** and press **[ENTER]** or move the ShuttlePoint knob to the right.
4. A popup window will be shown with Normal, Classic, Night and Sunlight, move the ShuttlePoint knob to the desired selection and press **[ENTER]** or move the ShuttlePoint knob to the right.
5. Press **[CLEAR]** or move the ShuttlePoint knob to the left to exit the menu and show the Chart Page.

3.5 SELECTING PAGES USING SOFT KEYS

The Soft Keys located under the LCD on the CP175C and CP1000C are used to select the pages quickly without the need to go into the menu. The default pages are CHART, NAV, HIGHWAY, CELESTIAL and NMEA DISPLAY.

When one of the Soft Keys is pressed popup windows above each key are shown with the key description. Press the key with the desired page description and the chartplotter will change to that page.

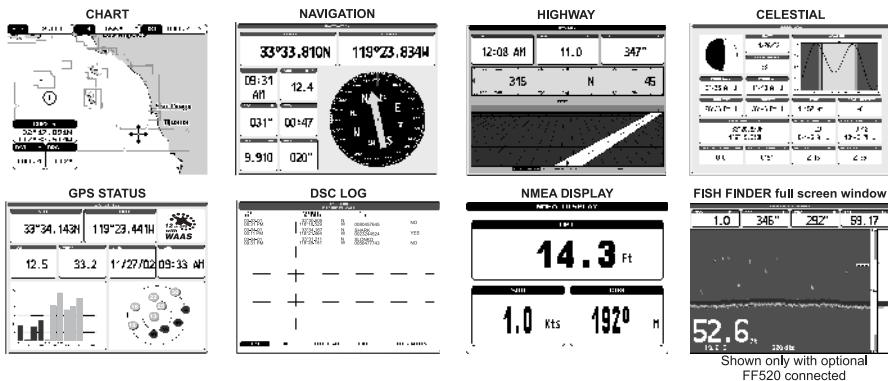


Figure 3.5 - Screen display pages

3.6 CUSTOMIZING THE SOFT KEYS

The “Soft Keys” (CP175C and CP1000C) can be individually customized from the default pages (discussed above) to the following: CHART, NAVIGATION, HIGHWAY, CELESTIAL, DSC LOG, DSC DIRECTORY, NMEA DISPLAY, NMEA DATA, DEPTH TREND, TEMP TREND, WIND SPEED TREND, TEMP TREND, MARK/WAYPOINTS LIST and USER C-CARD.

When the optional FF520 Dual frequency Fish Finder is connected the any of the key can be customized to show 50 or 200kHz full page, 50 or 200kHz Chart/Fish split screen and zoom screens.

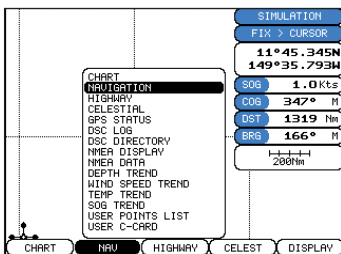


Figure 3.6 - Window options of the selected Soft Key

1. To change, momentarily press any of the “Soft Keys”, then press and hold the key you want to customize.
2. A popup window will be shown with the above settings.
3. Move the ShuttlePoint knob up or down to select the desired page.
4. Press **[ENTER]** or move the ShuttlePoint knob to the right to save the page to the selected “Soft Key”.

3.7 OTHER SETTINGS IN GENERAL SETUP MENU

You will notice the **GENERAL SETUP** menu has other selections that allow you to customize:

LANGUAGE	Default setting is English.
KEY BEEP	Allows the beep produced when a key is pressed to be turned on or off.
AUTO INFO	By default when the cursor is moved over a buoy, Mark or other item a popup window will show information of the item. This menu item allows the window to be turned on or off.
TIME LINE	Is a line projected from the vessel icon which indicates the distance your vessel will travel at the current speed. Selections are 2, 10, 30 minutes, 1, 2 hours and infinite.
CURSOR WINDOW	By default when the cursor is moved a window is shown with the lat/lon Distance and bearing from the vessels location to the cursor. This selection allows the window to be turned off.
ZOOM TYPE	The default setting changes scales in or out with each press of the ZOOM IN or ZOOM OUT key. When ZOOM BY SCALE is selected and either the ZOOM IN or OUT key is pressed a popup window is shown allowing you to choose the scale to zoom to using the ShuttlePoint knob.
MAP ORIENTATION	Selections are: North Up : The Top of the page is fixed to North Course Up: The top of the page is orientated to the direction the vessel is heading.
MEASURE DST & BRG	When this function is turned on allows a distance to be measured between two points using the Shuttlepoint knob and [ENTER] .
UNITS OF MEASURE	Units of Measure can be selected for Distance, Speed, Depth and Altitude.

5. CREATING MARKS

Definitions:

MARK

Can be a stand alone position or be linked to a Route. A Mark is place on the Chart Page using **[MARK]** or by entering in information in the **MARK/WAYPOINTS LIST** "NEW MARK" selection.

WAYPOINTS

Always linked to a Route. Are placed on the Chart page using **[ROUTE]**.

NOTE

The difference between a Mark and a Waypoint is

- When a Route is created using WAYPOINTS and the ROUTE is deleted the WAYPOINTS are also deleted.
- If a Route is created using MARKS and the ROUTE is deleted the MARKS remain.

5.0 CREATING A NEW MARK USING THE CHART PAGE

- Move the ShuttlePoint knob to the desired or approx. Lat/Lon and press **[MARK]**.
- You will notice a Mark is placed under the location of the Cursor and a popup window is shown with the exact Lat/Lon of the Mark.
- If the position is incorrect press the EDIT Soft Key that will allow you to change the position, Mark name, icon type and color of the icon.

- Mark placed under Cursor
- Lat/Lon of Mark, DST/BRG from vessel location
- Vessel location
- Press Soft Key to Show User Point List, Edit, Move or Delete Mark

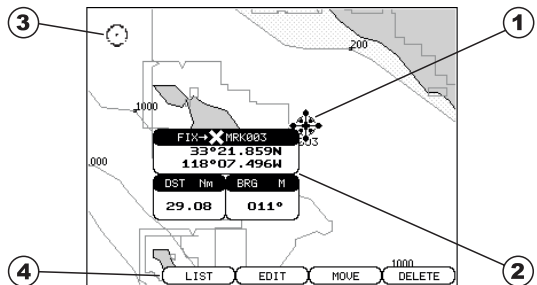


Figure 5.0 - Mark creation

5.1 EDITING A MARK

If a Mark has previously been created and you wish to Edit it, move Cursor over the top of the Mark.



Figure 5.1 - Mark editing

- After a Mark is created. Press **[ENTER]**, select **EDIT** using the ShuttlePoint knob and press **[ENTER]**. On the CP175C or CP1000C press the **EDIT** Soft Key to show the edit popup window.

2. Use the ShuttlePoint knob to change to the desired Mark Icon, when finished press **[ENTER]**.
3. Move the ShuttlePoint knob to the right to select the Mark Name. Press **[ENTER]** an the first digit in the name will be highlighted.
4. Move the ShuttlePoint knob up or down to select the first character.
5. Move the ShuttlePoint knob to the right to select the next character.
6. Repeat steps 4 and 5 until the Mark name is shown. Press **[ENTER]**.
7. Move the ShuttlePoint knob to the right and press **[ENTER]** to change the Mark Icon's Color.
8. Move the ShuttlePont knob to up/down, left/right to select the Mark Icon's Color. When finished press **[ENTER]**.
9. Move the ShuttlePoint knob to the right to select the Lat/Lon and press **[ENTER]**.
10. Move the ShuttlePoint knob up or down to select the first character.
11. Move the ShuttlePoint knob to the right to select the next character.
12. Repeat steps 10 and 11 until the desired position is shown. Press **[ENTER]** and **[CLEAR]** to store the Mark.

5.1.0 Deleting a Mark or Waypoint

Move the cursor over the Mark or Waypoint to delete. On the CP155C press **[ENTER]**, select **DELETE** using the ShuttlePoint knob and press **[ENTER]**. On the CP175C and CP1000C, press **DELETE** Soft key. A Warning popup window will be shown. Select **YES** and press **[ENTER]**.

5.1.1 Moving a Mark or Waypoint

Place the cursor over the Mark or Waypoint which you want to move. On the CP155C press **[ENTER]**, select **MOVE** using the ShuttlePoint knob and press **[ENTER]**. On the CP175C and CP1000C, press **MOVE** Soft key. Use the ShuttlePoint knob to move the cursor. A dotted line, connecting the previous Waypoint position to the new position, is shown:

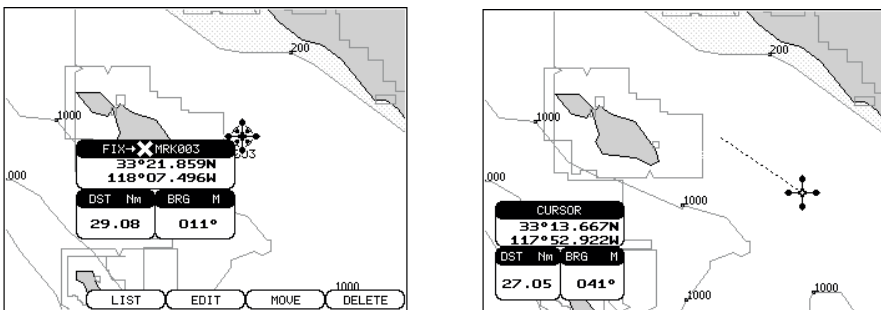


Figure 5.1.1 - Moving Mark or Waypoint (I)

Press **[ENTER]** (**[CLEAR]** to abort the move), the Waypoint appears in the new position.

1. Press **[MENU]** and select **USER POINTS**.
2. Press **[ENTER]** or move the ShuttlePoint knob to the right and the MARK/WAYPOINTS List page below will be shown.
3. To create a NEW Mark, move the ShuttlePoint knob to the right to **NEW MARK** and press **[ENTER]**.
4. Press **[ENTER]** to change to show the Icon popup window.
5. Move the ShuttlePoint knob to highlight the desired Icon and press **[ENTER]**.
6. Move the ShuttlePoint knob to the right to select the Mark name. Press **[ENTER]** an the first digit in the name will be highlighted.
7. Move the ShuttlePoint knob up or down to select the first character.
8. Move the ShuttlePoint knob to the right to select the next character.
9. Repeat steps 4 and 5 until the Mark name is shown. Press **[ENTER]**.
10. Move the ShuttlePoint knob to the right to select the Lat/Lon and press **[ENTER]**.
11. Move the ShuttlePoint knob up or down to select the first character.
12. Move the ShuttlePoint knob to the right to select the next character.
13. Repeat steps 10 and 11 until the desired position is shown. Press **[ENTER]** and **[CLEAR]**, a WARNING "Save the new Mark?" popup window will be shown, move the ShuttlePoint knob to the right or left to select **YES** or **NO** and press **[ENTER]**.

5.4 GOTO CURSOR

The GPS chartplotter allows you to quickly start navigating to the cursor, Mark or Route.

GOTO CURSOR

1. Move the ShuttlePoint knob to the exact position you what to navigate to.
2. Press **[GOTO]** and a GOTO popup window will be shown



Figure 5.4 - GO TO menu

3. Using the ShuttlePoint knob select **CURSOR** and press **[ENTER]**.
4. The chartplotter is now navigating from your current position to the location of the chartplotter.

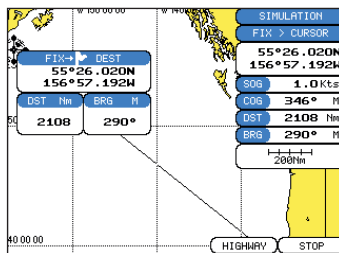


Figure 5.4a - Navigating to Cursor Example

5. Now the chartplotter shows a navigation line between the vessels location and the destination point. A popup window shows the Distance (DST) and Bearing (BRG) from the vessels location to the destination point.

6. The chartplotter is in Cursor mode, to switch to home mode press **[CLEAR]** so the vessel stay in the center of the page.
7. On the CP175C and CP1000C two Soft Keys are also shown that allow you to quickly switch to the HIGHWAY page or to stop navigation.
8. To STOP Navigation, press the GOTO key an the following WARNING page is shown. Select Stop and press **[ENTER]**.

5.5 GOTO MARK

1. Move the ShuttlePoint to an open position (no buoy, warning etc. under the cursor) on the Chart Page.
2. Press **[GOTO]** to show the GOTO popup window.
3. Move the ShuttlePoint knob to select **MARK** and press **[ENTER]** to show the USER POINTS.
4. Move the ShuttlePoint to the highlight the desired Mark or Waypoint and press **[GOTO]**.
5. You will notice a circle is drawn around the Icon Symbol. This means the chartplotter is now navigating to the point.
6. Press **[CLEAR]** to switch to the Chart page or Highway page to start navigating to the point.

6. MAN OVER BOARD (MOB) FUNCTION

During navigation, the “MOB” feature provides a one-touch method of storing a location (such as a point where a crew member fell overboard). In this mode, the chartplotter places a MOB point on the Chart Page and all the navigation data shown is related to navigating back to this point, allowing you to retrace your path to the MOB point efficiently.

1. On the Chart page, press **[MOB]** to start navigating back to the point.
2. You will notice a MOB Mark will be laid on the Chart page and all navigation is referring back to this point.
3. If the cursor is moved over the MOB Icon, popup windows over softkeys will be shown allowing quick access to the Navigation or Highway pages.

6.0 DELETING A MOB POINT



1. Move the ShuttlePoint knob until the cursor is over the top of the MOB icon.
2. On the CP155C press **[ENTER]**, select **DELETE** and press **[ENTER]**. On the CP175C and CP1000C press the **DELETE** Soft key, a popup window will be shown to confirm deleting the MOB point.
3. Select **YES** with the ShuttlePoint knob and press **[ENTER]**.

7. ROUTES

The GPS chartplotter has the capability to store: **for CP 155C:** 20 Routes with a maximum of 30 Waypoints each, **for CP 175C:** 20 Routes with a maximum of 50 Waypoints each, **for CP 1000C:** 50 Routes with a maximum of 50 Waypoints each.

A Route can consist of Waypoints or Marks. The difference is when a Route is made using Waypoints and the Route is deleted the Waypoints are also deleted. However if a Route is made of Marks and the Route is deleted the Marks stay in memory.

7.0 CREATING A ROUTE USING WAYPOINTS

1. On the Chart Page move the ShuttlePoint knob to the Lat/Lon of the starting Waypoint in the route.
2. Press **[ROUTE]**, you will notice the Starting Waypoint  will be placed under the cursor.
3. Move the ShuttlePoint knob to the second Lat/Lon of the next leg  in the Route.
4. Press the Route key. You will notice another Waypoint is shown under the cursor and a line joins the starting Waypoint to the Second Waypoint.

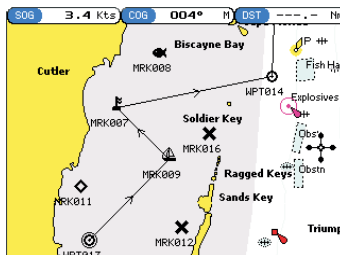


Figure 7.0 - Creating a route using Waypoints

5. Repeat steps 3 and 4 until all Waypoints are entered into the Route.

NOTE

At this point the Route is saved as ROUTE01. If you would like to save the Route under a specific name follow the remaining steps.

6. To name the Route Press **[MENU]** and move the ShuttlePoint knob to highlight **ROUTE**.
7. Press **[ENTER]** or move the ShuttlePoint knob to the right.
8. Move the ShuttlePoint to **REPORT** and press **[ENTER]** or move the ShuttlePoint knob to the right.
9. Move the cursor to **NAME** and press **[ENTER]**. A popup window will be shown.
10. Move the ShuttlePoint knob up/down to change the characters and left/right to select a different character in the Routes Name.

ROUTE REPORT						
ROUTE : 1 NAME : ROUTE01						
SPEED : 10.0 FUEL : 10.0 /h						
WAYPOINT	LATITUDE LONGITUDE	BRG M	LDST Nm	TDST Nm	TIME	FUEL
NPT005	27°25.104N 119°13.775W					
NPT006	38°02.133N 133°42.500W	297°	970.2	970.2	097:00	970.
NPT007	36°04.133N 133°04.133W	NAME ROUTE01		1284	128:22	1283
NPT009	57°54.212N 172°48.997E	285°	2711	3994	399:26	3994
NPT010	44°56.052N 172°48.997E	180°	778.2	4772	477:14	4772
NPT011	44°56.052N 171°17.132W	088°	675.0	5448	544:45	5447

SELECT NAME COLOR INVERT CLEAR SPEED FUEL

Figure 7.0 - Route Report

- When finished press **[ENTER]** to save.
- Press **[CLEAR]** or move the ShuttlePoint knob to the left until the Chart Page is shown.

7.1 MAKING ADDITIONAL ROUTES

To create another Route the chartplotter must be told that you want to create a second Route.

- Press **[MENU]** and move the ShuttlePoint knob to select **USER POINTS** and press **[ENTER]**.
- Move the ShuttlePoint knob to select **ROUTE** and press **[ENTER]**.
- Move the ShuttlePoint knob until **SELECT** is highlighted.
- Press **[ENTER]** or move the ShuttlePoint knob to the right.
- Move the ShuttlePoint knob to an open Route number example Route 2.
- Press **[ENTER]** or move the ShuttlePoint knob to the right.
- Press **[CLEAR]** or move the ShuttlePoint knob to the left until the Chart page is shown.
- To create the new Route, follow the steps in Creating a Route using Waypoints or Mark sections.

7.2 CREATING A ROUTE USING MARKS ON THE CHART PAGE

To create a Route containing Marks you first must create the Marks and show them on the Chart page.

- Move the ShuttlePoint knob over the top of a Mark that you wish to be the starting point in the Route and press **[ROUTE]**.
- Next move the ShuttlePoint knob until the cursor is over the Mark that you want to be the next leg in the Route
- Press **[ROUTE]**. You will notice a bearing line joins the first and second Mark which means these Marks are selected into the Route.
- Repeat steps 3 and 4 until all Marks are entered into the Route.

NOTE

At this point the Route is saved as ROUTE01. If you would like to save the Route under a specific name follow the remaining steps.

- To name the Route Press **[MENU]** and move the ShuttlePoint knob to highlight **USER POINTS**. Press **[ENTER]** or move the ShuttlePoint knob to the right.
- Move the ShuttlePoint knob to select **ROUTE** and press **[ENTER]**.
- Move the ShuttlePoint to **REPORT** and press **[ENTER]** or move the ShuttlePoint knob to the right.
- Move the cursor to **NAME** and press **[ENTER]**. A popup window will be shown.

9. Move the ShuttlePoint knob up/down to change the characters and left/right to select a different character in the Routes Name.
13. When finished press **[ENTER]** to save.
10. Press **[CLEAR]** or move the ShuttlePoint knob to the left until the Chart page is shown.

7.3 INSERTING A WAYPOINT INTO A ROUTE

Place the Cursor on the navigation line between two points and press **[ROUTE]**. Move the ShuttlePoint knob to the desired location of the Waypoint and press **[ENTER]**.

7.4 GOTO A ROUTE

7.4.0 By select Route

1. Move the ShuttlePoint to an open position (no buoy, warning etc. under the cursor) on the Chart Page.
2. Press **[GOTO]** to show the GOTO popup window.
3. Move the ShuttlePoint knob to select **ROUTE** and press **[ENTER]**.
4. The SELECT ROUTE popup window will be shown.
5. Move the ShuttlePoint to the highlight the desired ROUTE and press **[ENTER]**.
6. On the Chart page a circle with a Flag is shown on the first leg of the Route and a navigation line is shown, indicating the chartplotter is navigating to the first Waypoint in the Route.



Figure 7.4.0 - Select a Route

7.4.1 By Cursor key

1. On the chart page move the ShuttlePoint knob until the Cursor reaches the starting point of the Route.
2. Press **[GOTO]** to start following the Route.
3. Press **[CLEAR]** twice to revert to Home mode.

7.5 OTHER SETTINGS IN ROUTE MENU

You will notice the **ROUTE** menu has other selections.

SELECT	Choose an available route to create or choose a stored route to show and follow on the CHART Page.
DELETE	Deletes the route when shown in the above SELECT menu.
REVERSE	Reverses the Route, when chosen Starting point is at the end of the route.
COLOR	Allows changing the color of the navigation lines between in leg in the route.
REPORT	The Route report menu is useful to show details of the Waypoints contained within the route. This menu also allows you to enter in your average speed and fuel consumption and calculate the approximate fuel used when following the route.
SEND	Sends the stored points to an external device (PC) capable of listening to NMEA RTE sentence.
RECEIVE	Receive the points from an external device that is capable of sending RTE sentence.

8. TRACKS

The GPS chartplotter has the capability to store 5 individual and record up to 3000 Track Points.

Before using the Track function you will need to setup the Track function that suits your boat. The Track function tracks your vessels location as it moves through the water. The Track function can be setup to lay down a Track for a predetermined time or distance interval. If you have a fast moving boat you may want to setup the chartplotter to record a Track point every 0.5NM or if you have a sail boat you may want to setup to lay down a Track point once ever 1 minute.

NOTE

Pls note the Track point memory is 3000 points. This means for a long journey you may have to adjust the time or distance to be able to track your journey. It should be noted when the 3000 Track points are used up the first Track point layed down will be deleted when a new point is placed on the chart.

1. Press **[MENU]** and highlight **USER POINTS**.
2. Press **[ENTER]** or move the ShuttlePoint knob to the right.
3. Press **[MENU]** and highlight **TRACK**.
4. Press **[ENTER]** or move the ShuttlePoint knob to the right.
5. Move the ShuttlePoint knob to highlight **STEP UNIT** and choose
6. Press **[ENTER]** or move the ShuttlePoint knob to the right.
7. Highlight **TIME** or **DISTANCE** and press **[ENTER]** or move the ShuttlePoint knob to the right.
8. If the selected **STEP UNIT** was **TIME** then highlight **TIME** in the menu, if **DISTANCE** was selected then highlight **DISTANCE** and press **[ENTER]** or move the ShuttlePoint knob to the right.

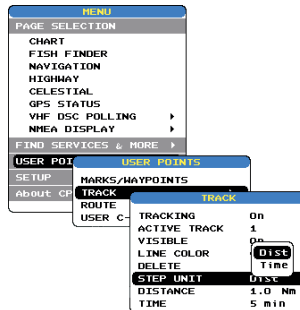


Figure 8 - Distance Units and Time Units

7. Select the desired **DISTANCE** or **TIME** step interval and press **[ENTER]** or move the ShuttlePoint knob to the Right.
8. Press **[CLEAR]** or move the ShuttlePoint knob to the left until the chart page is shown.

8.0 TRACKING

You may have to take a few trips to see how you like the Distance or Time Interval setup

on the previous step. However when using the tracking feature you will notice every time a track point is laid down on the Chart page a small filled in circle is shown on the track line. If you move the cursor over the top of the circle a popup window will be shown with the Time, water temperature, speed and Course Over Ground (COG) this is very useful if you are fishing and want to review the conditions where the fish were being caught.

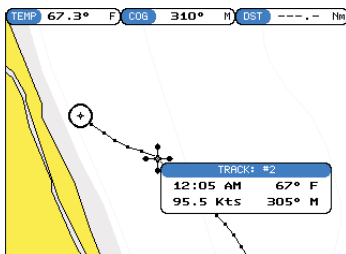


Figure 8.0 - Tracking

8.0.0 Saving and starting a new Track

A Track is automatically saved to memory. To start a new track:

1. Press **[MENU]**, move the ShuttlePoint knob to select **USER POINTS** and press **[ENTER]** or move the ShuttlePoint knob to the right.
2. Move the ShuttlePoint knob to select **TRACK** and press **[ENTER]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob up/down to select the next available open Track and press **[ENTER]** or move the ShuttlePoint knob to the right.
4. Move the ShuttlePoint knob to select **TRACKING** and press **[ENTER]** or move the ShuttlePoint knob to the right to set On.
5. Press **[CLEAR]** or move the ShuttlePoint to the left until the Chart page is shown.
6. A new track now will be laid down.

8.0.1 Other Settings in Track Menu

You will notice the Track menu has other selections

TRACKING	Allows turning on or off the tracking function
ACTIVE TRACK	This selection allows you to save a Track to one of the 5 Tracks available.
VISIBLE	Shows or hides a Track shown in ACTIVE TRACK menu
LINE COLOR	Selects the color of the track line
DELETE	Deletes a Track selected in the ACTIVE TRACK menu
STEP UNIT	Allowable selection are Distance or time
DISTANCE	Setup the Distance interval the Track point is placed on the chart page
TIME	Setup the TIME interval the Track point is placed on the chart page

8.1 USING THE TRIP LOG

On the Chart, Navigation, Highway and NMEA Data pages the windows may be customized to show TRIP LOG information.

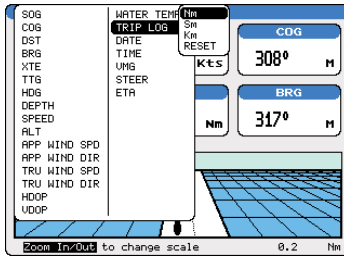


Figure 8.1 - Using the Trip Log

1. Select one of the pages listed above, press and hold **[MENU]**. You will notice one of the data boxes will be highlighted.
2. Press **[ENTER]** and move the ShuttlePoint knob to select **TRIP LOG**, press the enter key or move the ShuttlePoint knob to the right.
3. A popup window will be shown with **Nm** (Nautical Mile), **Sm** (Statute Mile), **Km** (Kilometer) and **RESET**. Move the ShuttlePoint to select the desired units of measure and press **[ENTER]** or move the ShuttlePoint knob to the right.
4. Press **[CLEAR]** or move the ShuttlePoint knob to the right until the selected page (Chart, Navigation, Highway or NMEA Data Page) is shown.

8.1.0 Resetting the Trip Log

Select the page with TRIP LOG in one of the data windows as setup in the “Using the TRIP LOG” section.

1. Press and hold **[MENU]**, move the ShuttlePoint knob to highlight **TRIP LOG**.
2. Press **[ENTER]** or move the ShuttlePoint knob to the right to show a popup window, select **RESET** and press **[ENTER]** or move the ShuttlePoint knob to the right.
3. A Warning popup window will be shown to confirm if you want to reset the trip log. Using the ShuttlePoint knob select **YES** and press **[ENTER]**. The trip log is now reset.

9. USER C-CARD

The Optional C-MAP User C-CARD is used to back up Marks, Routes, and Tracks stored in your chartplotters memory. The User C-CARD is similar to a back up disk used with a PC, in case you have to clear your chartplotters memory, or if you would like to transfer waypoint, Track and route information from one Standard Horizon chartplotter to another.

9.0 USER C-CARD MENU

C-MAP offers a special card that may be used to backup the User Points and Tracks the you have created in the chartplotter. This optional card is similar to using a floppy disc on a PC to backup your files or to transfer the information that you have stored to a friends chartplotter. The information shown below will assist you to transfer the User Points, Routes and Track history to the optional User C-CARD.

- ① Time of file creation
- ② Date of file creation
- ③ Type of data contained in the file (Mark file, Waypoint file...)
- ④ Number of selected Slot
- ⑤ File name
- ⑥ Number of Selected file
- ⑦ Information on stored User Points on Internal Memory

SLOT	NAME	TYPE	DATE	TIME
1	JILE06	TRACKS	01/01/80	00:00:00
FILE 1	FILE02	MARKS	01/01/80	00:00:00
	FILE07	TRACKS	01/01/80	00:00:00
	FILE04	MARKS	01/01/80	00:00:00
MRKS 2	JILE0710	TRACKS	01/01/80	00:00:00
	GJLE06	TRACKS	01/01/80	00:00:00
WPPTS 5	GJLE07	TRACKS	01/01/80	00:00:00
	FILE08	MARKS	07/02/98	17:17:00
RTES 1	FILE09	ROUTES	07/02/98	17:17:00
	FILE01	TRACKS	01/01/80	00:00:00
	FILE03	MARKS	01/01/80	00:00:00
TRKS 566	FILE05	MARKS	01/01/80	00:00:00

SAVE LOAD DELETE FORMAT CHANGE

Figure 3.12 - User C-CARD Menu

9.0.0 Formatting the User C-CARD

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **USER POINTS** and press **[ENTER]**.
2. Move the ShuttlePoint knob to highlight **USER C-CARD** and press **[ENTER]**.
3. Select **FORMAT** and press **[ENTER]**.
4. A popup Warning window will to confirm you want to format the User C-CARD.
3. Select **YES** and press **[ENTER]** to confirm (select **NO** otherwise). The format of User C-CARD must be done before using a new User C-CARD: this operation prepares the User C-CARD to receive and store information.

NOTE

Formatting permanently erases all files previously saved on the User C-CARD.

9.0.1 Transferring files to the optional User C-CARD

1. Remove a C-MAP NT+ C-CARD if present and insert the optional User C-CARD into the slot.
2. Press **[MENU]**, select **USER POINTS** and press **[ENTER]**.
3. Select **USER C-CARD** and press **[ENTER]**. A screen will appear. Move the ShuttlePoint knob to the left to select **SAVE** and press **[ENTER]**. A popup **SAVE FILE** window will appear. In this window you can change the name and the file type by using the ShuttlePoint knob and pressing **[ENTER]**, when finished press **[CLEAR]** once.
4. To save the file to the User C-CARD.

9.0.2 Loading a file

If you have a problem and accidentally loose the User Points in the chartplotter with the optional User C-CARD it is possible to load the data back into the chartplotter using the following procedure:

1. Press **[MENU]**, select **USER POINTS** and press **[ENTER]**.
2. Select **USER C-CARD** and press **[ENTER]**. Select the saved file from the USER C-CARD list by using the ShuttlePoint knob and press **[ENTER]**.
3. Move the Shuttlepoint knob to highlight **LOAD** and press **[ENTER]**.
4. A popup information window will appear when loading is complete.
5. Press **[ENTER]** key to confirm.

9.0.3 Deleting a file from the User C-CARD

You may want to delete a save file on the User C-CARD.

1. Press **[MENU]**, select **USER POINTS** and press **[ENTER]**.
2. Select **USER C-CARD** and press **[ENTER]**. Select the saved file from the USER C-CARD list by using the ShuttlePoint knob and press **[ENTER]**.
3. Move the Shuttlepoint knob to highlight **DELETE** and press **[ENTER]**.
4. A popup Warning window will to confirm you want to delete the file.
5. Press **[ENTER]** key to confirm.

9.0.4 Changing the User C-CARD

You may want to change the slot in which the User C-CARD is inserted.

1. Press **[MENU]**, select **USER POINTS** using the ShuttlePoint knob and press **[ENTER]**.
2. Select **USER C-CARD**, and press **[ENTER]**.
3. Move the Shuttlepoint knob to highlight **CHANGE** and press **[ENTER]**.

10. PAGES

The GPS chartplotter has many pages that are designed to ease your navigation.

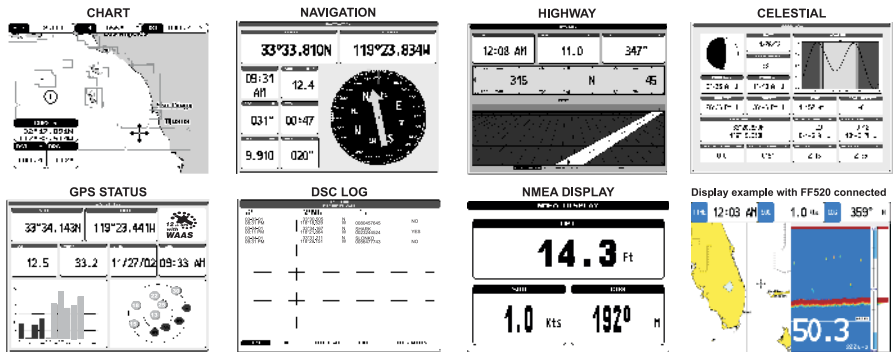


Figure 10 - Screen display pages

The pages can be selected in one of two ways:

Selection by MENU

Pressing **[MENU]**, move the ShuttlePoint knob to highlight the Page in the PAGE SELECTION section and press **[ENTER]** or move the ShuttlePoint knob to the right. This function is available on the CP155C, CP175C and CP1000C.

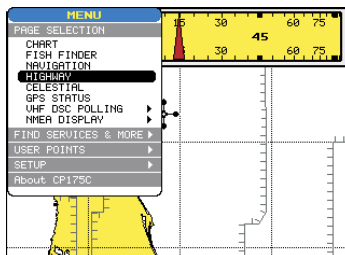


Figure 10a - Screen display pages (by [MENU])

Selection by SOFT KEY

Pressing one of the Soft Key under the display, then press the soft key to show the desired page. This function is only available on the CP175C and CP1000C.

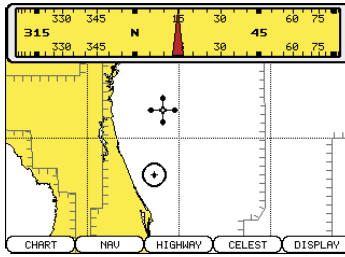


Figure 10b - Screen display pages (by Soft Keys)

10.0 CHART PAGE

The Chart page is the main page of the chartplotter. From this page the user can zoom in/out, pan around the chart, show information about cartographic objects, see the exact vessel position with the COG and SOG, place points, GOTO a destination point, show Track history etc. The chartplotter is provided with a world background map that allows zooming into 2NM in North America. For more detail, optional C-MAP NT+ C-CARDS are used.

1 Fix Status

2 Cursor coordinates

3 Speed Over Ground and Course Over Ground

4 Distance and Bearings from Fix to Cursor (if the Fix is NOT received, DST and BRG are empty)

5 Chart Scale

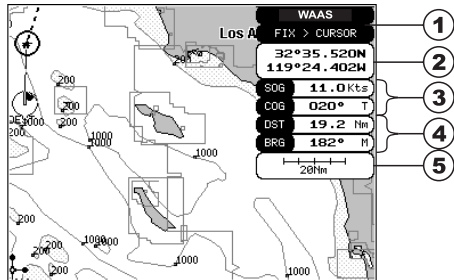


Figure 10.0 - Charts and general text area

10.0.0 Window Selections

The window on the right side of the Chart page is called the General Window and it may be edited, customized or even changed to show a highway or compass tape.

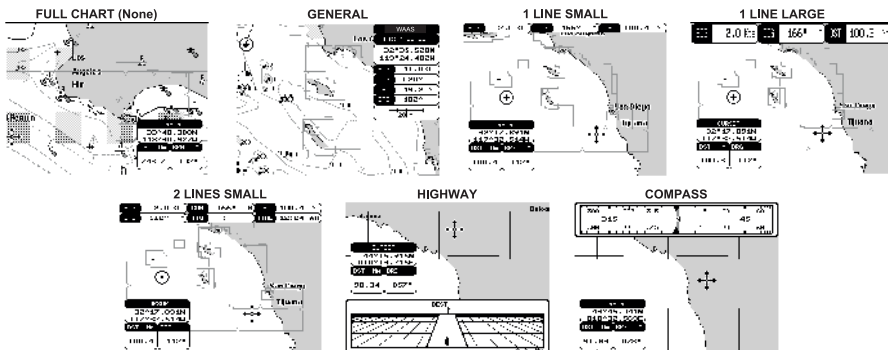


Figure 10.0.0 - Data window layout

1. To change, press **[MENU]** and move the ShuttlePoint to select **SETUP**.
2. Press **[MENU]** and move the ShuttlePoint to select **GENERAL SETUP**.
3. Press **[ENTER]** or move the ShuttlePoint knob down to highlight **WINDOW SETUP**.
4. Press **[ENTER]** or move the ShuttlePoint knob down to highlight **CHART PAGE**.
5. Select the desired window, HIGHWAY or COMPASS and press **[ENTER]** or move the ShuttlePoint knob to the right.
6. Press **[CLEAR]** or move the ShuttlePoint knob to exit the menu and show the Chart Page.

10.0.1 Additional Functions on Chart Page

When on the Chart Page you will notice icons of Bouys, Towers, Lights, Wrecks, Tide Stations and Port Icons. If the Cursor is moved over the top of these icons a popup window will be shown with information about the icon.

10.0.2 Turning Off Information on Icon Points

The GPS chartplotter allows you to select to see information on points, all items or to turn this function off.

1. Press **[MENU]** and move the ShuttlePoint knob to highlight **SETUP**.
2. Move the ShuttlePoint knob to highlight **GENERAL SETUP** and press **[ENTER]**.
3. Using the ShuttlePoint knob, highlight **AUTO INFO** and move the ShuttlePoint to the right.
4. Select the **Off**, **On Points**, or **On ALL** and press **[ENTER]** or move the ShuttlePoint to the Right.
5. Press **[CLEAR]** or move the ShuttlePoint knob to the left until the chart page appears.

10.0.3 Setting up the Chart Page using the Map Setup Selection

With a NT+ chart installed, the display of the chartplotter is visually communicated to navigators as never before. To simplify the customization of the chart display, the map settings are now re-organized in modes allowing the user to choose the preferred setting. Pre-programmed settings are user selectable from Full, Simple, Fishing, Low and Custom. The default setting is Custom. The custom selection allows the user to customize the chart to user preferences. The chart below shows the selections for each mode:

Setting	Full	Simple	Fishing	Low
Names	On	On	On	Off
Nav-Aids	US	US	US	US
Light Sectors	On	Off	Off	Off
Attention Areas	On	On	On	Off
Tides & Currents	On	On	On	Off
Seabed Type	On	Off	On	Off
Ports & Services	On	On	Off	Off
Tracks & Routes	On	Off	Off	Off
Underwater Objects	On	Off	Off	Off
Depth Areas	On	On	On	Off
Depth Areas <	0005	0005	0005	0005
Depth Areas >	0030	0030	0030	0030
Depth Lines & Soundings	On	On	On	Off
Depth Lines & Soundings <	9999	0005	9999	0005
Depth Lines & Soundings >	0000	0000	0000	0000
Rivers & Lakes	On	On	Off	Off
Natural Features	On	Off	Off	Off

Landmarks	On	On	Off	Off
Cultural Features	On	Off	Off	Off
Lat/Lon Grid	On	Off	On	Off
Chart Boundaries	On	Auto	Off	Off
Cartography	On	On	Off	On
Mixing Levels	On	Off	On	Off
Objects Overlap	Off	On	Off	On

1. To change to one of the pre-programmed settings, press **[MENU]** and move the Shuttlepoint knob to highlight **SETUP** and press **[ENTER]**.
2. Move the ShuttlePoint knob to **CHART SETUP** and press **[ENTER]**.
3. Move the Shuttlepoint knob to **PRESETS** and press **[ENTER]**.
4. Move the ShuttlePoint knob up or down to select the desired preset and press **[ENTER]**.
5. Press **[CLEAR]** or move the ShuttlePoint knob to the right until the Chart Page is shown.

10.0.4 Advanced Chart Setup

The GPS Chart plotter also allows you to customize all the chart settings. The next sections will describe all the selections that can be customized.

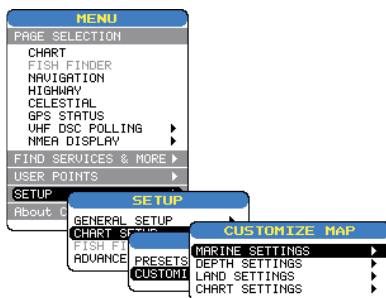


Figure 10.0.4 - Advanced Chart Setup

10.0.4.0 Marine Settings Menu

The Marine setting menu controls the details shown from an optional C-MAP NT or NT+ C-CARD. Selections included US or International Nav-Aids, Tide and Currents, and Light Sectors can be enabled to disabled from this menu.

Names	: Enables or disables the display of names of areas on the land and water. The default setting is on.
Nav-Aids	: Lights, Signals, Buoys and Beacons are displayed differently on maps around the world. This selection allows the Nav-Aid to be displayed to your preference. Selections are US : Draws Nav-Aids using NOAA Symbols. Default setting. US simple : Shows complex objects as one icon only. This selection may be preferred if the screen becomes cluttered. INT : Draws Nav-Aids using International Symbols INT Simple : Shows complex objects as one icon only. This selection may be preferred if the screen becomes cluttered. Off : Turns off all Nav-Aids.
Light Sectors	: Enables or disables the light sectors shown on the display.
Attention Areas	: Enables or disables the display of Attention areas(areas which special attention by the mariner is required, due to some natural or manmade hazards or sailing regulations and restrictions.)
Tides & Currents	: Enables or disables the display of Tides and Currents.

NOTE

When Tide and Current display is disabled the Tide Station search cannot be activated.

Seabed Type	: Enables or disable the seabed type; "M" Mud, "R" Rock, "K" Kelp, "St" Stone...
Ports & Services	: Enables or disable the display of Ports and Services (areas along the shore with facilities for mooring, petrol, hospitals, Coast Guard, Maintenance, Electricity, Police...)
Tracks & Routes	: Enables or disables the display of Tracks and Routes (recommended and established routes for ships at Sea, including traffic separation schemes, deep water routes...).
Underwater Objects	: Enable or disables the display of underwater objects (obstructions, wrecks, cables....).

10.0.4.1 Depth Settings Menu

The Depth Settings Menu controls the depth information shown on the Chart Page.

Depth Areas	: Enables or disables the display of depth areas
Depth Areas >	: Sets a min reference depth value.
Depth Areas <	: Sets a max reference depth value
Depth Lines and Soundings	: Enables or disables the display of Depth Lines and Soundings.
Depth Lines & Soundings >	: Sets a min reference depth & soundings value.
Depth Lines & Soundings <	: Sets a max reference depth & soundings value.

10.0.4.2 Land Settings Menu

The Land Settings menu controls the level of cartographic details shown on the land areas.

Rivers & Lakes	: Enables or disables the display of rivers and lakes.
Natural Features	: Enables or disables the display of natural features (any topographic features formed by the action of natural process; coastlines...)
Cultural Features	: Enables or disables cultural features (any man made topographic feature; built-up areas, roads)
Landmarks	: Enables or disables the display of landmarks (any prominent objects such as monument, building, silo, tower, mast... on land which can be used in determining a location or a direction).

10.0.4.3 Chart Settings Menu

The Chart settings menu controls the details shown on the C-MAP C-CARD.

Lat/Lon Grid	: Enables or disables the display of Latitude and Longitude grid lines.
Chart Boundaries	: Enables the display of Chart Boundaries, The Auto settings shows only the last 4 charts contained on the C-Card.



Figure 10.0.4.3 - Chart Settings Menu

Cartography	: Allows the chartplotter to zoom in to lower levels where that the C-MAP Cartography does not cover. When this feature is disabled and the zoom key is pressed the chartplotter will zoom in and show cartography that is either on the C-CARD or on the background map. When a zoom level is reached that does not have cartography the chartplotter will continue to zoom in to lower scales, however no cartography will be shown.
Mixing Levels	: When the map coverage at the current chart scale does not fill the entire display, the chartplotter draws the rest of the map using charts from above and below the current scale. When this function is turned on you will notice the display may redraw 2 to 3 times to show all the details.

NOTE

This function only operates with C-MAP NT+ C-CARDS.

Declutter	: Due to the amount of cartography shown on the display, it may be necessary to enable the declutter filter. The Declutter filter assists in the appearance of the cartography on the display (helpful with Full cartography is enabled).
------------------	---

10.0.5 Customizing the Data Windows

The data fields contained on the General, 1 Line small/large and 2 line small data windows

can be changed. The picture below shows the Chart Page with 1 Line Large selected and a Popup window with many selections.

1. To change a data window field, press and hold **[MENU]** until the field is highlighted.
2. Move the ShuttlePoint knob to the desired data field and press **[ENTER]**. The popup window will be shown.
3. Move the ShuttlePoint knob up or down to choose the desired setting and press **[ENTER]** to select and press **[CLEAR]** to store and exit the editing mode.

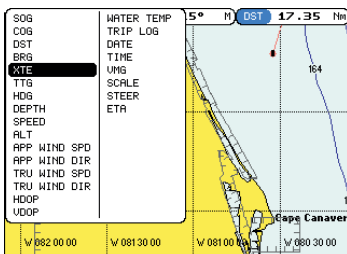


Figure 10.0.5 - Customize the Data Windows

NOTE

Data window field on the NAVIGATION, HIGHWAY, GPS STATUS, and NMEA pages may be customized in the above manner.

10.1 CUSTOMIZING CHART SETTINGS

1. Press **[MENU]** and move the Shuttlepoint knob to highlight **SETUP** and press **[ENTER]**.
2. Move the ShuttlePoint knob to **CHART SETUP** and press **[ENTER]**.
3. Move the Shuttlepoint knob to **CUSTOMIZE CHART** and press **[ENTER]**.
4. Move the ShuttlePoint knob up or down to select **MARINE SETTINGS**, **DEPTH SETTINGS**, **LAND SETTINGS** or **CHART SETTINGS** and press **[ENTER]**. See the above sections for details on selections within each of the settings.

10.2 NAVIGATION PAGE

This page is useful to show information when heading to a destination. The default page is shown with a Compass Rose, however this can be customized to show a Compass Tape.

1. To change to show the COMPASS TAPE, select the Chart Page, press **[MENU]** and move the ShuttlePoint knob to select **SETUP** and press **[ENTER]**.
2. Move the ShuttlePoint knob to select **WINDOW SETUP** and press **[ENTER]**.
3. Move the ShuttlePoint to **NAVIGATION PAGE** and press **[ENTER]**
4. Move the ShuttlePoint up or down to select **COMPASS TAPE** and press **[ENTER]**. Press **[CLEAR]** or move the Shuttpoint knob to the right until the Chart Page is shown.

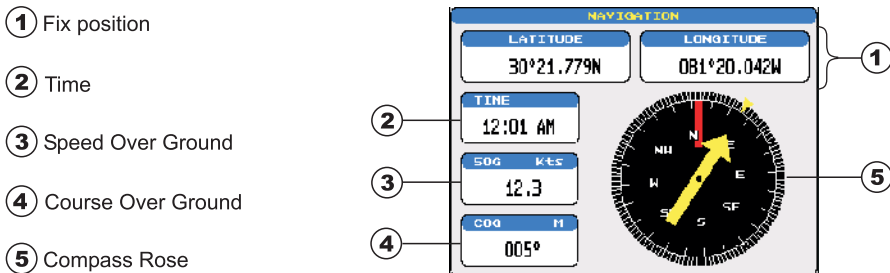


Figure 10.2 - Navigation Data page with Compass Rose

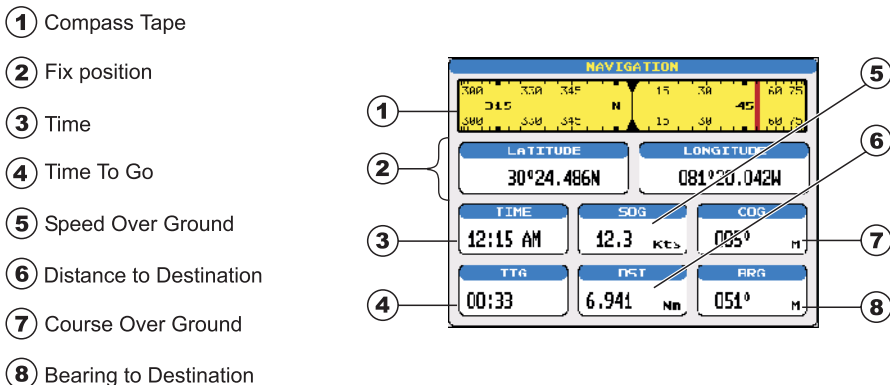


Figure 10.2a - Navigation Data page with Compass Tape

10.3 HIGHWAY PAGE

Shows a 3D view of the vessel traveling through the water when Navigating to a destination point, Mark or following a route. Press **[ZOOM IN]** or **[ZOOM OUT]** to change the highway scale.

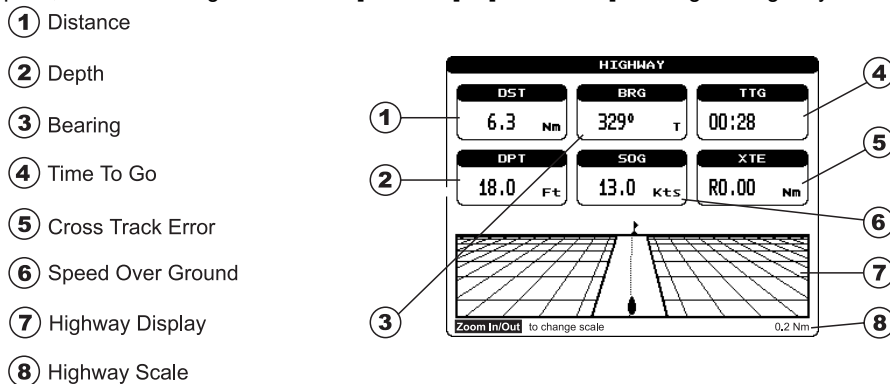


Figure 10.3 - Highway page

10.4 CELESTIAL PAGE

This page is useful for boaters that are concerned about the height of the water under a bridge or by fisherman that wish to know the tide and moon phase of a specific date.

Changing date

1. Press **[ENTER]** and a popup window will be shown.
2. Moving the ShuttlePoint up or down changes the digits and left and right selects the month, day and year.
3. Press **[CLEAR]** to exit and view the information.

Changing to and from Daylight Savings time

1. Press **[MARK]** to toggle between Standard and Daylight Savings time.

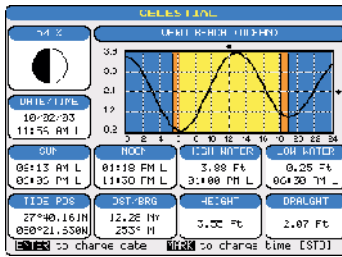


Figure 10.4 - Celestial page

10.5 GPS STATUS PAGE

This page is used as a reference to see how well the GPS is receiving satellites.

- ① Ship's Coordinates
- ② Horizontal Dilution of Precision
- ③ Vertical Dilution of Precision
- ④ WAAS/GPS Icon
- ⑤ Date and Time
- ⑥ Tracked, but not used, Satellite
- ⑦ Used Satellite
- ⑧ COG (Course Over Ground)

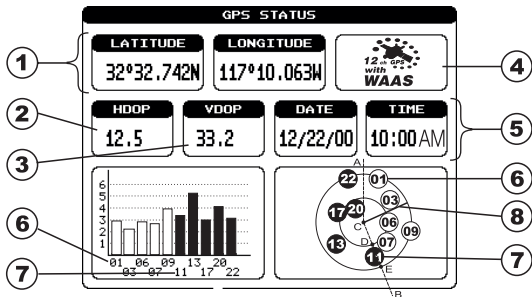


Figure 10.5 - GPS Status page

The WAAS/GPS Icon may change due to the satellite reception:

ACQUIRING : the GPS is trying to receive a valid position fix.

GPS2D : The GPS is receiving at least 2 valid satellites

GPS3D : the GPS is receiving at least 3 Satellites.

WAAS 2D/3D : the GPS is receiving a 2D or 3D position and the correction from the WAAS Satellite.

HDOP : Horizontal Dilution of Precision

VDOP : Vertical Dilution of Precision

10.6 NMEA DISPLAY PAGE

The chartplotter is capable of displaying information in the customizable data windows from external NMEA devices. Depth sounder, Speed Log with temp, Wind speed and direction, Flux gate compass, and GPS information can be shown in any of the boxes. The default NMEA Display shows 3 windows. When going to a destination, this screen is useful to navigate as to get to the destination keep the Course Over Ground (COG) and Bearing (BRG) figures the same.

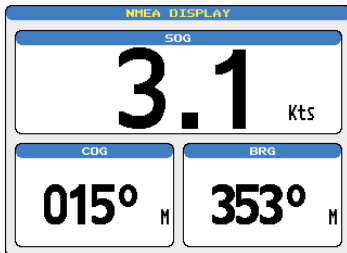


Figure 10.6 - NMEA Display page

The NMEA sentences read from external devices are: BWC, DSC, DSE, GGA, GLL, GSA, GSV, HDG, HDM, HDT, RMC, VHW, VTG, DPT, DBT, MTW, VWR, VWT, TLL, WPL, RTE.

CHANGING the NMEA PAGE Windows

- 1a. On the CP155C, press **[MENU]** and highlight **NMEA DISPLAY** with the ShuttlePoint knob and press **[ENTER]**.
2. The CP175C and CP1000C can use step 1a, and from the factory the right most Soft Key is programmed for direct access. Press this key two times to show the NMEA Display page.
- 2a. Move the ShuttlePoint knob to **DISPLAY** and press **[ENTER]**.
3. To change the 5 different pages - move the ShuttlePoint knob to the left or right.

10.7 NMEA DATA PAGE

The NMEA Data Page is very useful to see if a External device (example: Depth Sounder) is transmitting NMEA sentences to the GPS chartplotter. This page can also be used to see if the GPS chartplotter NMEA output is being loaded down by a external NMEA device the GPS chartplotter is connected to.

Scenario: VHF Radio connected but the radio is not receiving a GPS Position.

Usually the VHF radio will be connected to the Green and Brown wires. To check to see if the GPS chartplotter is transmitting the sentences:

1. Press **[MENU]** and highlight **NMEA DISPLAY** with the ShuttlePoint knob.
2. Press **[ENTER]** or move the ShuttlePoint knob to the right.
3. Move the shuttlepoint to highlight **DATA**.
4. Press **[ENTER]** or move the ShuttlePoint knob to the right.
5. Connect the BLUE Wire on the GPS chartplotter to the junction of the Brown wire and the VHF wire. The display should look similar to the picture below.

```

NMEA DATA
#IRMC,00.2558,A,3407.643,N,07702.028,W,003.2,000.0
,190404,0.3,M#61
#PCMPN,0,1,,,,,M#6D
#IIGLL,3407.643,N,07702.028,W,002558,A#2C
#IIUTG,000.0,T,009.3,M,003.2,N,005.9,K#5E
#IIXTE,R,A,,,M#65
#IRMB,R,,,,,U#66
#IRMC,00.2559,A,3407.644,N,07702.028,W,003.2,000.0
,190404,0.3,M#67
#IRMB,R,,,,,U#66
#IRMC,00.2556,A,3407.641,N,07702.028,W,003.2,000.0
,190404,0.3,M#68
#PCMPN,0,1,,,,,M#6D
#IRPB,R,,,,,M#53
#IIGLL,3407.642,N,07702.028,W,002557,A#22
#IIUTG,000.0,T,009.3,M,003.2,N,005.9,K#5E
#IIXTE,R,A,,,M#65

ENTER TO STOP
ZOOM IN TO CHANGE PORT Port:1 UHF

```

Figure 10.7 - NMEA Data page

10.8 NMEA DEPTH, WIND SPEED, TEMP AND SOG TREND PAGES

When the GPS chartplotter is connected to the optional Black Box Fish Finder or a Digital Depth Sounder, Wind Speed/Direction, Speed Log with Temp with NMEA output the chartplotter is capable of show Trends in the data from the device.

To select a NMEA Trend Page:

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **NMEA DISPLAY**.
2. Move the ShuttlePoint knob to select **DEPTH TREND, WIND SPEED TREND, TEMP TREND** or **SOG TREND**.

10.9 VHF DIGITAL SELECTIVE CALLING

Digital Selective Calling is a semi-automated method of establishing a VHF radio call. DSC had also been designated as part of the Global Maritime Distress and Safety System (GMDSS). It is planned that DSC will eventually replace aural watches on distress frequencies and will be used to announce routine and urgent maritime safety information broadcasts.

This new system allow mariners to instantly send a distress call with GPS position (when connected to the transceiver) to the US Coast Guard and other vessels within range of the transmission. DSC will also allow mariners to initiate POSITION Request, POSITION Send calls to or from another vessel equipped with a DSC transceiver.

STANDARD HORIZON VHF Marine Radios with Digital Selective Calling are able to be interfaced with the GPS chartplotter which feeds GPS data to the VHF and listens for DSC calls from the VHF. By connecting a few wires between the STANDARD HORIZON VHF and the GPS chartplotter it will receive:

1. a vessel that has transmitted a DSC Distress call
2. a vessel that has transmitted a DSC Position Send Call
3. The position of a vessel that transmitted a DSC Position Request Call

10.9.0 Interfacing

To take advantage of these functions the plotter must be interfaced (wired) to a STANDARD HORIZON or compatible DSC VHF.

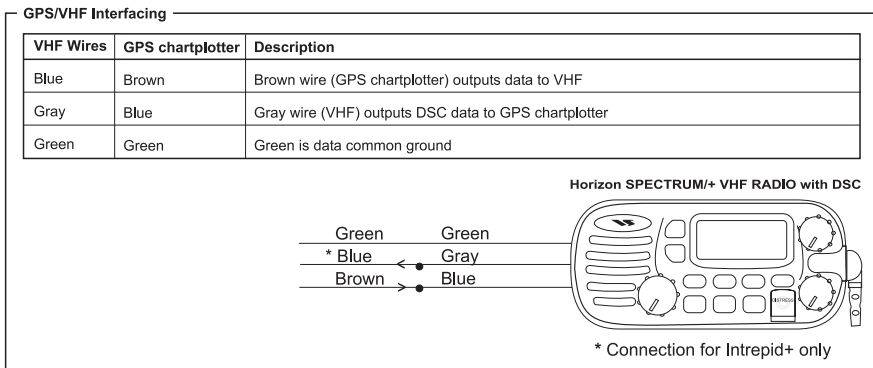


Figure10.9.0 - Interfacing to VHF Radio

10.9.1 DSC Distress Call

During a Distress situation, a vessel that is equipped with a DSC VHF and connected to a GPS, has the capability to transmit a DSC Distress Call with GPS Position. When the Standard Horizon VHF receives a DSC Distress Call, DSC/Position information of the vessel in Distress is transferred to the GPS chartplotter. The GPS chartplotter Logs the Distress call into the **DSC DISTRESS LOG** and also prompts the user to see the location of the Vessel in Distress and also allows for easy navigation to the vessel.

10.9.2 Position Request

STANDARD HORIZON VHF radios can transmit a DSC call to other equipped Vessels with a DSC VHF or request this radio transmit the GPS position. When this position is received the STANDARD HORIZON VHF radio sends the information to the GPS chartplotter which displays the GPS position of the vessel on the Chart page. This is a great feature for anyone wanting to know the position of another vessel for example you buddy that is catching fish, or finding the location of a person you are cruising with.

11. ADVANCED SETTINGS

The Advanced Setup menu allows customization of many GPS functions, Alarms and NMEA interfacing.

1. To access this menu press **[MENU]**, move the ShuttlePoint knob to **SETTINGS** and press **[ENTER]**.
2. Move the ShuttlePoint knob to **ADVANCED SETUP** and press **[ENTER]**.

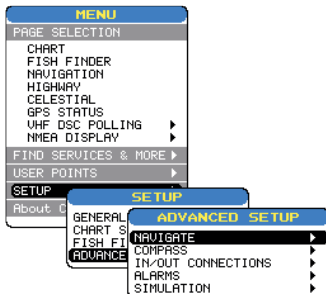


Figure 11 - Advanced Settings

While in this menu you will see many selections which are described in the next section.

11.0 INPUT/OUTPUT (NMEA)

The GPS chartplotter has 3 NMEA inputs and 3 NMEA outputs. The NMEA outputs can be configured to send specific NMEA messages.

11.1 NAVIGATE

The Navigate Menu allows customization of the Coordinate System, (Loran TD's), Map Datum, Map Orientation Resolution (angle the vessel has to change before the chart is redrawn and Static Navigation.

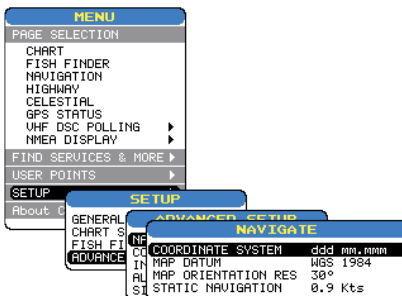


Figure 11.1 - Navigate Menu

Coordinate System : Selections are

TD	: Loran TD
UTM	: Universal Transverse Mercator Grid
ddd mmm.mm	: Degrees minutes and hundredths of minutes
ddd mm.mmm	: Degrees minutes and thousands of minutes
ddd mm.sss	: Degrees Minutes and Seconds (default)

The Loran TD selection allows the chartplotter to be set up so the user can enter in LORAN TD's directly into the GPS chartplotter. After the TD's have been entered, and the user changes to ddd mm.sss (Degrees Minutes and seconds) the TD's will be converted to Lat / Lon coordinates.

To use the TD coordinate system the user must setup the Chain and Pair information of the TD's. If you do not know this information, refer to paper charts that show the chain and pair information.

ASF1/2	: Additional Secondary phase Factor (TD Coordinates System) Correction to TD1/2 values which can be inserted by the user.
Alter	: Alternate Solution (TD Coordinates System) Parameter selected by the user that is applied in the conversion of TD values to geographical coordinates Lat/Lon. It defines which of the two possible solutions can be used.
Map Orientation Resolution	: Sets the angle the vessel has to change before the chart is redrawn. The default setting is 30 degrees. Example: if the vessel is heading 000T at a speed of 25 Knots, the display will redraw: a. In home mode the chartplotter centers the location of the vessel in the center of the display. To keep the vessel in the center of the display the chartplotter will occasionally redraw. b. If the vessel changes course greater than 330T or more than 30T the chart will be redrawn.
Map Datum	: Allows selection of Map Datums. The default Datum is WGS84 as C-Map cartography has been compiled using the WGS84 Datum.
Static Navigation	: Sets up a threshold for the speed. When the speed received from the positioning device is under that threshold, the chartplotter displays zero. The default setting is 0.9 Kts.

11.2 COMPASS

The Plotter computes compass direction from the constellation of GPS Satellites. For the chartplotter to compute direction the vessel must be moving through the water. This menu allows the chartplotter to customize the following selections:

Bearings	: Selects between True and Magnetic. When Magnetic bearings is enabled, the chartplotter applies the selected Magnetic Variation (Auto or Manual, see next paragraph) to compute True bearing.
Variation	: Allows the user to select Auto or Manual. When Auto mode is selected the chartplotter computes the offset by the current GPS fixed location. Manual mode allows the user to enter in a magnetic variation that is applied in the True conversion.
Calibration	: This function allows a user to enter in the offset for areas that the vessel may cruise instead of entering in a manual offset for one location. This offset is useful for cruising vessels or vessels that travel internationally often.

N	N/E	E	S/E	S	S/W	W	N/W
+01°	+02°	+00°	-01°	-01°	+01°	+03°	+02°

Figure 11.2 - Compass Table

11.3 ALARMS

This menu is used to select and setup audible and visual Alarms. Available alarms are Arrival, XTE, Depth, Anchor and Grounding Alarm.

Arrival Alarm	: Alerts when the vessel is approaching a single destination point or when arriving at a leg in a route. Available selections: 0.00 to 9.99NM.
XTE Alarm	: Alerts when the vessel is deviating from a defined course. Available selections: 0.00 to 9.99NM.
Depth Alarm	: Alerts when the received depth Value from the optional Fish Finder or depth finder inputting NMEA data into the chartplotter is lower than the selected value. Available selections: 0000 to 3000 FT.
Anchor Alarm	: Alerts when the ships moves off a selected locations by a selected distance. Available selections: 0.00 to 9.99NM.
Audible Alarm	: Enables or disables the alarm beep.
Grounding Alarm	: This function looks ahead of the vessels heading to see if a potential danger exists. When the Grounding Alarm is enabled the chartplotter will draw a triangle in front of the vessel on the chart page showing the area that is being searched as shown below. The depth and range (distance) of the area the chartplotter looks ahead for a shallow area can be set using this function.

The following warning appears when the Grounding Alarm is enabled:

NOTES

The Grounding Alarm function only operates with the new NT+ C-CARDS. It also affects the speed of the redraw of the screen. If this function is not used it may be disabled.

When any of the objects checked are found for the first time, the chartplotter shows a pop up window to alert the user of the possible danger. The name of each new dangerous object found is reported in the warning window. In the Grounding Alarm Report page the relative item has a tick marker next to it, to identify the dangerous object currently detected. If in the next search cycle the same objects are found again, the alarm window will not be shown. Instead, if in the next searches the objects found before are no longer detected, their relevant item in the Grounding Alarm Report page is cleared (note that in this case, if the same object type is found again later, the Alarm will be shown). The chartplotter shows an icon on the charts that identifies when a Grounding Alarm is detected.

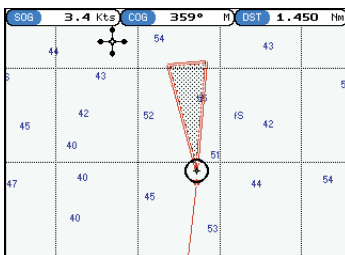


Figure 11.3 - Grounding Alarm

- Ground Alarm Range** : Allows setting the distance of the grounding alarm zone. Available selections are 0.25, 0.5 and 1.0NM. the default selection is 0.25NM. When a depth or a object is found in the scanned zone area a marker is printed in the Grounding Alarm Report Page to identify which dangerous objects have been currently detected.
- Grounding Alarm Report** : Displays a report of dangerous objects found.

12. TROUBLE SHOOTING

The chartplotter does not turn On. The voltage or the polarity may not be correct. Make sure that the correct voltage (10-35 volt dc) is present. Check also that the polarity is correct.

The chartplotter does not get a valid fix. The GPS Antenna may not be in an open sky position or the antenna cable may not be properly connected. Make sure that no metal obstacle is placed around the GPS Antenna acting as a shield for the antenna and disconnect and connect again the antenna cable to the chartplotter. If, after 15 minutes, the chartplotter does not get the fix, turn it Off and On again.

The chartplotter does not turn Off. The chartplotter may be in an unpredictable status. If, after pressing **[PWR]** (for at least 3 seconds) the chartplotter does not turn Off, turn Off the voltage.

The chartplotter screen becomes very dark after a long exposure to direct sunlight. The internal temperature is very high. Control the contrast. Protect the chartplotter from direct sunlight.

The chartplotter does not respond to any command. The chartplotter may be in an unpredictable status. Try to turn Off, and then turn On. If the problem persists, erase the memory) or remove power from the battery.

External devices are not receiving data from the chart chartplotter. The connections or the Software settings may not be right. Check the connections or the settings.

The location of my fix is not shown correctly on the Chart Page. This is usually caused when C-Map Geo-References a nautical chart. Contact C-Map with the latitude & Longitude of your vessels position, the position where you think your vessels should be and with details of the cartography areas, which can be seen by selecting the Chart Page, press **[ENTER]** and move the ShuttlePoint knob to select INFORMATION, move the ShuttlePoint to Source of Data and press **[ENTER]**. Write down the "Compilation scale", "{Notice to mariners", and "Horizontal datum". Next contact C-Map USA at 508/477-8010 and advise the problem.

13. TECHNICAL TESTS

13.0 SYSTEM TEST

If you have connected your chartplotter according to the instructions, and chosen the proper menu selection for your device, and are still having problems with your chartplotter, the extended auto-test should help determine the problem. Make sure the chartplotter is turned Off. While pressing and holding any other key, turn the chartplotter On. A new menu will appear on the display:

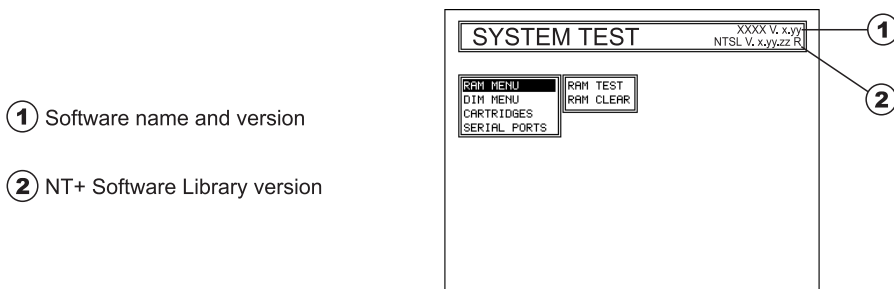


Figure 13.0 - System Test

Use the ShuttlePoint knob to select the desired test. Choose the test press **[ENTER]**. To exit from any submenu press **[CLEAR]**. To exit from the System Test turn Off the chartplotter.

13.0.0 RAM Menu (reset)

This test verifies the integrity of the memories and if desired during this test all the internal memory can be erased and the default setting restored.

RAM Test

To verify the integrity of the RAM. If on the screen the message **ERROR** appears, the RAM is physically damaged. Contact your Dealer or STANDARD HORIZON.

RAM Clear

To clear internal memory. If the chartplotter exhibits unusual operations, or appears to be malfunctioning, it may be possible to correct the problem by clearing RAM.

This operation will erase all Marks, Routes, stored Track plots and Destinations. It will also return all selections (Input Data Format, Autopilot selection, etc.) to original default values. To confirm clear RAM press **[ENTER]** again (but if at this time you do not wish to clear RAM press **[CLEAR]**).

13.0.1 DIM Menu

To select the desired value for brightness and keypad light.

Contrast

Each time you move the ShuttlePoint knob to right, the screen will decrease brightness, move it to the left to increase brightness.

Backlight

The second option allows to set the backlight. Operates in similar mode as Contrast.

13.0.2 Cartridges

To check the C-CARD and its connector.

Background ROM

To test the WorldWideBackground. If there is not a malfunction, the code of the Background and the message "OK" are shown, but if the Background is defective the message "Faulty" is shown.

C-CARD Test

To test the C-CARD. There are the possible situations:

1. if there is a C-CARD inserted in the slot and there is not a malfunction, the name of the C-CARD zone and the message "OK" are shown.
2. if there is a C-CARD inserted in the slot, but it is a defective C-CARD, the name of the C-CARD zone and the message "Faulty" are shown.
3. if there is not any C-CARD inserted in the slot, the message "not present" is shown.
4. if there is a User C-CARD inserted in the slot, the message **USER C-CARD** is shown.

C-CARD Connector

Indicates if there is a malfunction in the connector.

13.0.3 Serial Ports

If you are having problems receiving data from the position-finding instrument, this test should help determine the problem.

Change Parameters

To change the parameters of the serial interface. This menu allows to select the **Port** (Signal Source) between PORT 1 or PORT 2, the **Baud Rate** between 300, 1200, 2400, 4800 or 9600, the **Data Bits** (Word Length) between 7 or 8, the **Parity** between even, odd or none, the **Stop Bits** between 1 or 2. Default settings are: Port = PORT 1, Baud Rate = 4800, Data Bits = 8, Parity = none, Stop Bits = 1.

Input Data Display

To allow the chartplotter to act as a computer terminal and display the incoming data exactly as it is received.

If the data displayed on the screen is unrecognizable, you may have selected the wrong input parameters for your particular receiver, for example, Baud Rate 9600 instead of Baud Rate 4800. Check your receiver manual to be sure that you have selected the proper parameter. If the screen is blank, you may have a broken connection, and no data is being received or you may have connected the device to the other input port.

Use **[ZOOM IN]** to stop (or continue after pause) data displaying, **[ENTER]** to show data in hex or ASCII mode (normal or small) and **[CLEAR]** to exit.

13.0.4 Modem test

Checks the Modem connections (to be used only if the C-COM Modem is connected).

Press **[ENTER]** to select the desired Modem Port to the Port to which the Modem C-COM is connected.

14. SPECIFICATIONS

14.0a CP155C SPECIFICATIONS

Power consumption	: 600mA max @12V
Power supply	: 12 Volt DC, 7 Watt max
Interface	: Input/Output Interface NMEA-0183
Display	: TFT Color LCD (active area 5,7") sunviewable tecnology
Display Resolution	: 320 x 240 pixels
Cartography	: C-MAP NT+ C-CARD
Operating temperature range	: 0/+55 degrees Celsius
Storage temperature	: -20/+70 degrees Celsius
Water Resistance	: splash-proof
Memory	: Non volatile with battery backup
Keyboard	: Silicon rubber, backlight
Weight	: 900 gr. (2 pounds)

User Points (Marks/Waypoints): 600

Routes : 20 (max 30 Waypoints each)

Track Points : 3000 (recordable in 5 Tracks)

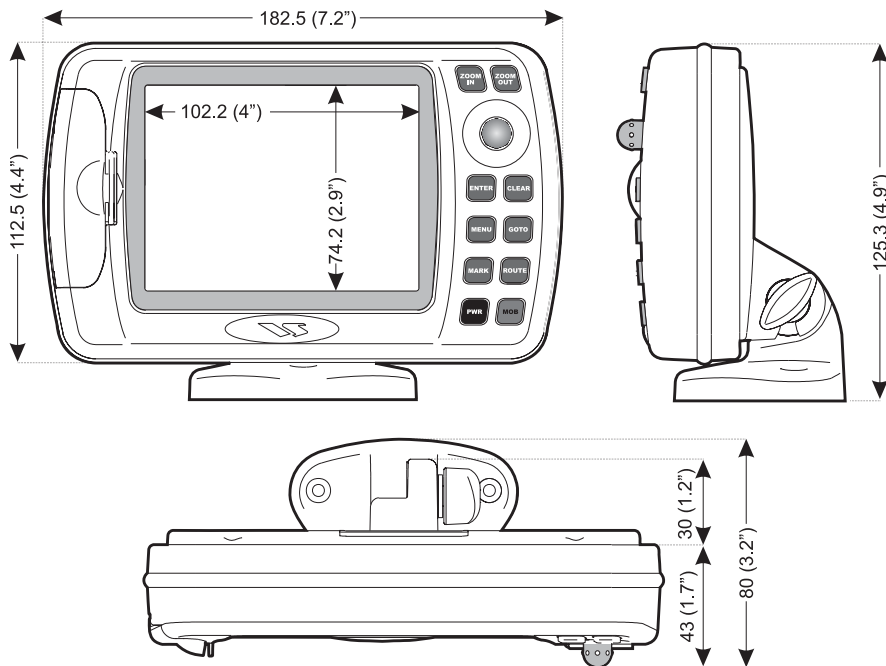


Figure 14.0a - CP155C chartplotter Dimensions [mm/inch]

14.0b CP175C SPECIFICATIONS

Power consumption	: 600mA max @12V
Power supply	: 10 - 35 Volt DC, 7 Watt max
Interface	: Input/Output Interface NMEA-0183
Display	: TFT Color LCD (<i>active area 5,7"</i>) sunviewable tecnology
Display Resolution	: 320 x 240 pixels
Cartography	: C-MAP NT+ C-CARD
Operating temperature range	: 0/+55 degrees Celsius
Storage temperature	: -20/+70 degrees Celsius
Water Resistance	: splash-proof
Memory	: Non volatile with battery backup
Keyboard	: Silicon rubber, backlight
Weight	: 900 gr. (2 pounds)

User Points (Marks/Waypoints):	1000
Routes	: 20 (max 50 Waypoints each)
Track Points	: 3000 (recordable in 5 Tracks)

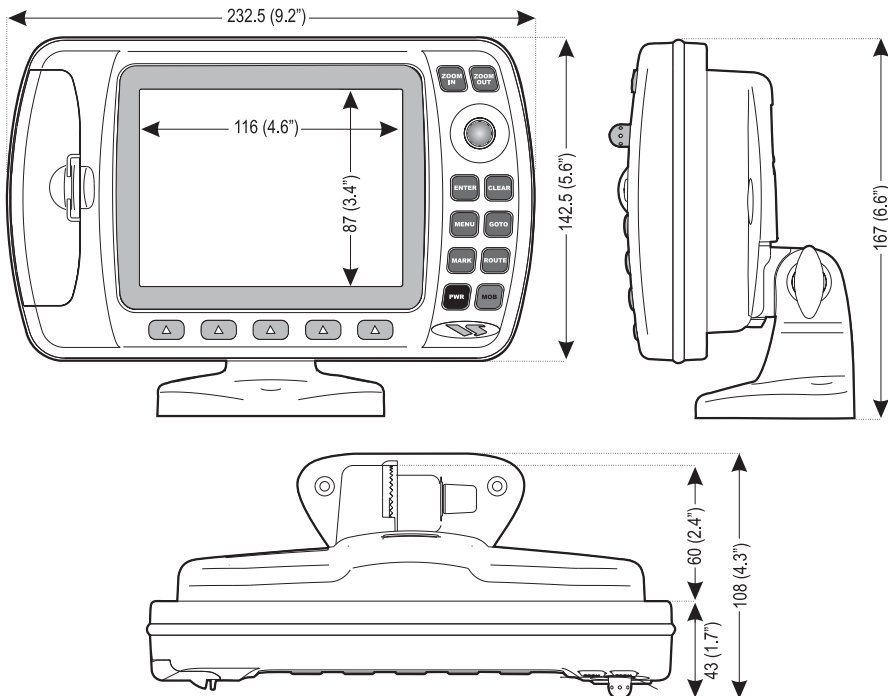


Figure 14.0b - CP175C chartplotter Dimensions [mm/inch]

14.0c CP1000C SPECIFICATIONS

Power consumption	: 1280mA max @12V without VideoCamera 1500mA max @12V with VideoCamera
Power supply	: 10 - 35 Volt dc, 15 Watt max without VideoCamera 10 - 35 Volt dc, 18 Watt max without VideoCamera
Interface	: 3 Input/Output Interface NMEA-0183 1 USB slave port
Display	: TFT Color LCD (<i>active area 10,4"</i>) sunviewable technology
Display Resolution	: 640 x 480 pixels
Cartography	: Embedded C-MAP NT+ C-CARD
Operating temperature range	: 0/+55 degrees Celsius
Storage temperature	: -20/+70 degrees Celsius
Water Resistance	: splash-proof
Memory	: Non volatile with battery backup
Keyboard	: Silicon rubber, backlight
Weight	: 1,6 Kg.

User Points (Marks/Waypoints): 3000

Routes : 50 (max 50 Waypoints each)

Track Points : 3000 (recordable in 5 Tracks)

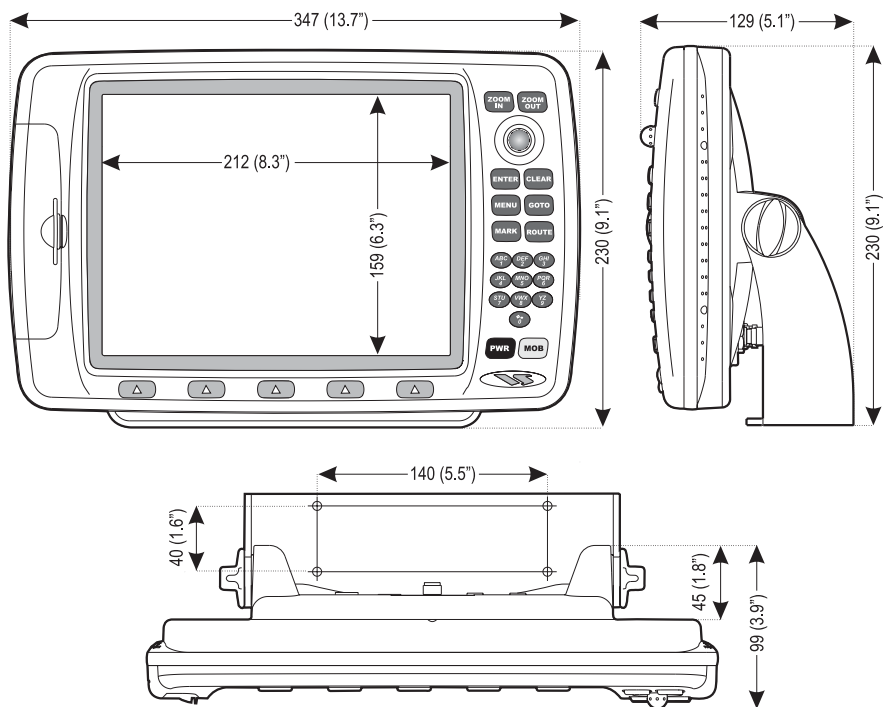


Figure 14.0c - CP1000C chartplotter Dimensions [mm/inch]

14.1 SMART WAAS RECEIVER SPECIFICATIONS

This Smart DGPS WAAS receiver is based on a ultimate 12 channel GPS engine that delivers accuracy better than three meters by decoding the GPS correction signals from the satellite-based WAAS (*Wide Area Augmentation System*). The GPS engine, interface electronics and the passive antenna are enclosed inside the water-proof plastic housing. This provides advanced state of the art GPS performance in an easy to use package.

PHYSICAL CHARACTERISTICS

Color	: Ivory white.
Dimensions	: 97mm in diameter x 32mm in height (flush mounted) or 61,5mm on flag-pole mount.
Weight	: 160 grams (without cable).
Cable GPH 10	: white 15 meter 8x28AWG cable with 6 pins female connector

ELECTRICAL CHARACTERISTICS

Input Voltage	: 10 Vdc to 35 Vdc unregulated.
Input Current	: 112 mA @ 12 Vdc 60 mA @ 24 Vdc 45 mA @ 35 Vdc

GPS Receiver Sensivity : -145 dBW minimum

GPS PERFORMANCE

Receiver	: WAAS (North America), EGNOS (Europe), MSAS (Asia)
Geodetic Datum	: WGS84
Channels	: 12
Frequency	: 1575.42MHz (L1, C/A code)

ACQUISITION TIME (Approximate)

Reacquisition	: less than 1 second
Hot Start	: 8 seconds (typical)
Warm Start	: < 40 seconds (typical)
Cold Start	: < 45 seconds (typical)

ACCURACY

Position	: less than 10' (3m), 95% of the time
Speed	: 0.3 Knots RMS

NMEA OUTPUT MESSAGES/UPDATE RATE

GGA	: 1 second
GLL	: 1 second
VTG	: 1 second
RMC	: 1 second
GSA	: 3 seconds
GSV	: 3 seconds
PCMPD	: 1 second

15. APPENDIX: TERMS

ALT (Altitude) Shows the Altitude of the vessel.

APP Wind DIR SPD (Apparent Wind Direction) Shows the Apparent wind Direction when a external wind instrument with NMEA is connected.

APP Wind SPD (Apparent Wind Speed) Shows the Apparent wind speed when a external wind instrument with NMEA is connected.

BRG (Bearing) the direction from your current position to a destination point.

COG (Course Over Ground) – the course your vessel is heading

DATE Shows the current date received by the GPS.

DEPTH shows the water depth when the optional Black Box Fish Finder or Digital Depth Sounder is connected.

DRAUGHT Tide height value referred to Horizontal cursor.

DSC (Digital Selective Calling) Digital Selective Calling is a semi-automated method of establishing a VHF radio call. DSC had also been designated as part of the Global Maritime Distress and Safety System (GMDSS). It is planned that DSC will eventually replace aural watches on distress frequencies and will be used to announce routine and urgent maritime safety information broadcasts.

DST (Distance) – the distance from your current position to a destination point.

ETA Estimated Time of Arrival

GPS Constellation The Global Positioning System (GPS) is a space-based radio-navigation system consisting of a constellation of satellites and a network of ground stations used for monitoring and control. A minimum of 24 GPS satellites orbit the Earth at an altitude of approximately 11,000 miles providing users with accurate information on position, velocity, and time anywhere in the world and in all weather conditions.

GPS2D The GPS is receiving at least 2 valid satellites

GPS3D the GPS is receiving at least 3 Satellites.

HDG (Heading) Shows heading from a External Flux Gate Compass when connected.

HDOP/VDOP Horizontal/Vertical Dilution of Precision. It is a parameter indicating the precision of the positioning system (GPS). The smaller the HDOP/VDOP value, the more accurately the position fix is provided.

HEIGHT The current tide height referred to the vertical cursor.

HIGH WATER The maximum level of the tide height in 24 hours.

LOW WATER The minimum level of the tide height in 24 hours.

Position Request Marine DSC VHF Function of transmitting a GPS position to another Marine DSC VHF. When GPS chartplotter is connected to Standard Horizon GPS the position of another vessel is shown on the Chart Page.

SPEED shows the Speed Thru the Water when a Digital Speed Log is connected.

SOG (Speed Over Ground) – the speed you vessel is traveling at.

STEER Heading to steer to destination Waypoint

TIME Shows the current time received by the GPS.

TRIP LOG Shows the distance the vessel has traveled since the trip log was reset.

TRU Wind DIR SPD (Apparent Wind Direction) Shows the True wind Direction when a external wind instrument with NMEA is connected.

TRU Wind SPD (Apparent Wind Speed) Shows the True wind speed when a external wind instrument with NMEA is connected.

TTG (Time To Go) – shows time to go to reach a destination point.

UNITS

Nm Nautical Mile (1 NM = 1.15 Sm or 1.85Km)

Sm Statue Mile (1Sm = 0.87Nm or 1.61Km)

Km Kilometer (1 Kilometer = 0062 Sm or 0.54Nm)

FT Feet. (1 Foot = 0.167 Fathoms or 0.305 Meters)

FA Fathom (1 Fathom = 6 Feet or 1.83 Meters)

Mt Meter (1 Meter = 3.28 Feet or 0.55 Fathoms)

Kts Knot (1 Knot = 1.15 MPH or 1.85 KPH)

MPH Miles Per Hour (1 MPH = 0.87 Knots or 1.61 KPH)

Kmh Kilometer per hour (1 KPH = 0.54 Knots or 0.62 MPH)

VMG It is the destination closing Velocity. The VMG is calculated using the current speed of the vessel (SOG) and the difference between the current vessel course and the bearing to the destination.

WAAS 2D/3D the GPS is receiving a 2D or 3D position and the correction from the WAAS Satellite. WAAS consists of approximately 25 ground reference stations positioned across the United States that monitor GPS satellite data. Two master stations, located on either coast, collect data from the reference stations and create a GPS correction message. This correction accounts for GPS satellite orbit and clock drift plus signal delays caused by the atmosphere and ionosphere. The corrected differential message is then broadcast through one of two geostationary satellites, or satellites with a fixed position over the equator. The information is compatible with the basic GPS signal structure, which means any WAAS-enabled GPS receiver can read the signal.

WATER TEMP Shows the sea water temperature when the Black Box Fish Finder or a Digital Speed Log/temp instrument with NMEA is connected.

XTE (Cross Track Error) the distance your vessel is off course (left or right) to a destination point.

INDEX

12VDC Power and NMEA Cable	18	Cursor/Menu Speed	28
A		Customizing Data Window	59
Adjusting Time	30	Customizing Soft Keys	33
Advanced Chart SetUp	58	D	
Alarms	67, 69	Data window layout	56
alphanumeric keys	26	DATE	79
ALT	79	Daylight Savings	30, 62
Altitude	34, 79	Declutter	59
Anchor Alarm	69	Deleting a file	54
ANTENNA	16	Depth	34, 79
APP Wind DIR SPD	79	Depth Alarm	69
APP Wind SPD	79	Depth Areas	59
Arrival Alarm	69	Depth Areas <	59
Attention Areas	58	Depth Areas >	59
Audible Alarm	69	Depth Lines & Soundings <	59
AUTO INFO	34	Depth Lines & Soundings >	59
Auto Pilot	21	Depth Lines and Soundings	59
B		Depth Settings	59
backlight	29	Depth Sounder	21
Bearings	68	destination	25
BRACKET MOUNTING	15	Digital Selective Callin	64
BRG	79	Digital Selective Calling	20, 79
C		DIM Menu	73
C-CARD	24	Display	75, 76, 77
Calibration	68	Distance	34
Cartography	24, 59, 75, 76, 77	Distance Units	49
Cartridges	74	DRAUGHT	79
Celestial Page	62	DSC	20, 64, 79
Changing User C-CARD	54	DST	79
Chart	25, 27, 56	DVD	22
Chart Boundaries	59	E	
Chart page	56	Edit	39
chart scale	25	ENTER	25
Chart Settings	59	ETA	79
CLEAR	25	F	
COG	79	features	11
Compass Menu	68	file	54
Compass Rose	60	Find	39
Compass Tape	60	Fish Finder	33, 64
CONNECTIONS	17	FLUSH MOUNTING	15
contrast	29	Flush Mounting Antenna	17
Coordinate System	67	Flux Gate Compass	21
Coordinates	35	Format User C-CARD	53
Course Up	29, 34	G	
CP1000C		GOTO	25
12, 18, 22, 26, 32, 33, 37, 38, 41, 43, 55, 77		Goto Cursor	40
CP155C 11, 12, 18, 19, 24, 38, 43, 55, 75		Goto Mark	41
CP175C		GPS	27, 79
12, 18, 19, 26, 32, 33, 37, 38, 41, 43, 55, 76		GPS Position	20
Creating a route	45	GPS SMART ANTENNA	16
Cultural Features	59	GPS Status	25, 27
cursor	25	Greenwich England Mean Time	30
Cursor Mode	25, 26, 27	Ground Alarm Range	69
CURSOR WINDOW	34	Grounding Alarm	69

Grounding Alarm Report	69	NMEA Display	25
H		NMEA Display Page	63
HDG	79	NMEA input	67
HDOP	79	NMEA interfacing	67
HEIGHT	79	NMEA output	21, 67
HIGH WATER	79	NMEA sentences	22
Highway	25	NMEA Trend Page	64
Home Mode	25, 26	North Up	29, 34
Home mode	28	NT+	24
I		O	
Icon Points	57	Obstructions	35
Inserting C-CARD	24	Optional Accessories	12
Interface	75, 76, 77	P	
K		Packing List	11, 12
KEY BEEP	34	pages	32
Keyboard	75, 76, 77	PC	39
keys	25	Personal Computer	39
knob	25	Port	35
L		Port Services	35
Lamp/Contrast	26	Ports & Services	59
Land Settings	59	Position Request	64, 80
Landmarks	59	Position Send	64
LANGUAGE	34	Power and NMEA Cable	18
Lat/Lon Grid	59	Power consumption	75, 76, 77
Latitude/Longitude	31	Power supply	75, 76, 77
Light Sectors	58	PWR	26
Loading a file	54	R	
Locate	39	Radar	21
Loran TD	31, 67	RAM Menu	73
LOW WATER	80	Receive	39
M		record a Track point	49
Main Menu	25	Resolution	75, 76, 77
Map Datum	67	Reverse Route	47
map details	25	Rivers & Lakes	59
Map Orientation	34	Route	26, 37, 75, 76, 77
Map Orientation Resolution	67	Route Report	46
Map Setup	57	RTE	21
Marine Settings	58	S	
Mark	26, 37, 45	scale	34
Mark creation	37	Screen display pages	33, 55
Mark/Waypoints list	39	Seabed Type	59
MEASURE DST & BRG	34	Send	39
Memory	75, 76, 77	Serial Ports	74
MENU	25	Ships Icon	28
Mixing Levels	59	ShuttlePoint knob	25
MOB	26, 43	Smart DGPS	78
Modem test	74	Smart GPS Cable	18
MOUNTING	15	Soft Keys	26, 32, 33
Mounting GPS SMART Antenna	16	SOG	80
Moving a Mark/Waypoint	38	SPECIFICATIONS	75
N		Speed	34, 80
Names	58	Speed Log	21
Natural Features	59	Starting Waypoint	45
Nav-Aids	58	startup page	26
Navigate Menu	29, 67	Static Navigation	67
Navigation	25	STEER	80
night vision	32	T	
NMEA	21, 22, 63, 67	TD	68
NMEA connections	20	temperature	75, 76, 77
NMEA Data Page	22	text area	56

Tide Station	35
Tides & Currents	58
Time	80
time	30
TIME LINE	34
Time Units	49
Track	49
Track menu	50
Track Points	49, 75, 76, 77
Tracks & Routes	59
TRIP LOG	50, 80
TROUBLE SHOOTING	71
TRU Wind DIR SPD	80
TRU Wind SPD	80
TTG	80
U	
Underwater Objects	59
UNITS	80
UNITS OF MEASURE	34
Universal Time Coordinates	30
User C-CARD	53
User Points	35, 75, 76, 77
UTC	30
UTM	31
V	
Variation	68
VCR	22
VDOP	79
VHF Radio	22
Video Camera	13, 22
Video Connector	18
VIDEO INPUT	22
VMG	80
W	
WAAS	62, 80
WATER TEMP	80
Waypoint	26, 37, 45
Weight	75, 76, 77
Wind Speed	21
WPL	21, 39
Wrecks	35
X	
XTE	80
XTE Alarm	69
Z	
ZOOM IN	25
ZOOM OUT	25
ZOOM TYPE	34

CODE: XSegSH11c/S3egSH5c/S3egSH7c 321c784/321c736/322c844 - 030504

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