

GPSMAP 176C/176

chartplotting receiver



owner's
manual
and
reference
guide

© Copyright 2001-2002 GARMIN Ltd. or its subsidiaries

GARMIN International, Inc.

1200 East 151st Street, Olathe, Kansas 66062, U.S.A.

Tel. 913/397.8200 or 800/800.1020

Fax 913/397.8282

GARMIN (Europe) Ltd.

Unit 5, The Quadrangle, Abbey Park Industrial Estate, Romsey, SO51 9AQ, U.K.

Tel. 44/1794.519944

Fax 44/1794.519222

GARMIN Corporation

No. 68, Jangshu 2nd Road, Shijr, Taipei County, Taiwan

Tel. 886/2.2642.9199

Fax 886/2.2642.9099

All rights reserved. Except as expressly provided herein, no part of this manual may be reproduced, copied, transmitted, disseminated, downloaded or stored in any storage medium, for any purpose without the express prior written consent of GARMIN. GARMIN hereby grants permission to download a single copy of this manual and of any revision to this manual onto a hard drive or other electronic storage medium to be viewed and to print one copy of this manual or of any revision hereto, provided that such electronic or printed copy of this manual must contain the complete text of this copyright notice and provided further that any unauthorized commercial distribution of this manual or any revision hereto is strictly prohibited.

Information in this document is subject to change without notice. GARMIN reserves the right to change or improve its products and to make changes in the content without obligation to notify any person or organization of such changes or improvements.

Visit the GARMIN web site (www.garmin.com) for current updates and supplemental information concerning the use and operation of this and other GARMIN products.

GARMIN® and AutoLocate® are registered trademarks, and MapSource™, BlueChart™ and MetroGuide™ are trademarks of GARMIN Ltd. or its subsidiaries and may not be used without the express permission of GARMIN.

Preface

Congratulations on choosing one of the most advanced marine navigation systems available! The GARMIN GPSMAP 176 utilizes the proven performance of GARMIN GPS and full featured mapping to create an unsurpassed portable marine navigation chartplotter.

Be sure you take the time to read the Quick Start Guide first to get acquainted with the basic features of the GPSMAP 176. After you have read the Quick Start Guide, you may read through this Owner's Manual in order to understand the operating features of the GPSMAP 176 in detail. This manual is broken down into three sections for your convenience.

The **Introduction Section** provides FCC and safety information and the Table of Contents. The **Reference Section** provides details about all of the features of the GPSMAP 176, organized by topic. This allows you to concentrate on a specific topic quickly and can be used to look up detailed information about the GPSMAP 176. The **Appendices** contain supplemental information such as specifications, accessories, and an Index organized by subject.

Product Registration and Support

Help us better support you by completing our on-line registration today! Have the serial number of your GPSMAP 176 handy and connect to our website (www.garmin.com). Look for the Product Registration link on the Home page. Also, be sure to record your serial number in the area provided on page v of this manual.

Why should you register you GARMIN GPS unit?

- Notification of product updates
- Notification of new products
- Lost or stolen unit tracking

GARMIN's Product Support department can be reached Monday–Friday, 8 a.m. to 5 p.m. Central Standard Time, by phone at **1-800-800-1020**, or by e-mail at **sales@garmin.com**.

Introduction

Product Registration and Support



The GPSMAP 176 uses GPS technology in order to find your precise location. GPS stands for Global Positioning System, a group of 24 satellites, circling the Earth twice a day, at an altitude of about 12,000 miles. The satellites transmit very low power radio signals containing position and time information, allowing anyone with a GPS receiver to determine their location on the Earth within 100 meters or better. For more detailed information regarding GPS, we have prepared a booklet called "GPS Guide for Beginners" which is available to you from our web site at www.garmin.com.

Introduction

FCC Compliance Statement



FCC Compliance

The GPSMAP 176 complies with Part 15 of the FCC interference limits for Class B digital devices FOR HOME OR OFFICE USE. These limits are designed to provide more reasonable protection against harmful interference in a residential installation, and are more stringent than “outdoor” requirements.

Operation of this device is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The GPSMAP 176 does not contain any user-serviceable parts. Repairs should only be made by an authorized GARMIN service center. Unauthorized repairs or modifications could result in permanent damage to the equipment, and void your warranty and your authority to operate this device under Part 15 regulations.

Software License Agreement

BY USING THE GPSMAP 176, YOU AGREE TO BE BOUND BY THE TERMS AND CONDITIONS OF THE FOLLOWING SOFTWARE LICENSE AGREEMENT. PLEASE READ THIS AGREEMENT CAREFULLY.

GARMIN grants you a limited license to use the software embedded in this device (the “Software”) in binary executable form in the normal operation of the product. Title, ownership rights and intellectual property rights in and to the Software remain in GARMIN.

You acknowledge that the Software is the property of GARMIN and is protected under the United States of America copyright laws and international copyright treaties. You further acknowledge that the structure, organization and code of the Software are valuable trade secrets of GARMIN and that the Software in source code form remains a valuable trade secret of GARMIN. You agree not to decompile, disassemble, modify, reverse assemble, reverse engineer or reduce to human readable form the Software of any part thereof or create any derivative works based on the Software. You agree not to export or re-export the Software to any country in violation of the export control laws of the United States of America.

Introduction

Software License Agreement

Warnings and Cautions

WARNING: The GPS system is operated by the United States government, which is solely responsible for its accuracy and maintenance. The system is subject to changes which could affect the accuracy and performance of all GPS equipment. Although the GARMIN GPSMAP 176 is a precision electronic NAVigation AID (NAVAID), any NAVAID can be misused or misinterpreted and, therefore, become unsafe.

CAUTION: Use the GPSMAP 176 at your own risk. To reduce the risk of unsafe operation, carefully review and understand all aspects of this Owner's Manual—and thoroughly practice operation using the simulator mode prior to actual use. When in actual use, carefully compare indications from the GPSMAP 176 to all available navigation sources, including the information from other NAVAIDs, visual sightings, charts, etc. For safety, always resolve any discrepancies before continuing navigation.

CAUTION: It is the user's responsibility to use this product prudently. This product is intended to be used only as a navigational aid and must not be used for any purpose requiring precise measurement of direction, distance, location or topography.

NOTE: The electronic chart is an aid to navigation and is designed to facilitate the use of authorized government charts, not replace them. Only official government charts and notices to mariners contain all information needed for safe navigation – and, as always, the user is responsible for their prudent use.

MAP DATA INFORMATION: One of the goals of GARMIN is to provide customers with the most complete and accurate cartography that is available to us at a reasonable cost. We use a combination of governmental and private data sources, which we identify as required in product literature and copyright messages displayed to the consumer. Virtually all data sources contain inaccurate or incomplete data to some degree. This is particularly true outside the United States, where complete and accurate digital data is either not available or prohibitively expensive.

LIMITED WARRANTY

This GARMIN product is warranted to be free from defects in materials or workmanship for one year from the date of purchase. Within this period, GARMIN will at its sole option, repair or replace any components that fail in normal use. Such repairs or replacement will be made at no charge to the customer for parts or labor, provided that the customer shall be responsible for any transportation cost. This warranty does not cover failures due to abuse, misuse, accident or unauthorized alteration or repairs.

THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED OR STATUTORY, INCLUDING ANY LIABILITY ARISING UNDER ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, STATUTORY OR OTHERWISE. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, WHICH MAY VARY FROM STATE TO STATE.

IN NO EVENT SHALL GARMIN BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM THE USE, MISUSE, OR INABILITY TO USE THIS PRODUCT OR FROM DEFECTS IN THE PRODUCT. Some states do not allow the exclusion of incidental or consequential damages, so the above limitations may not apply to you.

GARMIN retains the exclusive right to repair or replace the unit or software or offer a full refund of the purchase price at its sole discretion. SUCH REMEDY SHALL BE YOUR SOLE AND EXCLUSIVE REMEDY FOR ANY BREACH OF WARRANTY.

To obtain warranty service, call your local GARMIN authorized dealer. Or call GARMIN Customer Service at one of the numbers listed on the inside front cover of this manual for shipping instructions and an RMA tracking number. The unit should be securely packed with the tracking number clearly written on the outside of the package. The unit should be sent, freight charges prepaid, to any GARMIN warranty service station. A copy of the original sales receipt is required as the proof of purchase for warranty repairs.

Introduction

Warranty and Serial Number

Serial Number

Use this area to record the serial number (8-digit number located on the bottom of the unit) in case it is lost, stolen, or needs service. Be sure to keep your original sales receipt in a safe place or attach a photocopy inside the manual.

Serial Number:

--	--	--	--	--	--	--	--



The GARMIN GPSMAP 176 has no user-serviceable parts. Should you ever encounter a problem with your unit, please take it to an authorized GARMIN dealer for repairs.

The GPSMAP 176 is fastened shut with screws. Any attempt to open the case to change or modify the unit in any way will void your warranty and may result in permanent damage to the equipment.

Introduction

Features and Capabilities

Designed for detailed electronic charting capability, the GARMIN GPSMAP 176 is a powerful device that can give you the navigation information you need:

Precision Performance

- The GPSMAP 176 features a 3.8" diagonal, high-contrast, 320 x 240 FSTN display with backlighting
- The GPSMAP 176C features a 3.8" diagonal, 16 color, 320 x 240 TFT display with backlighting
- 12-channel parallel receiver tracks and uses up to 12 satellites for fast, accurate positioning
- DGPS, USCG and WAAS capable
- Fully gasketed, high-impact plastic alloy case, waterproof to IEC 529-IPX-7

Advanced Navigating and Plotting

- 3000 alphanumeric waypoints with selectable icons and comments
- Built-in Americas basemap includes detailed ocean, river and lake coastlines, tide stations, cities, interstates, US state highways, and local thoroughfares
- 50 reversible routes with up to 50 waypoints each
- Enhanced mapping available by using GARMIN's BlueChart™ preprogrammed data cards, or by creating additional data cards using MapSource™ BlueChart or MetroGuide™ U.S.A. PC products
- Coordinates: Lat/Lon, UTM/UPS, Loran TD, plus 24 grids, including Maidenhead
- TracBack route feature which allows you to quickly retrace your track log to a starting position
- Built-in simulator mode

Introduction	i -viii
Product Registration and Support	i
FCC Compliance Statement	ii
Software License Agreement	iii
Warnings and Cautions	iv
Warranty and Serial Number	v
Features and Capabilities	vi
Table of Contents	vii
“How To” Index	viii
Reference	1-56
Initializing the GPS Receiver	1
Initialization Options	2
Map Page	3
Using the Cursor	3
Selecting Map Scales	5
Map Page Options	6
Compass Page	13
Highway Page	14
Numbers Page	16
Creating and Using Waypoints	17
Marking your Present Position	17
Creating Waypoints Graphically	18
Additional Options for Creating Waypoints	19
Waypoint Menu Options	20
Reviewing and Editing Waypoints	20

Waypoint Lists	23
User Waypoints List	23
Proximity Waypoints List	24
Going To A Destination	26
Selecting a ‘Go To’ Graphically	26
TracBack Navigation	27
MOB (Man Overboard)	29
Creating a Route	30
Following a Route	31
Route List Page	32
Route Review Page	33
Route Review Menu Options	33
Active Route Page	37
Find	38
Main Menu Page	39
GPS Tab	40
Tide Tab	44
Trip Tab	46
Celestial Tab	46
Hunt Tab	47
Points Tab	47
Route Tab	47
Track Tab	47
Time Tab	49
Map Tab	49
System Tab	49
Location Tab	50

Table of Contents

Units Tab	52
Communication Tab	52
Alarm Tab	56
Appendices	57-73
Appendix A: Maintenance	57
Appendix B: Wiring and Interfacing	58
Appendix C: Time Offsets	59
Appendix D: Map Datums	60-61
Appendix E: Glossary of Terms	62-63
Appendix F: Messages	64-65
Appendix G: LORAN TD Setup	66-67
Appendix H: Accessories	68-69
Appendix I: Specifications	70
Appendix J: Index	71-73

“How To” Index

TO DO THIS:	SEE PAGE(S):
Access the Main Menu	39
Change the Displayed Time (zone)	49
Change Units of Measure	52
Create a Waypoint on the Map Page	5
Create and Follow a Route	30-31
Go to a Destination.	26-31
Initialize the GPS Receiver	1-2
Learn about the Map Page	3-6
Mark your Current Location as a Waypoint	17
Project a Waypoint	19
Set Alarms	56
Set Up Loran TD.	66-67
Use the Find Feature	38-39
View Current Position, Date and Time	40
View Celestial Information	46
View Data Card Information.	13
View Tide Information	44-45

This Reference Manual describes the Main Display pages and their options in detail. The Quick Start Guide describes the basic functions of the GPSMAP 176 and the processes of navigating the Main Display pages. While the Reference Manual will provide some direction on how to select an item, the main purpose is to describe each Main Page and its Option Menu in detail.

Initializing the GPS Receiver

Before the GPSMAP 176 can be used for GPS navigation, the GPS receiver must be initialized. The GPS receiver only needs to be initialized the first time the unit is used, or if it has been stored for several months. This process is automatic and should only take a few minutes.

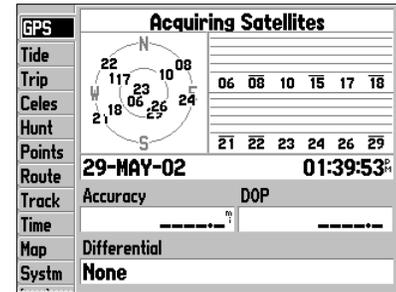
The GPSMAP 176 stores orbital data for each satellite in an Almanac. The orbital data is supplied in the satellite signals. Each time the unit receives satellite signals, the Almanac is updated. This is how the GPSMAP 176 knows which satellites to search for. If you do not use the unit for several months, or move the unit several hundred miles between uses, the Almanac can become “cold,” which means the orbital data is no longer valid. If the Almanac is “cold,” your unit may take longer to lock on to satellites while it updates the Almanac with fresh data.

To initialize the GPS receiver:

1. With fresh batteries installed, take the unit outside where it will have an unobstructed view of the sky and turn it on. Make sure the antenna is pointed up and not in the saved position.
2. The unit will search for satellite signals and begin to gather and save the information that it needs to become operational. Following the screen prompts, press **ENTER** to display the GPS Information page.
3. When the unit is able to navigate, the message ‘2D GPS Location’ or ‘3D GPS Location’ will be displayed at the top of the GPS Information page and/or the unit will automatically switch to the Map Page.

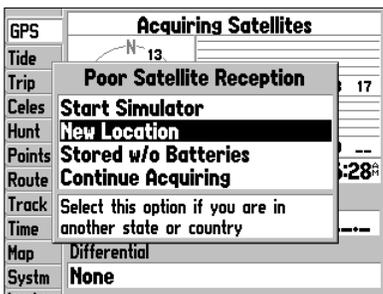
If the unit is not able to gather the necessary satellite information, an options page will be displayed. Select ‘New Location’ then ‘Automatic’ and allow the unit to continue initializing. This selection will force the unit to search for all satellites and the unit may take a little longer to become operational using this method.

Initializing the GPS Receiver



GPS Information Page

Initializing the GPS Receiver



GPS Information Page Options

Initialization Options

If the GPSMAP 176 is unable to determine its location, an options menu will be displayed. Depending on the situation, select the appropriate option to help the unit acquire satellites.

Start Simulator— This option will turn the GPS receiver Off. Select this option if you are indoors and can not receive satellite signals, or if you wish to practice using the unit in simulator mode. This options saves battery power and allows the map to redraw faster.

New Location— If you have moved to another state, province or country, and you are having trouble locking on to satellites, select ‘New Location.’ Another menu will be displayed with the options ‘Automatic’ or ‘Use Map.’ If ‘Automatic’ is selected, the unit switches to AutoLocate mode and begins searching for satellites. If ‘Use Map’ is selected, use the pointer on the Map page to select your approximate location and the unit will continue to acquire satellites normally. ‘Automatic’ may take longer to acquire satellites.

Stored w/o Batteries— If you have stored the unit without batteries, the date stored in the GPS may be incorrect. To check the date, highlight ‘Stored w/o Batteries’ and verify the date displayed below the options menu. If the date is incorrect, select ‘Stored w/o Batteries’ and press **ENTER** to search for satellites.

Continue Acquiring— Select this option if you are in an area where the satellites are temporarily being blocked.

For more information on the GPS Information page, see pages 40-43.

Map Page

The GPSMAP 176's Map Page provides a comprehensive display of electronic cartography, plotting and navigational data. When using the unit with the optional BlueChart data or MapSource software, the map display shows your location on a digital chart, complete with geographic names, map items, nav aids and a host of other chart features. It also plots your track and displays any routes and waypoints you create. An on-screen cursor lets you pan and scroll to other map areas, determine the distance and bearing to a position, and perform various route and waypoint functions.

Two basic map operating modes, position mode and cursor mode, determine what cartography is shown on the map display. Position mode pans the cartography to keep the present position marker within the display area, while cursor mode pans the cartography to keep the cursor within the display area. The GPSMAP 176 will always power up in the position mode, with the last known location centered on the map display. When the **ARROW KEYPAD** is pressed, the GPSMAP 176 will enter cursor mode.

When the cursor is active, an additional data window will appear at the top of the screen to indicate the position, range and bearing to the cursor or a selected waypoint or map item.

Using the Cursor

The cursor allows you to pan away from your present position and scroll to other map areas around the world (even outside of your current detail coverage). As you pan past the edge of the current map display, the screen will actively scroll forward to provide continuous map coverage (keep in mind that the boat icon will move with the scrolling map, and may not be visible on the display screen).



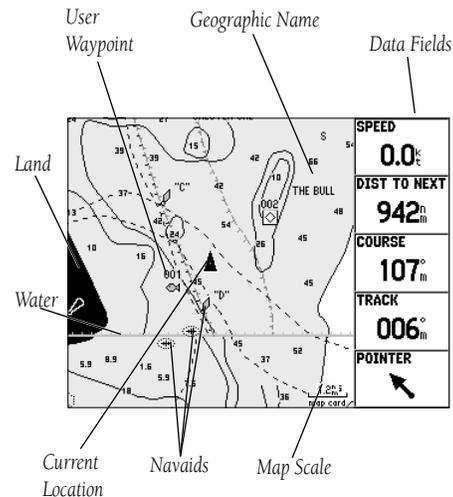
NOTE: When the cursor reaches the edge of the map, the unit may pause as it loads new map data.

To move the cursor:

1. Press the **ARROW KEYPAD** to move the cursor in an up, down, left or right direction.

Reference

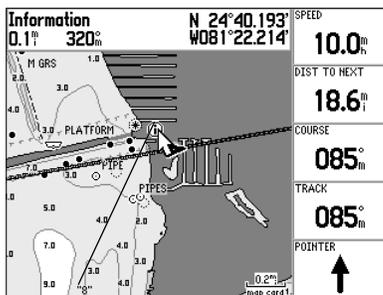
Map Page



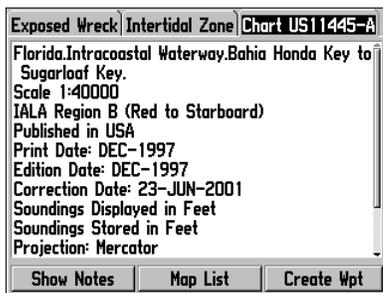
Map Page with optional BlueChart Marine data.

Reference

Map Page Cursor



Position the cursor over an item on the map to highlight it.



Information tabs for BlueChart data ('Chart' tab shown).
Select 'Show Notes' to view additional notes about the chart,
or 'Map List' to view the list of maps on your data card
(Data Card Information screen).

As you move the cursor, the distance and bearing from your present position to the cursor will be displayed in the data window, along with the cursor's position coordinates. When you zoom in cursor mode, the cursor will stay centered on the screen. When the cursor is stationary, a fixed coordinate position will appear in the position field, and the distance and bearing from your present position will change as your boat moves.

To eliminate the cursor and re-center your position on screen:

1. Press the **QUIT** key. The unit will return to position mode.

The cursor may also be used to 'snap' to on-screen waypoints and map items, allowing you to review a selected position directly from the map display.

To select an on-screen waypoint or map item with the cursor:

1. Use the **ARROW KEYPAD** to move the cursor to the desired waypoint or map item (if there are several waypoints grouped closely together, zoom in closer for a better view).
2. When a waypoint or map item is selected, it will become highlighted on screen, with the name and position displayed at the top of the screen.

To view additional details about an on-screen waypoint or map item:

1. With the desired waypoint or map item highlighted, press **ENTER**.
2. If the item is a waypoint, the Waypoint Review page appears, showing the waypoint name, symbol, coordinates, elevation, depth (all of which are editable), and the options to 'Delete' the waypoint, show it on the map ('Show Map'), or 'OK' to return to the Map Page. Use the **ARROW KEYPAD** to highlight 'OK' or press **QUIT** to exit the Waypoint Review page.

If the item is a map feature or a feature of BlueChart or MapSource data, an Information page appears, showing additional details about the feature, and options to show the feature on the map ('Show Map') or create a waypoint at the map feature location ('Create Wpt'). In some cases, additional information tabs and option buttons will appear. Use the **ARROW KEYPAD** to highlight the individual tabs to display the additional information and options. Press **QUIT** to exit the Information page.

The cursor may also be used to create a new waypoint directly from the map.

To create a waypoint with the cursor on an open map location:

1. Use the **ARROW KEYPAD** to move the cursor to the desired map position.
2. Press and quickly release the **ENTER/MARK** key to capture the cursor location (Pressing and holding the **ENTER/MARK** key will capture the current location, not the cursor's location).
3. The 'New Map Waypoint' window will appear. With 'OK' highlighted, press **ENTER** to confirm the new waypoint using the default three-digit name and symbol.

To create a waypoint with the cursor on a map item:

1. Use the **ARROW KEYPAD** to move the cursor and highlight the desired map feature.
2. Press the **ENTER/MARK** key to capture the cursor location. The Information page for that feature will appear. Use the **ARROW KEYPAD** to highlight 'Create Waypt' and press **ENTER**.
3. The 'New Waypoint' window will appear. With 'OK' highlighted, press **ENTER** to confirm the new waypoint using the default name and symbol based on the map feature.

Selecting Map Scales

The map display has 28 available range scales from 20 ft. to 800 mi. (5 mt. to 1200 km). The map scale is controlled by the **IN** and **OUT** keys, with the current scale displayed at the bottom right of the data window.

To select a map scale:

1. Press the **OUT** key to zoom out and the **IN** key to zoom in.



The scale value represents the distance from one end of the scale bar to the other.

The GPSMAP 176's system has a built-in worldwide database to 20 mi, with more detailed coverage available through the use of the optional BlueChart or MapSource data. The GPSMAP 176 will display cartography as long as there is chart information available for the range you've selected.

Creating Waypoints with the Map Page Cursor

New Map Waypoint		
▀ 005		
Comment		

N 38°50.850'	Elevation	Depth
W094°48.565'	_____'	_____'
From Current Location		
0.8 ^m	222°	
Delete	Show Map	OK

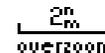
Creating a New Map Waypoint



Using Built-In Basemap

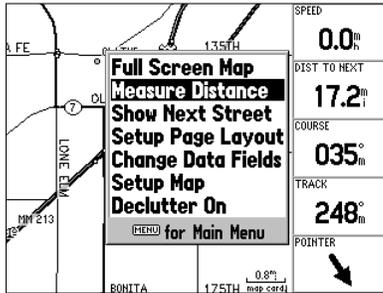


Using BlueChart/MapSource Data



Overzoom, no additional data

Map Page Options



Map Page Options

Map coverage will conform to the following conditions:

- When the selected zoom range is covered by either the internal database BlueChart, or MapSource data, cartography will be displayed.
- When the selected zoom range is covered by both the internal database and BlueChart/MapSource data, cartography will be displayed using the data with the best resolution.
- When the selected zoom range exceeds the resolution of the data in use, an 'overzoom' warning will appear below the scale field.

Map Page Options

Many features of the GPSMAP 176 are menu driven. Each of the main pages has an options menu, allowing you to custom tailor the corresponding page to your preferences and/or select special features that specifically relate to that page. The data window, located at the right side of the display, provides a user-selectable layout of various types of useful data. Each data field may be configured to display any one of several data options. The data window layout may also be customized to change the actual size of the data displayed. The GPSMAP 176's Map Page options menu provides access to functions and features relating to the Map Page and options for layout of the page.

To display the Map Page options:

1. Press **MENU**.

To select a menu option:

1. Use the **ARROW KEYPAD** to highlight the option and press **ENTER**.

The available options are Full Screen Map/Show Data Fields, Measure Distance, Show/Hide Next Street, Setup Page Layout, Change Data Fields, Setup Map and Declutter On/Off. Following are details on using each of these options.

- **Full Screen Map/Show Data Fields**— toggles between a Map Page without or with data fields on the map display.

To maximize the map/show data fields:

1. Highlight the 'Full Screen Map' option and press **ENTER**. The Map Page will now be maximized with no data fields.
2. To show the data fields again, press **MENU**, highlight 'Show Data Fields' and press **ENTER**.

- **Measure Distance**— allows you to measure the bearing/distance between two points on the map.

To measure the Bearing/Distance between two points:

1. Highlight the 'Measure Distance' option and press **ENTER**. An on-screen pointer will appear on the map display at your present position with 'ENT REF' below it.
2. Move the cursor to the desired reference point (the point that you want to measure from) and press **ENTER**.
3. Move the cursor to the point you want to measure to. The bearing and distance from the reference point and cursor coordinates will be displayed in the data window at the top of the display.
4. Press the **QUIT** key to finish.

- **Show Next Street/Hide Next Street**— displays the next cross street in a window at the top of the display. This option is only available if MapSource Metroguide or City Navigator data is loaded.

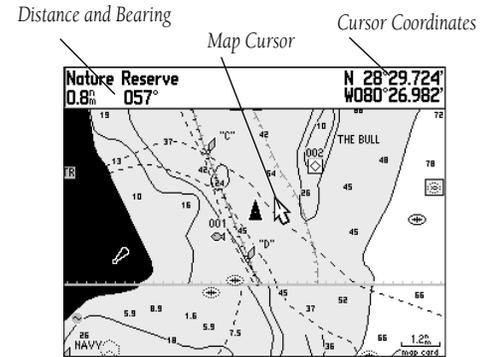
To show the next street:

1. Highlight the 'Show Next Street' option and press **ENTER**.

To hide the next street window:

1. Highlight the 'Hide Next Street' option and press **ENTER**.

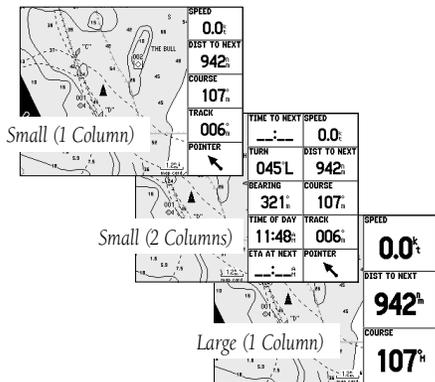
Map Page Options



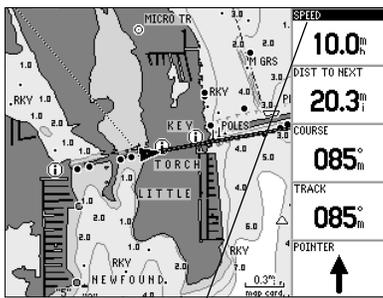
Full screen map shown (with BlueChart data)

Reference

Map Page Options



Page Layout Setup Options



Highlight the data field you wish to change.

- **Setup Page Layout**— allows you to choose the size of text and number of data fields.

To setup the page layout:

1. Highlight the 'Setup Page Layout' option and press **ENTER**.
2. Select the desired option, None, Small (1 Column), Small (2 Columns), or Large (1 Column), and press **ENTER**.

- **Change Data Fields**— allows you to specify the type of data displayed in each data field used on the map display. This option is available from any of the main pages.

To change a data field:

1. From the menu, use the **ARROW KEYPAD** to highlight 'Change Numbers' and press **ENTER**.
2. Move the field highlight to the data field you want to change and press **ENTER**.
3. Move up or down on the list using the **ARROW KEYPAD** to highlight the data you want to display, and press **ENTER**. To exit, press **QUIT**.

The following options are available for display in data fields on the main pages:

- ACCURACY – Estimated accuracy of GPS position
- BEARING – Compass direction from your position to destination
- COURSE – Desired Track
- DEPTH – Depth below transducer (if receiving proper sonar NMEA data from other device)
- DIST TO DEST – Distance to final waypoint
- DIST TO NEXT – Distance to next waypoint
- DOP – Dilution of Precision, reflects the quality of the GPS signals and satellite geometry.
- ELEVATION – Elevation above/below MSL (Mean Sea Level)
- ETA AT DEST – Estimated Time of Arrival to final waypoint
- ETA AT NEXT – Estimated Time of Arrival to next waypoint
- MAX SPEED – Fastest speed the unit has traveled
- MOV AVG SPEED – Average moving speed
- MOV TRIP TIMER – Time unit has been moving since last reset
- OFF COURSE – Distance from desired track

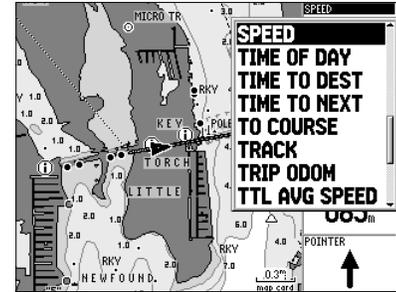
- **POINTER** – Arrow points to your destination
- **SPEED** – Speed over ground
- **TIME OF DAY** – Current time
- **TIME TO DEST** – Time to final waypoint
- **TIME TO NEXT** – Time to next waypoint
- **TO COURSE** – Distance to desired track
- **TRACK** – Current compass direction of travel
- **TRIP ODOM** – Trip Odometer
- **TTL AVG SPEED** – Total average speed
- **TTL TRIP TIMER** – Total travel time of trip, stopped and moving
- **TURN** – Directional amount of turn needed to match bearing
- **VMG** – Velocity Made Good to destination
- **VOLTAGE** – Current voltage reading being received by unit
- **WATER SPEED** – Speed through the water (if receiving proper sonar NMEA data from other device)
- **WATER TEMP** – Water temperature (if receiving proper sonar NMEA data from other device)

• **Set Up Map**— jumps to the Map tab of the Main Menu, allowing you to configure the map display to your preferences, including map detail, map orientation, automatic zoom, and various map items and points. The map setup option uses a ‘file tab’ feature, organizing the various settings for ease of use.

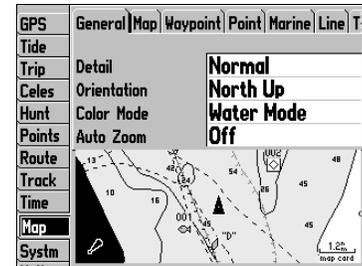
To change a map setup feature:

1. From the Map Page menu, highlight ‘Set Up Map’ and press **ENTER**.
2. Move **LEFT** or **RIGHT** on the **ARROW KEYPAD** to highlight the desired file tab, then **UP** or **DOWN** on the **ARROW KEYPAD** to highlight to the setting you want to change and press **ENTER**.
3. Move **UP** or **DOWN** on the **ARROW KEYPAD** to highlight to the desired setting and press **ENTER**.
4. To exit, press **QUIT**.

Map Page Options



Choose the type of data you wish to display.



Map Tab of Main Menu

Map Page Setup Options

General	Map	Waypoint	Point	Marine	Line	T
Detail		Normal				
Orientation		North Up				
Color Mode		Water Mode				
Auto Zoom		Off				

General Tab

General	Map	Waypoint	Point	Marine	Line	T
						Zoom
Basemap		On				
Data Card Maps		On				
Lat/Lon Grid						Off
Grid Labels						800mi

Map Tab

General	Map	Waypoint	Point	Marine	Line	T
						Zoom
Waypoints		Medium				AUTO
Active Route		Medium				AUTO

Waypoint Tab

General	Map	Waypoint	Point	Marine	Line	T
						Zoom
Businesses			Small			Auto
Facilities			Small			Auto
Geo			Medium			Auto
Exit			Medium			Auto

Point Tab

General Tab

Detail— Most, More, Normal, Less, Least: controls how much map detail you will see. This setting only applies to any map feature set to 'Auto'. Those features which have a specified scale or turned 'Off' are unaffected by this setting.

Orientation— North Up: fixes the top of the map display to a north heading; Track Up: fixes the top of the map display to the current track heading; Course Up: fixes the map so the direction of navigation is always "up" and turns the navigation leg line vertical on the screen.

Color Mode— Water Mode or Land Mode: when in 'Water Mode', land will appear as a dark color and water will be light. In 'Land Mode', land will appear as a light color and water will be dark. If using optional BlueChart data, 'Water Mode' is recommended.

AutoZoom— On/Off: when 'On' the map will automatically adjust the map scale to a lower scale as you approach your destination point.

Map Tab

Basemap— On/Off: turns the built in basemap on or off.

Data Card Maps— On/Off: turns all optional BlueChart/MapSource data on or off.

Lat/Lon Grid— Off, Auto, 20 ft.-800 mi: sets the maximum scale at which the feature appears on the screen. Some types of data will only be displayed to certain zoom scales.

Grid Labels— Off, Auto, 20 ft.-800 mi: sets the maximum scale at which the feature appears on the screen. Some types of data will only be displayed to certain zoom scales.

Waypoint Tab

Text— Off, Small, Medium, and Large: controls the screen size of the name.

Zoom— Auto, Off, 20 ft.-800 mi.: sets the maximum scale at which the feature appears on the screen. Some types of data will only be displayed to certain zoom scales.

Point Tab

Text— Off, Small, Medium, and Large: controls the screen size of the name.

Zoom— Auto, Off, 20 ft.-800 mi.: sets the maximum scale at which the feature appears on the screen. Some types of data will only be displayed to certain zoom scales.

Marine Tab— Marine Services, Spot Soundings, Tide Stations, Nav aids, Light Sectors

Text— Off, Small, Medium, and Large: controls the screen size of the name.

Zoom— Auto, Off, 20 ft.-800 mi.: sets the maximum scale at which the feature appears on the screen. Some types of data will only be displayed at certain zoom scales.

Line Tab

Heading Line— On/Off: turns the Heading Line on or off. The Heading Line projects from the triangle showing your current heading.

Bearing Line— Auto, Off, 20 ft.-800 mi.: sets the maximum scale at which the Bearing Line appears on the screen. The Bearing Line shows the bearing from your current location to a destination waypoint.

Course Line— Auto, Off, 20 ft.-800 mi.: sets the maximum scale at which the Course Line appears on the screen. The Course Line shows a direct navigation line from the point navigation was initiated to a destination waypoint.

Track Tab— Track Log, Saved Tracks

Zoom— Auto, Off, 120 ft.-800 mi.: sets the maximum scale at which the feature appears on the screen. Some types of data will only show up at certain zoom scales.

Area Tab— River/Lake, Park, Other, Metro

Text— Off, Small, Medium, and Large: controls the screen size of the name.

Zoom— Auto, Off, 20 ft.-800 mi.: sets the maximum scale at which the feature appears on the screen. Some types of data will only be displayed at certain zoom scales.

Topo Tab— Major Contour, Inter Contour, Minor Contour, Land Cover

Text— Off, Small, Medium, and Large: controls the screen size of the name.

Zoom— Auto, Off, 20 ft.-800 mi.: sets the maximum scale at which the contours appear on the screen. Some types of data will only be displayed at certain zoom scales.

Map Page Setup Options

Marine Tab

General	Map	Waypoint	Point	Marine	Line	T
						Zoom
				Text		
Marine Services				Off		Auto
Spot Soundings				Small		On
Tide Stations				Off		Auto
Nav aids				Medium		Auto
Light Sectors						Auto

Line Tab

General	Map	Waypoint	Point	Marine	Line	T
						Zoom
Heading Line				Off		
Bearing Line					Off	
Course Line					Auto	

Track Tab

Map	Waypoint	Point	Marine	Line	Track	A
						Zoom
Track Log						Auto
Saved Tracks						Auto

Area Tab

Waypoint	Point	Marine	Line	Track	Area	T
						Zoom
River/Lake					Medium	Auto
Park					Medium	Auto
Other					Medium	Auto
Metro						Off

Reference

Map Page Setup Options

Point	Marine	Line	Track	Area	Topo	C
Text						Zoom
Major Contour				Medium		AUTO
Inter Contour				Medium		AUTO
Minor Contour				Small		AUTO
Land Cover						AUTO

Topo Tab

Point	Marine	Line	Track	Area	Topo	G	M	R
Text								Zoom
Large City					Medium			AUTO
Medium City					Medium			AUTO
Small City					Medium			AUTO
Small Town					Medium			AUTO

City Tab

Marine	Line	Track	Area	Topo	City	Road	C
Text							Zoom
Freeway							AUTO
Highway							AUTO
Local Road							AUTO
Local Road Name						Medium	AUTO

Road Tab

Line	Track	Area	Topo	City	Road	Other
Text						Zoom
Railroad					Medium	AUTO
Accuracy Circle					On	
Lock to Roads					On	
Map Outlines					Off	

Other Tab

City Tab— Large City, Medium City, Small City, Small Town

Text— Off, Small, Medium, and Large: controls the screen size of the name.

Zoom— Auto, Off, 20 ft.-800 mi.: sets the maximum scale at which the cities appear on the screen. Some types of data will only be displayed at certain zoom scales.

Road Tab— Freeway, Highway, Local Road, Local Road Name

Text— Off, Small, Medium, and Large: controls the screen size of the name.

Zoom— Auto, Off, 20 ft.-800 mi.: sets the maximum scale at which the roads appear on the screen. Some types of data will only be displayed at certain zoom scales.

Other Tab

Railroad— Auto, Off, 120 ft.-800 mi.: sets the maximum scale at which railroads appear on the screen.

Accuracy Circle— On/Off: toggles the circle 'On' and 'Off'. The circle represents the approximate accuracy of the unit based on EPE, DOP, and basemap quality. You position will be within the circle.

Lock to Roads— On/Off: This feature is only available if MapSource MetroGuide or City Navigator data is loaded. When the feature is active, the triangle icon will lock to the road that you are traveling.

Map Outlines— On/Off: toggles the coverage boxes for BlueChart/MapSource data 'On' and 'Off'.

Setup Map Menu Options

From the Map Setup page (Map tab of the Main Menu), the following options are available by pressing the **MENU** key:

- Defaults
- All Map Defaults
- Data Card Information

To restore defaults for map settings:

1. From the Map setup page, highlight the desired tab or setup feature you want to restore settings to and press **MENU**.
2. Highlight 'Defaults' (highlight 'All Map Defaults' if you want all tabs restored) and press **ENTER**.

To review/change data card information:

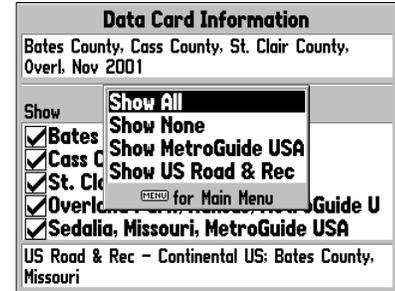
1. From the Map setup page, press **MENU**, then highlight 'Data Card Information' and press **ENTER**.
2. Use the **ARROW KEYPAD** to scroll through the list of map coverage areas available. Those with a check mark in the box to the left of the name are selected to be displayed on the Map page.
3. To select/deselect a map for display, use the **ARROW KEYPAD** to highlight the box next to the desired map, and press **ENTER** to check/uncheck the box.
OR, press **MENU** and select one of the options ('Show All', 'Show None', or 'Show <MapSource product name>'), and press **ENTER**.
4. To view details about a map, highlight the map name and press **ENTER**. Highlight 'Next' or 'Map List' to return to the map list.
5. Press **QUIT** when finished to return to the Map setup page.

- **Declutter On/Declutter Off**— toggles between showing spot soundings and map outlines for easier viewing.

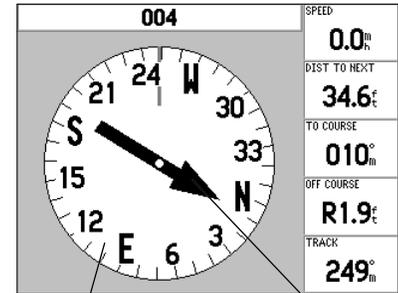
Compass Page

Whenever a 'Go To', 'Navigate Track' (TracBack) or 'Navigate Route' have been activated, the GPSMAP 176's Compass Page will guide you to your destination with digital readouts and a graphic compass display, which includes a bearing pointer. Use this page (instead of the Highway Page) when travelling at slower speeds, when making frequent directional changes, or where straight-line navigation is not possible due to obstructions or terrain.

The middle of the page features a rotating 'compass ring' that shows your course over ground (track) while you're moving. Your present course over ground is indicated at the top of the compass ring. A bearing pointer, in the middle of the compass ring, indicates the direction of the destination (bearing) relative to the course over ground. The compass ring and pointer arrow work independently to show, at a glance, the direction of your movement and the direction to your destination. For instance, if the arrow points up, you are going directly to the waypoint. If the arrow points any direction other than up, turn toward the arrow until it points up, then continue in that direction.

**Map Page Setup Options/
Compass Page**

Data Card Information Screen and Options



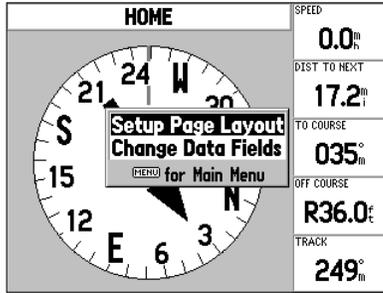
Compass Ring—indicates current direction of travel

Pointer—points toward destination while moving



The bearing pointer and/or compass ring may point in various directions when you are stationary or at very low speeds. Once you start moving, the pointer will be correct.

Compass Page/Highway Page



Compass Page Options

The GPSMAP 176's Compass Page features a menu page that provides access to layout and data field options. The data window, located at the top of the page, provides a user-selectable layout of various types of useful data. Each data field may be configured to display several data options. The data window layout may also be changed to display more/less data fields and change the actual size of the data displayed.

To display the Compass Page options:

1. Press **MENU**.

To select a menu option:

1. Use the **ARROW KEYPAD** to highlight the desired option and press **ENTER**. For detailed instructions on changing the data fields and layout of the Compass Page, see pages 8-9.

Highway Page

Whenever a 'Go To', 'TracBack' or 'Route' has been activated, the GPSMAP 176's Highway Page provides digital and graphic steering guidance to the destination. The right side of the Highway Page features user-selectable data fields that display useful navigation information. A compass ribbon is displayed at the top of the page to show your current heading along with a dark, vertical bar which will indicate the bearing to your course. To stay on course, steer towards the dark, vertical indicator (or arrows) until it lines up with the lighter gray bar in the middle. The bottom section of the screen provides visual guidance to the waypoint on a graphic highway display. The line down the center of the highway represents your desired track line.

Reference

As you head toward your destination, the highway perspective moves to indicate your progress to the waypoint and which direction you should steer to stay on course. If you are navigating a route, the Highway Page shows each route waypoint in sequence connected by a black “road” with a white line down the middle, which is your desired track line. Nearby waypoints not in the active route can also be displayed. The highway perspective scale may also be zoomed in or out to display a larger or smaller view of the highway. Five settings are available from 1X to 16X, with a default setting of 8X.

To change the highway perspective scale:

1. Press the **IN** or **OUT** key to select the desired setting.

The GPSMAP 176's Highway Page options allows you to define the data fields and select which waypoints and track are displayed on screen. The data window, located at the top of the page, provides The GPSMAP 176's Highway Page options allows you to define the data fields and select which waypoints and track are displayed on screen. The data window, located along the right side of the page, provides a user-selectable layout of various types of useful data. Each data field may be configured to display several data options. The data window layout may also be changed to display additional data fields and change the actual size of the data displayed.

To display the Highway Page options:

1. Press **MENU**.

To select a menu option:

1. Using the **ARROW KEYPAD**, highlight the desired option and press **ENTER**.

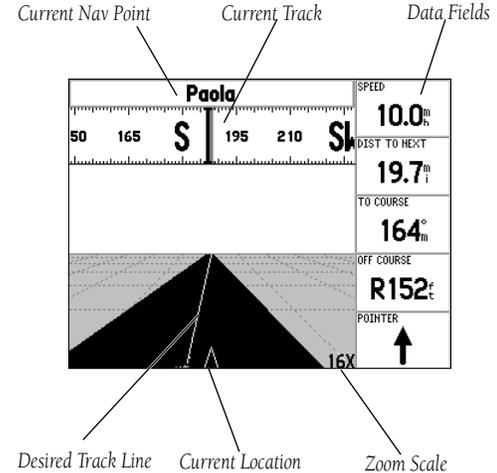
The following options are available from the Highway Page menu:

- **Setup Page Layout**— allows you to choose the size of text and number of data fields.

To setup the page layout:

1. Highlight the 'Setup Page Layout' option and press **ENTER**.
2. Select the desired option from the following: None, Small (1 Column), Small (2 Columns), or Large (1 Column); and press **ENTER**.

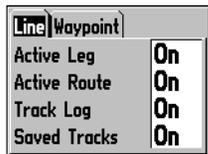
Highway Page



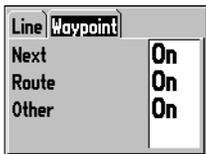
Highway Page Options Menu

Reference

Highway Page Options/ Active Route & Numbers Pages



Setup Highway Line Tab



Setup Highway Waypoint Tab

SPEED 10.0 ^k _t	TRACK 240 ^o _m
LOCATION N 28°17.039' W080°47.203'	ACCURACY 49.2 _{ft}

Numbers Page

- **Change Data Fields** — allows you to specify the type of data displayed in each data field used on the map display. This option is available from any of the main pages. See pages 8-9 for a listing of the data fields.

To change a data field:

1. From the menu, use the **ARROW KEYPAD** to highlight 'Change Numbers' and press **ENTER**.
 2. Move the field highlight to the data field you want to change and press **ENTER**.
 3. Move UP or DOWN on the list using the **ARROW KEYPAD** to highlight the data you want to display, and press **ENTER**. To exit, press **QUIT**.
- **Set Up Highway**— displays an option menu with two tabs: Line, and Waypoint. Each tab has On/Off settings for several options. The Line Tab determines if the 'Active Leg', 'Active Route', 'Track Log' or 'Saved Tracks' will be displayed on the Highway Page. The Waypoint Tab determines if the 'Next', 'Route', or 'Other' Waypoints will be displayed on the Highway Page. For an item to be displayed the setting must be 'On'.

Active Route Page

Whenever you have activated a route in the GPSMAP 176, the Active Route page will show each waypoint of the active route, along with various, user-selectable types of data. For additional details on the Active Route Page, see page 37.

Numbers Page

The Numbers Page provides a quick reference for the important data you want to display. The default page will display four large, user-selectable data fields showing speed, track, the current location and accuracy. You may also choose to show the one data field in large lettering for better readability. For detailed instructions on changing the data fields and layout of the Numbers page, see pages 8-9.

Creating and Using Waypoints

The GARMIN GPSMAP 176 stores up to 3000 alphanumeric waypoints with a user-defined icon, comment, and depth available for each waypoint. Waypoints can be created using three basic methods:

- **ENTER** key— used primarily for marking your present position, the **ENTER** key also provides options that allow you to select a map position or map item from the map display. You may also use the **ENTER** key to create a waypoint projected from a user-defined position.
- Graphically— allows you to define a new waypoint position from the map display using the **ARROW KEYPAD**.
- Text Entry— allows you to enter a new waypoint's position coordinates manually (from a chart, etc.).

Marking Your Present Position

The GARMIN GPSMAP 176's **ENTER** key lets you quickly capture your present position to create a new waypoint. You must have a valid position (2D or 3D) fix to mark your present position. This can be determined by looking at the GPS tab on the Main Menu.

To mark your present position:

1. Press and hold the **ENTER** key until the 'New Waypoint' window appears, then release it. You will see a default three-digit name and symbol for the new waypoint.
2. To accept the waypoint with the default name and symbol, press **ENTER** to confirm the highlighted 'OK' prompt.
3. To enter a different name, highlight the name field and press **ENTER**, then use the **ARROW KEYPAD** to enter the new letter/numbers and press **ENTER** when done. You may use up to 10 alphanumeric characters for the name.
4. To enter a different symbol, highlight the symbol field to the left of the name and press **ENTER**, then use the **ARROW KEYPAD** to highlight the new symbol and press **ENTER**.
5. To enter optional comments, elevation or a depth, highlight the appropriate field and press **ENTER**, then use the **ARROW KEYPAD** to enter a value and press **ENTER**. (continued)

Creating Waypoints

New Waypoint		
■ 005		
Comment		

N 38°51.334'	Elevation	Depth
W094°47.928'	1139'	-----'
From Current Location		
0.0'	043°	
Delete Show Map OK		

Press **ENTER** to use the default name and symbol.

New Waypoint		
■ 005		
Comment		

N 38°51.334'	Elevation	Depth
W094°47.928'	1139'	-----'
From Current Location		
0.0'	135°	
Delete Show Map OK		

Highlight a field and press **ENTER** to enter a new symbol, name, comment, position, elevation, depth or distance from the current location.

Reference

Creating Waypoints

Chart 11480		
United States-East Coast.Charleston Light to Cape Canaveral.		
Scale 1:449659		
IALA Region B (Red to Starboard)		
Published in USA		
Print Date: JUL-1999		
Edition Date: JUL-1999		
Correction Date: 7-JAN-2001		
Soundings Displayed in Feet		
Soundings Stored in Fathoms		
Show Notes	Map List	Create Wpt

Choose 'Create Wpt' on the Information page to create a new waypoint at this map item's location.

New Waypoint		
RCKHRBRKYL		
Comment		

N 25°04.907'	Elevation	Depth
W080°26.678'	-----'	-----'
From	Current Location	
5.2'	187'	
Delete	Show Map	OK

To save the new waypoint, highlight the 'OK' button and press ENTER.

6. To manually enter a set of coordinates, highlight the coordinates and press **ENTER**, then use the **ARROW KEYPAD** to enter the new coordinates and press **ENTER** when done.
7. When done, use the **ARROW KEYPAD** to highlight the 'OK' prompt and press **ENTER** to save the waypoint.

Creating Waypoints Graphically

Waypoints may also be quickly created with the Map Page cursor, which allows you to 'point and shoot' at any map position or map feature to create a new waypoint. When you move the cursor over a map item, you will see a highlighted description of that item. The GPSMAP 176 will use the map item text shown on the cartography as the default name and symbol for the new waypoint.

To create a new waypoint on an open map location (not a map item):

1. Use the **ARROW KEYPAD** to move the cursor to the desired map position.
2. Press and quickly release the **ENTER** key to capture the cursor position (pressing and holding **ENTER** will mark your present position, not the map cursor's location).
3. The 'New Map Waypoint' page will appear. To accept the waypoint with the default name and symbol, highlight 'OK' and press **ENTER**.

To change the name, symbol, position, or enter comments, elevation or depth, highlight the appropriate field and press **ENTER**. Make your changes and press **ENTER** when done. After entering and confirming your changes, highlight 'OK' and press **ENTER**.

To create a new waypoint from a map feature:

1. Use the **ARROW KEYPAD** to move the cursor and highlight the desired map feature.
2. Press the **ENTER** key to capture the cursor location. An Information page for that map feature will appear. Use the **ARROW KEYPAD** to highlight 'Create Wpt' and press **ENTER**.
3. The 'New Waypoint' page will appear. To accept the waypoint with the default symbol and name based on the map feature, highlight 'OK' and press **ENTER**.

To change the name, symbol, position, or enter comments, elevation or depth, highlight the appropriate field and press **ENTER**. Make your changes and press **ENTER** when finished. After entering and confirming your changes, use the **ARROW KEYPAD** to highlight 'OK' and press **ENTER**.

Additional Options for Creating Waypoints

Waypoints may also be created by manually entering position coordinates through the 'Points' tab of the Main Menu. This method can be useful for creating a waypoint at a specific latitude/longitude position from a chart.

To create a new waypoint by entering location coordinates:

1. Press **MENU** twice to display the Main Menu. Highlight the 'Points' tab and press **MENU**.
2. Highlight 'Create Waypoint' and press **ENTER**. The 'New Waypoint' page will appear, with the next available waypoint number and the receiver's last known position as the default name and position.
3. Use the **ARROW KEYPAD** to highlight the position field and press **ENTER**. Use the **ARROW KEYPAD** to enter the desired position coordinates and press **ENTER** when finished.
4. To change the name, symbol, or enter comments, depth or elevation, highlight the appropriate field and press **ENTER**. Make your changes and press **ENTER** when finished.
5. Use the **ARROW KEYPAD** to highlight 'OK' and press **ENTER** to save the waypoint.

A waypoint may also be created by "projecting" the distance and bearing from a specific location to a new location. Start by accessing the 'New Waypoint' page or the 'New Map Waypoint' page.

To create a new waypoint by projecting its location:

1. To project the waypoint from your current location, be sure the field to the right of the word 'From' reads 'Current Location' (if not, highlight the field and press **ENTER**, highlight 'Current Location' and press **ENTER**).
2. To select a location from the map from which to project a waypoint, highlight the field next to 'From' and press **ENTER**. The 'Find' screen appears. Highlight 'Other Location' and press **ENTER**. Use the zoom **IN** key and **ARROW KEYPAD** to highlight the desired position and press **ENTER**.
3. To select another location, highlight the field next to 'From' and press **ENTER**. The 'Find' screen appears. Highlight the desired type of location (waypoints, cities, etc.) and press **ENTER**. Use the submenus to narrow down your search (for more information see 'Find' on pages 38-39). Highlight the desired location and press **ENTER**.

(continued)

Reference

Creating Waypoints

New Waypoint		
008		
Comment		

N 25° 10.021'	Elevation	Depth
W 080° 26.492'	1066'	-----'
From Current Location		
0.0°	186°	
Delete	Show Map	OK

Highlight the position field and use the ARROW KEYPAD to enter the desired position coordinates.

Find	
From Current Location	
C	Waypoints
A	Anchorage
C	Cities
N	Exits
W	Navoids
T	Tide Stations
T	Transportation
W	Wrecks Obstruct
C	Current Location
O	Other Location

Select a point from which to project a new waypoint.

Reference

Creating Waypoints



Waypoint Menu Options

A screenshot of the "Average Location" screen. The screen is divided into several sections. At the top, it says "Average Location". Below that, "Location" is displayed as "N 25°14.640' W080°26.404'". Underneath, "Estimated Accuracy" is "46.7'" and "Depth" is "-----'". The "Elevation" is "1066'" and "Depth" is "-----'". The "Measurement Count" is "26". At the bottom, there are three buttons: "Delete", "Save", and "OK". On the left side of the screen, there is a "Comment" field with "RCKHRI" and "N 25°04.9' W080°26.6'". Below that, it says "From Current" and "11.3'".

Average Location Screen

4. Highlight the distance and/or bearing fields below 'From Current Location' and press **ENTER**. Use the **ARROW KEYPAD** to enter the projected distance and/or bearing from your current position for the new waypoint and press **ENTER**.
5. Make any other desired changes to the new waypoint data (name, symbol, etc), then highlight 'OK' and press **ENTER**.

Waypoint Menu Options

Two additional options are available by pressing **MENU** on the New Waypoint and New Map Waypoint Pages: Average Location and Append To Route (these menu options also appear on the Waypoint Edit and Waypoint Review pages).

- Average Location— Takes several sample location measurements for the waypoint and recalculates for a more accurate position reading.

To calculate the average location:

1. Select 'Average Location' from the options menu.
2. The 'Average Location' screen appears. Watch as the fields change as the unit calculates the average position of the waypoint. When you are satisfied with the average location, press **ENTER**.

- Append to Route— Adds the new waypoint to the end of a route.

To append a new waypoint to a route:

1. Select 'Append To Route' from the options menu.
2. The 'Select Route' screen appears. Highlight the desired route or select 'New Route' and press **ENTER**.
3. With 'OK' highlighted, press **ENTER** to save the waypoint.

Reviewing and Editing Waypoints

Once you have created and stored a waypoint, it may be modified, reviewed, renamed, moved, or deleted at any time through the Waypoint Review and Waypoint Edit Pages.

To access the Waypoint Review Page:

1. Use the **ARROW KEYPAD** to highlight the desired waypoint on the Map Page.
2. Press **ENTER** to display the Waypoint Review Page. If the waypoint is located on a map feature, or MapSource or BlueChart feature, the Waypoint Review Page will include additional information tabs about the other features at that location.

To access the Waypoint Edit Page:

1. Press **MENU** twice to view the Main Menu. Use the **ARROW KEYPAD** to highlight the 'Points' tab, then highlight the desired waypoint from the 'User' or 'Proximity' lists.
2. Press **ENTER** to display the Waypoint Edit Page. If the waypoint is located on a map feature, or MapSource or BlueChart feature, the Waypoint Edit page will NOT display the details of the other map features.

From the Waypoint Review and Edit pages, you may change the name, symbol, comment, position coordinates, or depth for the selected waypoint. Once the changes have been made, highlight 'OK' (Waypoint Review Page) or 'Next' (Waypoint Edit Page) and press **ENTER** to save them.

To change the waypoint name:

1. Highlight the waypoint name field and press **ENTER**.
2. Use the **ARROW KEYPAD** to enter a new name and press **ENTER** when done.

To change the waypoint symbol:

1. Highlight the waypoint symbol field to the left of the waypoint name and press **ENTER**.
2. Use the **ARROW KEYPAD** to select the desired symbol and press **ENTER** when done.

To change the Comment/Position Coordinates/Elevation or Depth:

1. Highlight the desired field and press **ENTER**.
2. Use the **ARROW KEYPAD** to edit/enter the data. To drop to the next line, press to the RIGHT on the **ARROW KEYPAD**. Press **ENTER** when done.

Reviewing/Editing Waypoints

Waypoint Review		
▀ 011		
Comment		

N 25°44.335'	Elevation	Depth
W080°25.090'	_____ft	_____ft
From Current Location		
1.6°	159°	
Delete Show Map OK		

Waypoint Review Page

Select 'OK' to exit/save changes and return to the Map Page.

Waypoint	Nature Reserve	Depth Area	Chart US11+
▀ 010			
Comment			

N 24°40.650'	Elevation	Depth	
W081°36.526'	_____ft	_____ft	
From Current Location			
104.9°	230°		
Delete Show Map OK			

Waypoint Review Page for a waypoint located on multiple map features. The tabs will only appear when BlueChart data is being used.

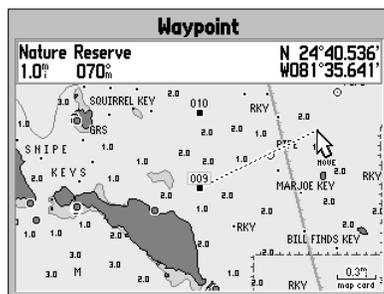
Reference

Editing Waypoints

Waypoint Edit		
▣ 010		
Comment		

N 24°40.650'	Elevation	Depth
W081°36.526'	-----'	-----'
From Current Location		
104.9'	230'	
Delete Show Map Next		

Waypoint Edit Page for a waypoint located on multiple map features. Select 'Next' to return to the next waypoint in the list.



Moving a waypoint on the map (BlueChart map data shown).

To change the distance/bearing from your current location or another location:

1. To select a different location, highlight the field next to 'From', select a location and press **ENTER**.
2. Highlight the distance and/or bearing field and use the **ARROW KEYPAD** to edit the data. Press **ENTER** when finished (see page 19 for more information about projecting waypoints).

On the Waypoint Review and Waypoint Edit Pages, you may also delete the selected waypoint, view the waypoint on the map, and move the waypoint on the map.

To delete a waypoint:

1. On the Waypoint Review/Waypoint Edit Page, use the **ARROW KEYPAD** to highlight 'Delete' and press **ENTER**. With 'OK' highlighted, press **ENTER** again to confirm the deletion.

To view and move a waypoint on the map:

1. From the Waypoint Review/Waypoint Edit page, highlight 'Show Map' and press **ENTER**. The waypoint will be highlighted on a map screen with an information window at the top that shows the waypoint name, position and distance and bearing from your current position.
2. To move the waypoint, press **ENTER**. A 'MOVE' label will now appear under the cursor arrow. It may be necessary to use the **IN** and **OUT** keys to zoom the map.
3. Use the **ARROW KEYPAD** to move the waypoint to a new position. As you move the cursor around the map display, the information window at the top will change to show the distance, bearing and position of the map cursor (in relation to the waypoint's position) and a description of where the cursor is on the map. If you wish to stop the move process, press **QUIT**.
4. With the pointer at the desired position, press **ENTER**. To return to the Waypoint Edit/Waypoint Review page, press **QUIT**.

On the 'Show Map' map display, two additional options are available by pressing **MENU**:

- Measure Distance— allows you to measure the distance and bearing between two points on the map (see page 7 for more information).
- Point to on Main Map— returns to the highlighted waypoint on the Map Page (exits the Waypoint Review/Waypoint Edit page)

Waypoint Lists

The GPSMAP 176's Main Menu Page features two submenus of the 'Points' tab, 'User' and 'Proximity', that let you manage a large number of waypoints quickly and efficiently. The submenu tabs also provide a continuously updated proximity waypoint alarm function that can be used to define an alarm circle around submerged hazards, shallow waters, etc.

To access the waypoint submenus of the Main Menu:

1. Press **MENU** twice, highlight the 'Points' tab using the **ARROW KEYPAD**, then highlight the desired submenu tab.

User Waypoint List

The 'User' submenu of the Points tab displays a master list of all waypoints currently stored in memory. From the User list, you may review, edit, rename or delete individual waypoints, or delete all user waypoints. The total number of stored and available waypoints is displayed at the bottom of the User page, with the stored waypoints arranged in numerical/alphabetical order.

To scroll through and review the waypoint list:

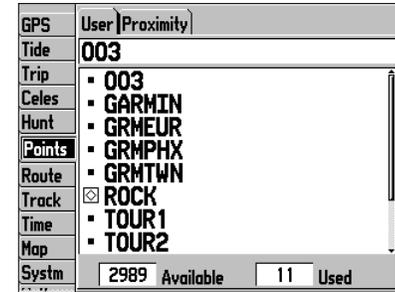
1. With the **ARROW KEYPAD**, highlight the 'Points' tab on the Main Menu, then highlight 'User'.
2. Use the **ARROW KEYPAD** to scroll through the list in the desired direction.
3. Press **ENTER** to review the highlighted waypoint on the 'Waypoint Edit' page (see pages 20-22 for detailed information on reviewing and editing waypoints).
4. With 'Next' highlighted, press **ENTER** to return to the list. The field highlight will automatically move to the next waypoint in the list.

The following options are available by pressing **MENU** while highlighting the Points tab, the User submenu, or one of the User waypoint names:

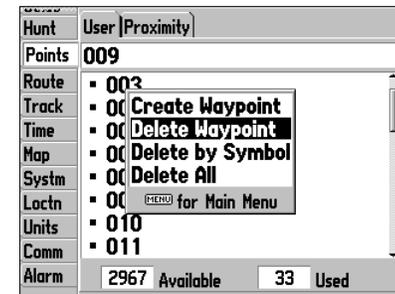
- Create Waypoint— creates a new waypoint (see pages 17-20).
- Delete Waypoint— deletes selected waypoint from list and any route in which it was used.
- Delete By Symbol— deletes all waypoints that use the same symbol.
- Delete All— deletes all waypoints from the unit.

Reference

Waypoint Lists



The Points tab of the Main Menu.



Menu options for the 'User' Points list.

Waypoint Lists

GPS	User Proximity
Tide	GARMTN
Trip	▪ GARMIN
Ceas	▪ GRMEUR
Hunt	▪ GRMPHX
Points	▪ GRMTWN
Route	☒ ROCK
Track	▪ TOUR1
Time	▪ TOUR2
Map	▪ TOUR3
System	2989 Available 11 Used

Waypoint List

Name Field

You can also search for a waypoint by name:

1. Highlight the name field and press **ENTER**.
2. Use the **ARROW KEYPAD** to select the first letter of the name.
3. Move to the **RIGHT** and enter the second letter if you do not see it on the list below.
4. Repeat this until the name appears. Press **ENTER** when you see the name.
5. Highlight the name on the list and press **ENTER** again to review the waypoint. When done, highlight 'OK' and press **ENTER**.



Once a waypoint is deleted from the list, it cannot be recovered from the unit. It is advisable to backup important waypoints to a computer using the optional PC cable and interface software or write them down by hand.

To delete an individual waypoint from the 'User' list:

1. Use the **ARROW KEYPAD** to highlight the waypoint to be deleted.
2. Press **MENU**, then highlight 'Delete Waypoint' and press **ENTER**.
OR, Press **ENTER**, then highlight 'Delete' and press **ENTER**.
3. Press the **ENTER** key to confirm the deletion warning.

To delete waypoints by symbol:

1. From the 'User' tab, highlight the waypoint to be deleted and press **MENU**, then select 'Delete By Symbol' and press **ENTER**.
2. Use the **ARROW KEYPAD** to highlight the symbol of the waypoint(s) to be deleted and press **ENTER**.
3. Press **ENTER** to confirm. Choose 'Cancel' or press **QUIT** to stop the deletion.

To delete all user waypoints:

1. Press the **MENU** key to select the options window.
2. Use the **ARROW KEYPAD** to highlight 'Delete All' and then press **ENTER**.
3. Highlight the 'OK' prompt and press **ENTER** to confirm.

Proximity Waypoint List

The 'Proximity' submenu of the Points tab lets you define an alarm circle around a stored waypoint position, and can be used to help you avoid reefs, rocks or restricted waters. Up to ten waypoints may be listed, with a maximum alarm radius of 99.99 nautical miles, statute miles or kilometers. If a proximity alarm circle overlaps with an existing alarm circle, a 'Proximity Overlaps Another Proximity Waypoint' message will appear. Since the unit will only alert for one of the overlap points, use caution when navigating in these areas. If you enter an alarm circle overlap, you will only be alerted to the closest proximity waypoint.

To add a proximity waypoint:

1. Use the **ARROW KEYPAD** to highlight an empty space on the Proximity List and press **ENTER**. The 'Find' screen appears. Highlight 'Waypoints' and press **ENTER**.
2. Use the **ARROW KEYPAD** to highlight the desired waypoint from the 'By Name' or 'Nearest' tab lists. The 'Waypoint Review' page appears for the selected waypoint.
3. With 'OK' highlighted, press **ENTER** to confirm. The distance field will now be highlighted.
4. Press **ENTER** to begin entry of the proximity radius.
5. Use the **ARROW KEYPAD** to enter a distance value (to 99.99 units) and press **ENTER**.

To turn proximity alarms on or off:

1. Use the **ARROW KEYPAD** to highlight the field below "Proximity Alarm" and press **ENTER**.
2. Select the desired 'ON' or 'OFF' setting and press **ENTER**.

The following options are available from the 'Proximity' submenu of the 'Points' tab:

- Remove Point— removes selected waypoint from the proximity list.
- Remove All— removes all waypoints from the proximity list.

To display the waypoint menu options:

1. Using the **ARROW KEYPAD**, highlight the 'Proximity' tab and press **MENU**.

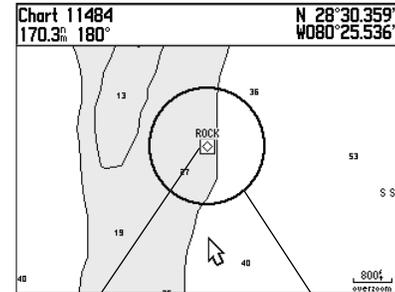
To clear one or all proximity waypoint(s) from the list:

1. Use the **ARROW KEYPAD** to highlight the proximity waypoint to clear and press **MENU**.
2. To clear a single alarm, highlight the 'Remove Point' option and press **ENTER**.
3. To clear all proximity waypoints, select the 'Remove All' option and press **ENTER**.
4. Use the **ARROW KEYPAD** to highlight the 'OK' prompt and press **ENTER** to confirm.

Waypoint Lists

GPS	User	Proximity
Tide	Proximity Alarm	
Trip	Off	
Celes	Point	Distance
Hunt	ROCK	0.20 ^m
Points	003	0.03 ^m
Route	----- ^m	
Track		
Time		
Map		
System		

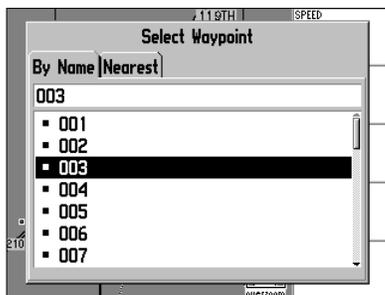
Proximity Waypoint List



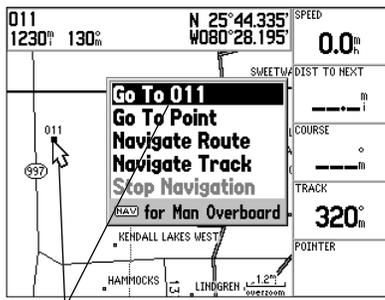
Proximity Waypoint

Proximity Circle

Going to a Destination



Choose a waypoint from either the 'By Name' or 'Nearest' tab list.



The waypoint or map item name will automatically appear when highlighted and NAV is pressed.

Going to a Destination

Using the **NAV** key, the GPSMAP 176 provides four ways to navigate to a destination: Go To Point, Navigate Route, Navigate Track (TracBack) and MOB (Man OverBoard) navigation. Once you are actively navigating, you will see a straight line that always runs from your current location to the destination on the Map page. The easiest method is the 'Go To' function, which lets you select a destination point and quickly sets a direct course from your present position. If you have a point highlighted on a list or on the map and press **NAV**, 'Go To <point names>' will appear in addition to 'Go To Point'. The 'Go To' function can be accessed from any list of points or graphically from the map display.

To activate a 'Go To' from the points list:

1. Press the **NAV** key.
2. Use the **ARROW KEYPAD** to highlight 'Go To Point' and press **ENTER**.
3. From the 'Find' menu, highlight 'Waypoints' and press **ENTER**. (You may also choose to go to other points, such as Cities, Tide Stations, etc. from this list.)
4. Select a waypoint from the 'By Name' or 'Nearest' list then press **ENTER**. This will display the Waypoint Review Page.
5. With the 'Go To' button highlighted, press **ENTER** to begin navigation.

To stop navigation:

1. Press the **NAV** key.
2. Use the **ARROW KEYPAD** to highlight 'Stop Navigation' and press **ENTER**.

Selecting a 'Go To' Graphically

A graphical 'Go To' may be used to select one of three items from the map display: an existing waypoint, an on-screen map item (roads, rivers, cities, nav aids, etc.), or a new map point (non-map item). If you are selecting a map item as the 'Go To' destination, the GPSMAP 176 will automatically use the name of the map item, but the point will not be stored in the waypoint list. See page 18 for creating waypoints using map items. If you are selecting a new map point (non-map item) as the 'Go To' destination, the GPSMAP 176 will automatically create or move a waypoint named 'MAP' at the cursor position.

To activate an existing waypoint or map item as a 'Go To' from the map display:

1. Use the **ARROW KEYPAD** to highlight the waypoint or map item on screen and press **NAV**.
2. You will see 'Go To <waypoint name>', then press **ENTER**.

To activate a new map point (non-map item) as a 'Go To' from the map display:

1. Use the **ARROW KEYPAD** to move the arrow cursor to the desired position.
2. Press **NAV**, you will see 'Go To MAP Point' highlighted, then press **ENTER**.

To stop navigation:

1. Press the **NAV** key.
2. Use the **ARROW KEYPAD** to highlight 'Stop Navigation' and press **ENTER**.

TracBack Navigation (Navigate Track)

The TracBack function allows you to retrace your path using the track log automatically stored in the receiver's memory, which will eliminate the need to store waypoints along the way. TracBack routes are created by reducing your track log into a route of up to 50 turns and activating an inverted route along those points. Once activated, a TracBack route will lead you back to the oldest stored track log point, so it's a good idea to clear the existing track log before you start of your current trip.

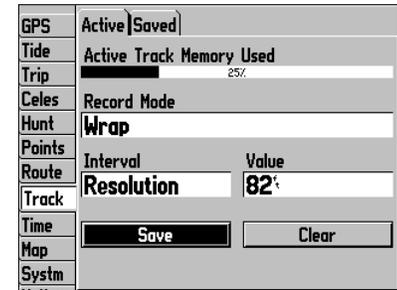
To clear the track log and define a starting point for a TracBack route:

1. Press **MENU** twice to display the Main Menu page.
2. Using the **ARROW KEYPAD**, highlight the 'Track' tab, then highlight the 'Active' tab to the right.
3. Use the **ARROW KEYPAD** to select the 'Clear' button and press **ENTER**.
4. Highlight the 'OK' field and press **ENTER**. Press **QUIT** to exit.

You must first save the track log before you can use the 'Navigate Track' feature. The Save feature allows you to store up to 15 track logs from certain times and dates.

**Going to a Destination/
TracBack Navigation**

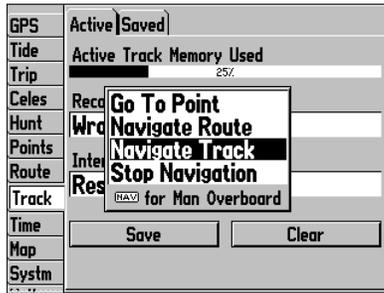
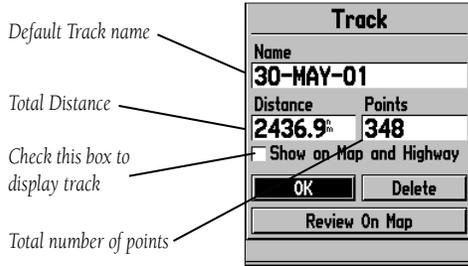
'Go To MAP Point' allows you to navigate to a spot on the map which is not a waypoint or map item.



Highlight 'Save' and press ENTER to save an active track log.

Reference

TracBack Navigation



You must first save a track before using the 'Navigate Track' option. If there are no saved tracks, the 'Navigate Track' option will be disabled.

To save a track log:

1. From the Main Menu, use the **ARROW KEYPAD** to highlight the 'Track' tab, then highlight the 'Active' tab to the right.
2. Use the **ARROW KEYPAD** to select the 'Save' option and press **ENTER**.
3. From the 'Save Back Through' window, highlight the desired time, date, or 'Entire Log' and press **ENTER**.

4. Next, the track will begin saving and then display the Save Track window when done. The default name, distance and number of points (500 max) will be displayed.

To change the name of the saved track, highlight the name field and press **ENTER**, make your changes and press **ENTER** again.

To display the track on the Map and Highway Pages, highlight the check box to the left of 'Show on Map and Highway' and press **ENTER**.

To view the track on the map, highlight 'Review on Map' and press **ENTER**. Pressing **MENU** on this page activates the options to 'Measure Distance' (see page 7) and 'Point to on Main Map' which exits the Save Track dialog. Press **QUIT** to return to the Save Track dialog.

5. Highlight 'OK' and press **ENTER** to save the track. Press **QUIT** to exit.

To activate a TracBack using the NAV key:

1. Press the **NAV** key, then highlight the 'Navigate Track' option and press **ENTER**.
2. Highlight the track you wish to navigate and press **ENTER**.
3. Choose either 'Original', which will navigate you from the start to the end of your trip, or 'Reverse', which will navigate you from the end to the start of your trip (TracBack) and press **ENTER**.

Once a TracBack has been activated, the GPSMAP 176 will take the track currently stored in memory and divide it into segments called 'legs'. Up to 50 temporary 'turns' will be created to mark the most significant features of the track in order to duplicate your exact path as closely as possible. To get the most out of the TracBack feature, remember these Navigating tips:

- Always clear the track log at the point that you want to go back to (dock, etc.).
- The 'Record Mode' option on the track log setup page must be set to 'Fill' or 'Wrap'.

- There must be at least two track log points stored in memory to create a TracBack route.
- If the track log interval is set to the 'Time' option, the route may not Navigate your exact path (keep the interval set to 'Resolution' for best performance).
- If the receiver is turned off or satellite coverage is lost during your trip, the TracBack will draw a straight line between any point where coverage was lost and where it resumed.
- If your track's changes in distance and direction are too complex, 50 waypoints may not mark your path accurately. The receiver then assigns the 50 waypoints to the most significant points of your track, and simplifies segments with fewer changes in direction.

To stop TracBack navigation:

1. Press the **NAV** key, highlight 'Stop Navigation' and press **ENTER**.

For more information on setting up the Track options and saved tracks, see pages 447-48.

MOB

The GPSMAP 176's Man OverBoard function (MOB) lets you simultaneously mark and set a course to a position for quick response to emergency situations.

To activate the MOB function:

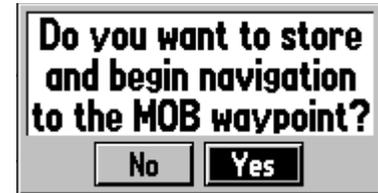
1. Press and hold the **MOB** key, or press the **MOB** key twice.
2. Press **ENTER** to confirm and begin navigating to the MOB position.

Once a MOB has been activated, a 'MOB' waypoint with an international MOB symbol will be created and the unit will be on an active navigation to that point. Use any of the Navigation Pages to guide you back to the MOB point. The MOB waypoint will be stored in the waypoint list and may be deleted like any other waypoint.

To stop navigation to the MOB position:

1. Press the **NAV** key, highlight 'Stop Navigation' and press **ENTER**.

TracBack Navigation/ MOB: Man OverBoard

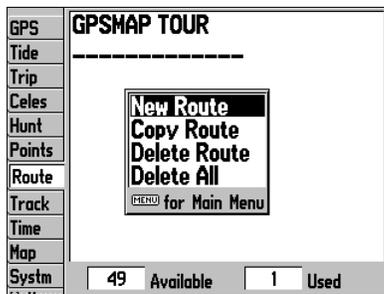


The MOB function allows you to quickly activate a navigation back to a location.

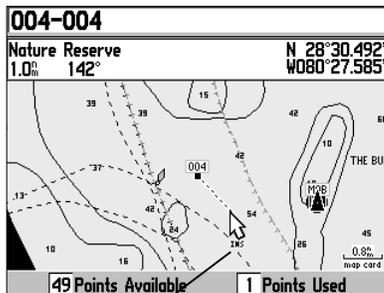


Highlight 'Yes' and press ENTER to stop navigation.

Creating a Route



Route Tab and Route Options Menu



You will see 'INS' below the cursor as you add points.

Creating a Route

The last way to navigate to a destination is to create a user-defined route. The GARMIN GPSMAP 176 lets you create and store up to 50 reversible routes (numbered 1-50), with up to 50 waypoints each. Routes can be created in two ways. The first is by selecting waypoints or map items from the Map Page, allowing you to see each route point graphically on-screen as you create the route. The second is to select waypoints from the Find menu, allowing you to see a list of the route points as you create the route. To create a route, start by accessing the Main Menu.

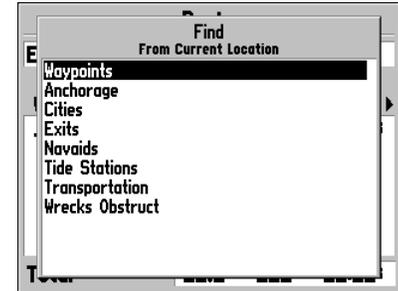
To create a route graphically:

1. Press the **MENU** key twice to display the Main Menu Page. Use the **ARROW KEYPAD** to highlight the 'Route' tab.
2. Press the **MENU** key to display the Route Options page. Select the 'New Route' option and press **ENTER**.
Or, highlight the first blank slot in the Route List page and press **ENTER**.
3. To add an existing waypoint or map item to the route, use the **ARROW KEYPAD** to highlight the desired waypoint or map item on screen and press **ENTER**. Map items will not appear in the waypoint list. To create a waypoint from a map item, see page 18.
4. To add a new waypoint to the route, use the **ARROW KEYPAD** to select the desired map position and press **ENTER**. The New Waypoint page appears. With 'OK' highlighted, press **ENTER** again to confirm the new waypoint. You may also change the name, symbol and other properties of the new waypoint (see pages 21-22).

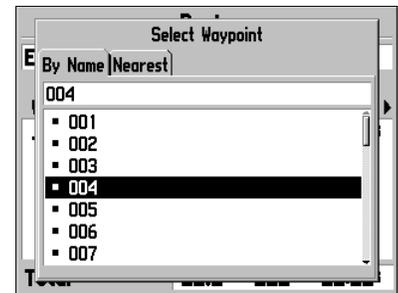
As you add each new waypoint to the route, the data window at the top of the map display will show the waypoint/map item name, bearing and distance from your location, and coordinates of the cursor. The bottom of the display will show you the number of available and used points. A route line will appear on the map to indicate each completed leg, and a dotted line will appear to indicate the distance and bearing from the last route waypoint to the map pointer location.

5. Repeat steps 3 and 4 until you have finished defining all route waypoints.
6. When finished press **QUIT** twice to return to the Route List Page; or press **MENU**, highlight 'Edit as Text' and press **ENTER** to view the Route Review Page.

Creating a Route/ Following a Route



Choose the type of point to add to the route.



Choose a waypoint from either the 'By Name' or 'Nearest' tab list.

To create a route using text:

1. Press the **MENU** key twice to display the Main Menu page. Use the **ARROW KEYPAD** to highlight the 'Route' tab.
2. Press the **MENU** key to display the Route Options page. Select the 'New Route' option and press **ENTER**.
Or, highlight the first available blank route slot and press **ENTER**.
3. Press **MENU**, select 'Edit as Text' and press **ENTER**.
4. Use the **ARROW KEYPAD** to highlight the first blank field under the word 'Waypoint' and press **ENTER**.
5. From the 'Find' menu, highlight 'Waypoints' and press **ENTER**. (You may also choose from other points, such as Cities, Tide Stations, etc. from this list.) Select the desired waypoint and press **ENTER**. (See page 24 for searching for waypoints by spelling the name.)
6. On the Point Review or Waypoint Review page, 'OK' is automatically highlighted. Choose 'Show Map' and press **ENTER** to view the point on the map, then press **QUIT** to return to the Waypoint Review page. With 'OK' highlighted, press **ENTER** to add the point to the route.
7. Repeat steps 4-6 until the desired route points have been entered. Press **QUIT** to return to the Route List page.

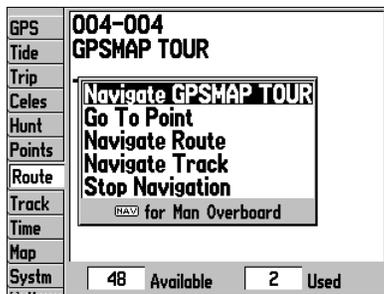
Following a Route

Once a route has been created, it can be activated and used for navigation with the **NAV** key. A route may be navigated in the same sequence as it was originally created, or inverted and navigated from the end waypoint back to the beginning waypoint.

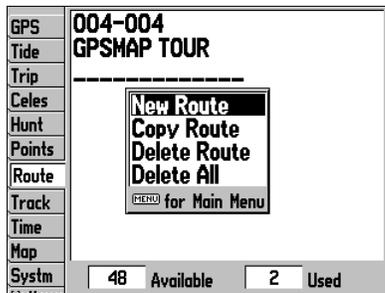
To activate and follow a route:

1. From any page, press the **NAV** key, then use the **ARROW KEYPAD** to highlight 'Navigate Route' and press **ENTER**. (If you highlight a route name on the Route List or Route Review page and press **NAV**, the window will automatically display, 'Navigate <the route name>'.)
2. Highlight the route you wish to navigate and press **ENTER**.
3. Choose 'Activate' or 'Reverse and Activate' and press **ENTER**. ('Activate' will use the route as is, 'Reverse and Activate' will invert and activate it.) The Active Route page appears (see page 37).

Route List Page



If you highlight a route name from the Route List and press NAV, the name will automatically appear as a navigation option.



Route List Options Menu

To deactivate (stop following) the route:

1. Press the **NAV** key, highlight 'Stop Navigation' and press **ENTER**.

Route List Page

The GPSMAP 176 Route List page ('Route' tab of the Main Menu) displays all the routes currently stored in memory, along with a descriptive name for each route. By pressing the **MENU** button on the Route List page, the following menu options appear: 'New Route' (page 30), 'Copy Route', 'Delete Route', or 'Delete All'.

To select and follow a route:

1. On the Route List page, use the **ARROW KEYPAD** to highlight the desired route from the list and press **NAV**.
2. With 'Navigate <route name>' highlighted, press **ENTER**. The Active Route page appears (see page 37).

To deactivate (stop following) the route:

1. Press the **NAV** key, highlight 'Stop Navigation' and press **ENTER**.

To copy or delete a route:

1. From the Route List, use the **ARROW KEYPAD** to highlight the route you want to copy or delete and press **MENU**.
2. Choose either 'Copy Route' or 'Delete Route' and press **ENTER**. With 'OK' highlighted, press **ENTER** again to confirm a deletion (there is no confirmation window for copying a route). 'Copy' will use the same route name with an additional number, starting at 1, at the end of the route name; or will create a new route name based on names of the first and last route points.

To delete all routes:

1. From the Route List, press **MENU**.
2. Highlight 'Delete All' and press **ENTER** and with 'OK' highlighted, press **ENTER** again to confirm the deletion.

Route Review Page

Once you have created a route, the Route Review Page allows you to edit a selected route.

To get to the Route Review Page:

1. Press **MENU** twice and highlight the 'Route' tab.
2. Highlight the name of the route you wish to review and press **ENTER**.

The Route Review Page allows you to enter a 15-character name for any listed route. By default the name includes the first and last waypoints in the route.

To enter a custom route name:

1. From the Route Review Page, highlight the name field and press **ENTER** to begin editing.
2. Use the **ARROW KEYPAD** to enter the desired name and press **ENTER** when finished.

Once you are on the Route Review Page, you may review the route points (waypoints or map items) one at a time from the list:

To review individual route points:

1. Highlight the desired point and press **ENTER**.
2. On the Point Review window, you may choose 'Next' (highlight the next point on the route list), 'Show Map' (show the point on a map window) or 'Delete' (permanently deletes the waypoint from the unit) and press **ENTER**. If the route point is a user waypoint, you may edit any of the waypoint properties on the Waypoint Review page (see pages 20-22 for details).

Once you are back on the Route Point List, the next point in the route will automatically be highlighted. This allows you to review each point on the route by pressing **ENTER** repeatedly.

Route Review Menu Options

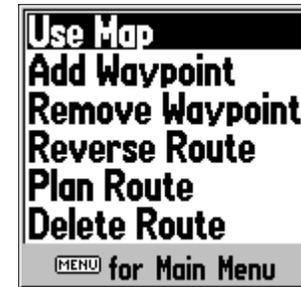
By pressing **MENU** on the Route Review Page, the following menu options are available: Use Map, Insert/Add Waypoint, Remove Waypoint, Reverse Route, Plan Route and Delete Route.

Use Map— review and modify the route displayed for each point (waypoint or map item) on a map Page. You may also use the cursor to insert a new route point on a route leg, review the waypoint or map item.

Reference

Route Review Page

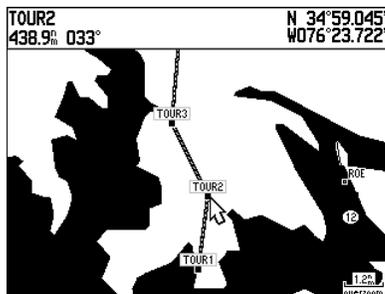
Route			
GPSMAP TOUR			
Waypoint	Distance	Course	ETA
TOUR1	0.0 ^m	013 ^h	--:-- ^m
TOUR2	2.3 ^m	340 ^h	--:-- ^m
TOUR3	4.8 ^m	011 ^h	--:-- ^m
TOUR4	7.9 ^m	335 ^h	--:-- ^m
TOURS	17.7 ^m	-- ^h	12:00 ^m
----- ^m			
Total	17.7 ^m	347 ^h	--:-- ^m



Route Review Menu Options

Reference

Route Review Page



Highlight a point and press **ENTER** to review it.

Waypoint Review		
012		
Comment		

N 38°49.308'	Elevation	Depth
W094°48.337'	-----'	-----'
From Current Location		
2.4'	185°	
Delete	Show Map	Next

Choose 'Next' to center the map on the next point in the route. You can step through the points by repeatedly pressing **ENTER**.

To edit a route on the map:

1. From the Route Review page, press **MENU**, highlight 'Use Map' and press **ENTER**.

To review a route point:

1. Highlight the point and press **ENTER**. The Review Page appears.
2. Press **QUIT** to return to the same point on the map. Highlight 'Next' and press **ENTER** to return to the map with the next route point highlighted.

To edit a route point:

1. Use the **ARROW KEYPAD** to highlight the desired route waypoint on the map and press **MENU**.

A pop-up menu of editing choices will appear, with options for removing the point, moving the point (user waypoints only), adding points to the beginning or end of the route, and editing the route as text.

To remove a route point:

1. Highlight the 'Remove' option and press **ENTER**.

To move a route waypoint:

1. Highlight the 'Move' option and press **ENTER**.
2. Move the cursor to the new map position and press **ENTER**.

To add points to the beginning or end of the route:

1. With the map cursor, select the first route waypoint (to add waypoints to the beginning of the route) or last (to add waypoints to the end of the route) and press **MENU**.
2. Highlight the 'Add' option and press **ENTER**.
3. Move the cursor to the new point or position and press **ENTER**.
4. If you are not inserting an existing waypoint, press **ENTER** to confirm the new waypoint.
5. Repeat steps 3 and 4 to insert additional waypoints, or press **QUIT** to finish.

The GPSMAP 176's route edit mode also lets you insert a new route waypoint in any route leg using the map cursor.

To insert a new point between two existing route waypoints:

1. Use the **ARROW KEYPAD** to select the leg in which you want to insert the new waypoint (the route line will highlight and change to a dotted line when the leg is selected) and press **ENTER**.
2. Move the cursor to the new map position, existing waypoint, or map item (You will see 'INS' below the arrow and the route lines will move with the arrow.) and press **ENTER**.
3. If you are not inserting an existing point, press **ENTER** to confirm the new waypoint.
4. Press **QUIT** to return to the Route Review page.

Insert Waypoint— Allows you to insert a waypoint or point from the Find Menu before a waypoint that is highlighted on the route list, or add a point(s) onto the end of the route.

To insert a point into the route or add a point to the end:

1. On the Route Review page (or Active Route Page), use the **ARROW KEYPAD** to highlight the point you wish to insert the new point before (To add a point to the end, highlight the blank field at the bottom of the list) and press **MENU**.
2. Highlight 'Insert Waypoint' or 'Add Waypoint' and press **ENTER**.
3. From the 'Find' menu, highlight 'Waypoints' and press **ENTER**. (You may also choose from other points, such as Cities, Tide Stations, etc. from this list.) From either the 'By Name' or 'Nearest' tab lists, choose the waypoint you want and press **ENTER** twice. (See page 24 for searching for waypoints by spelling the name.)

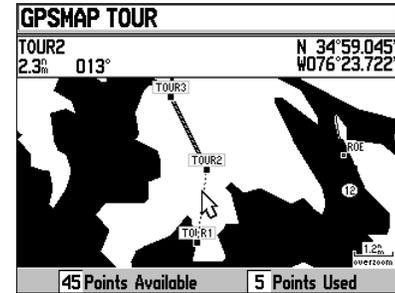
Remove Waypoint— Allows you to remove a point (waypoint or map item) from a route. This option is available from both the Route Review and Active Route Pages.

To remove a point from a route:

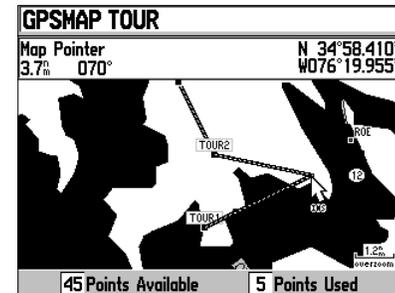
1. From either the Route Review or Active Route Pages, use the **ARROW KEYPAD** to highlight the point to remove and press **MENU**.
2. Highlight 'Remove Waypoint' and press **ENTER**.

Reference

Editing Routes



Highlight the route leg on which you wish to insert a waypoint and press ENTER.



Drag the route leg to an existing waypoint (shown), map item, or a blank spot on the map to create a new route point.

Reference

Editing Routes

Active Route			
GPSMAP TOUR			
Waypoint	Distance	Course	Leg Dist
005	439 ^m	288 ⁿ	3.2 ^m
TOUR2	443 ^m	340 ⁿ	2.5 ^m
TOUR3	445 ^m	011 ⁿ	3.1 ^m
TOUR4	448 ^m	335 ⁿ	9.8 ^m
TOUR5	458 ^m	---	---
Total	458 ^m	347 ⁿ	458 ^m

Press **LEFT** or **RIGHT** on the **ARROW KEYPAD** to change the data field.

Plan Route	
Speed	Depart Time
0.0 ^m	09:22 ^m
Fuel Flow	Depart Date
0.0/hr	30-MAY-01

Trip Planning Data Fields

Reverse Route— Reverses the order of the route making the last point the first.

To reverse the route:

1. From either the Route Review or Active Route Pages, press **MENU**.
2. Highlight 'Reverse Route' and press **ENTER**.

Plan Route— The Route Review and Active Route Pages also display trip-planning information for each leg or the entire route. Available information includes ETA, Fuel (to point), Leg Distance, Leg Fuel, Leg Time, Sunrise and Sunset (at point location) and Time To (point).

To use the Trip Planning feature:

1. To select the desired planning figure, highlight the desired route from the Route List and press **ENTER** to display the Route Review Page.
2. One of nine available planning figures appears to the right of each route waypoint and its distance and course. Use the **LEFT**/**RIGHT** keys on the **ARROW KEYPAD** to select the desired item.
3. To enter planning information, from the Route Review Page only, press **MENU** and select 'Plan Route' from the options list. Enter the figures for Speed, Fuel Flow, Departure Time, and Departure Date. Press **QUIT** to return to the Route Review Page.



Fuel flow rates on your unit are measured in "units per hour". System setting changes for units of measure (statute, nautical or metric) do not affect the fuel flow measure. You should enter fuel flow rates based upon available information for your vehicle (operator's manual, performance specifications, etc.) and make note of the desired units of measure (gallons, liters, etc.).

Delete Route— deletes a route from the Route List. Waypoints and map items in the route will not be deleted from unit memory.

To delete a route:

1. From the Route Review Page press **MENU**.
2. Highlight 'Delete Route' and press **ENTER**, then **ENTER** again to confirm the deletion.

Active Route Page

Whenever you have activated a route in the GPSMAP 176, the Active Route Page shows each point (waypoint or map item) of the active route, with the point name, Distance, Course, and choice of ETA, Fuel to point, Leg Distance, Leg Fuel, Leg Time, Sunrise and Sunset at point location, or Time To point for each point from your present position. The current destination point, the 'active' point, is marked with an arrow icon. As you navigate a route, the waypoint list will automatically update to indicate the next 'active' point first. The Active Route and Route Review Pages share many of the same features and options.

The following route options are available from the Active Route Page:

- Use Map— see pages 33-35 for instructions.
- Insert/Add Waypoint— see page 35 for instructions.
- Remove Waypoint— see page 35 for instructions.
- Reverse Route— reverses the direction of the route.
- Plan Route— see page 36 for instructions.

Reverse Route— reverses the route.

To reverse an active route:

- 1 From the Active Route Page, press **MENU**.
2. Using the **ARROW KEYPAD**, highlight 'Reverse Route' and press **ENTER**.

Active Route Page

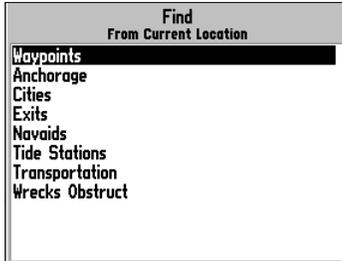
Active Route			
GPSMAP TOUR			
Waypoint	Distance	Course	◀ Leg Dist ▶
▶005	433 ⁿ	288 ^{ci}	3.2 ⁿ
TOUR2	436 ⁿ	340 ^{ci}	2.5 ⁿ
TOUR3	439 ⁿ	011 ^{ci}	3.1 ⁿ
TOUR4	442 ⁿ	335 ^{ci}	9.8 ⁿ
TOUR5	452 ⁿ	---	---
----- ⁿ			
Total	452ⁿ	347^{ci}	452ⁿ

Active Route Page

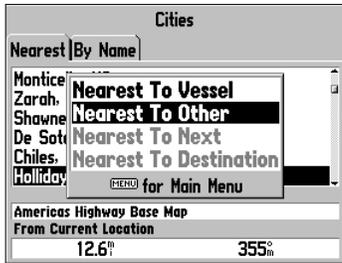


Active Route Page Menu Options

Find Key



Find Menu



Finding items from another reference point

Find

The **FIND** key allows you to search the unit for user waypoints, map items and any optional BlueChart or MapSource information loaded on a data card. By pressing the **FIND** key, the unit will search for items from your current location or from another location on the map. When you press **FIND**, a list of available items to search from will appear. The default items are Waypoints, Cities, Exits, Tide Stations, and Transportation. Additional items will be displayed depending on the optional BlueChart or MapSource data card inserted into the unit. Your position or the map pointer must be within the map outline area to search for information from the BlueChart or MapSource data.

To find a waypoint or other item from your current location:

- 1 From any page, press **FIND**.
2. Using the **ARROW KEYPAD**, highlight the desired category from the list and press **ENTER** until a search results list appears.

To find a waypoint or item from another location:

1. Once the search results list for a particular item is displayed, press **MENU**. Highlight 'Nearest to Other' and press **ENTER**. If you are actively following a route, you may also choose 'Nearest to Next' or 'Nearest to Destination'.
2. Select a reference position on the map and press **ENTER**. The search results list will change to list items nearest to the new map position.

OR:

- 1 From the Map Page, use the **ARROW KEYPAD** to pan to the desired location and press **FIND**.
2. Using the **ARROW KEYPAD**, highlight the desired category from the list and press **ENTER**.

To view details about an item:

1. With the desired item highlighted in the search results list, press **ENTER**.

An Information page appears with details about the item in a tabbed format. Depending on the type of item, additional options are available for viewing the item on the Map, viewing notes on a MapSource or BlueChart map, viewing a tide chart, viewing the list of maps on your data card, and viewing the next item in the search results list.

The Find option also supports a “find from” feature which allows you to center your search around an item which you have just found. For example, you search for ‘Restricted Areas’ and the search shows an “Anchoring Prohibited” search result. If you press **FIND** again, you will see “From Anchoring Prohibited” as the new search from point. You may also use the Find feature to center your search from any waypoint, route list entry, map item or tide station. Highlight the item you want to Find ‘from’, and press the **FIND** key.

Main Menu Page

The GPSMAP 176’s Main Menu Page provides access to various waypoint, system, navigation and interface management, and setup menus in an easy to use “tab” format. The Main Menu page is available from any page in the GPSMAP 176’s system, and is accessed through the **MENU** key.

To access the Main Menu page:

1. Press **MENU** twice. The Menu tabs are divided into categories by function.

To select a menu tab from the Main Menu page:

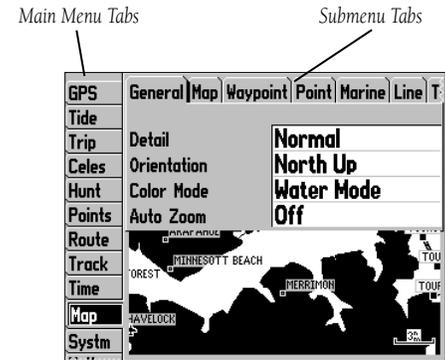
1. Move the **ARROW KEYPAD** UP or DOWN to highlight the tab you want to view. The information for the highlighted tab will automatically appear to the right. If you want to highlight any of the tab items, press to the RIGHT on the **ARROW KEYPAD**, then move UP or DOWN to select individual items.
2. Press either **MENU** for additional submenu options or press **ENTER** to make changes to the highlighted item. Press LEFT on the **ARROW KEYPAD** to get back to the menu tab list. Press **QUIT** to exit the Main Menu page.

The Main Menu tabs are:

- GPS— Shows satellite status, accuracy, DOP and differential information.
- Tide— Shows 24 hour tide chart with levels and times.
- Trip— Provides trip speeds, odometers, averages, and trip timers.
- Celes— Celestial tab shows sun/moon time cycles and positions.
- Hunt— Provides best times and good times for hunting based on the moon cycle.
- Points— Allows you to create, edit or delete waypoints. See pages 23-25.
- Route— Allows you to create, edit, activate or delete routes. See page 32.

(continued)

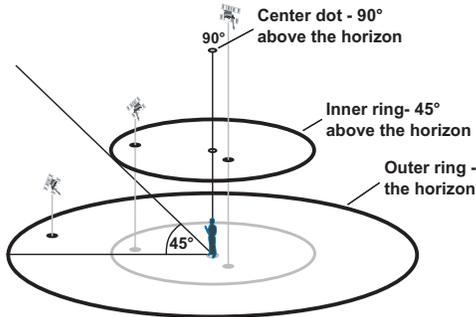
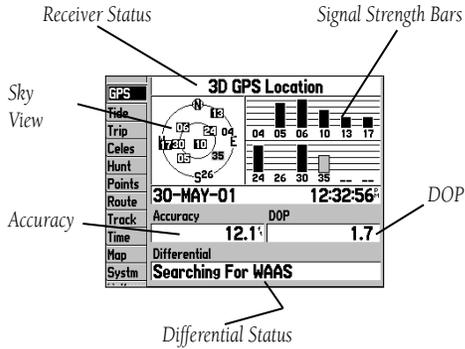
Main Menu Tabs



Main Menu Page

Reference

Main Menu: GPS Tab



- Track— Lets you record a track and define how it is recorded and displayed.
- Time— Displays current time, and sets up time format, time zones, and daylight savings.
- Map— Sets up Map Page features, display, zooms, and text size. See pages 9-13.
- System— Defines simulator, WAAS, backlight timeout, beeper, speed filter, language, displays power source, restores setup, and displays software version.
- Loctn— Displays location format, map datum, heading and magnetic variation.
- Units— Defines units of measure for elevation, depth, distance and speed, temperature and direction display.
- Comm— Defines interface settings for transferring data.
- Alarm— Sets up alarms for anchor drag, arrival, off course, clock, shallow and deep water, DGPS and accuracy.

GPS Tab— provides a visual reference of satellite acquisition, receiver status, and accuracy. The status information show what the receiver is doing at any given moment. The sky view and signal strength bars give an indication of what satellites are visible to the receiver and whether or not they are being tracked. The signal strength is shown on a bar graph for each satellite, with the satellite number below. As the receiver locks onto satellites, a signal strength bar will appear for each satellite in view, with the appropriate satellite number underneath each bar.

The progress of satellite acquisition is shown in three stages:

- No signal strength bars— the receiver is looking for the satellites indicated.
- Light signal strength bars— the receiver has found the satellite(s) and is collecting data.
- Dark signal strength bars— the receiver has collected the necessary data and the satellite(s) are ready for use.

As soon as the GPSMAP 176 has collected the necessary data from the best satellites in view to calculate a fix, the status field will indicate a 2D or 3D status. The unit will then update the position, date and time.

You can use the sky view to help determine if any satellites are being blocked, and whether you have a current position fix (indicated by a '2D', '2D Differential', '3D', or '3D Differential' in the status field). The sky view shows a bird's-eye view of the position of each satellite relative to the receiver's last known position. The outer circle represents the horizon (north up), the inner circle 45° above the horizon, and the center point a position directly overhead. You can also set the sky view to a 'Track Up' configuration, causing the top of the sky view to align along your current track heading.

WAAS Capability

The GPSMAP 176 is capable of receiving WAAS (Wide Area Augmentation System) satellite signals. WAAS is an FAA (Federal Aviation Administration) funded project to improve the overall accuracy and integrity of the GPS signal for aviation use, but land/sea based users may also benefit from this system. At this time, the system is still in the development stage and is not fully operational. There are currently two WAAS satellites that can be received in the U.S.A., one over the Atlantic Ocean and one over the Pacific Ocean, in a geo-stationary orbit over the equator. Effective use of the WAAS satellite signal may be limited by your geographic location in relation to those satellites, now in developmental service.

WAAS satellite signal reception requires an absolute clear view of the sky and works best when there are no nearby obstructions such as buildings, mountains, etc. WAAS satellites will be numbered 33 or higher when viewing the sky view on your GPSMAP 176. Initial reception of the WAAS signal may take up to 15-20 minutes each day, then 1-2 minutes afterwards. When WAAS differential correction has been received for GPS satellites (numbers 32 or below), a 'D' will appear in the signal bar of the sky view and '2D or 3D Differential' will appear in the receiver status. To learn more about the WAAS system, its satellite positions and current state of development, visit the FAA web site: (<http://gps.faa.gov>). Since WAAS requires CPU resources of the GPSMAP 176 to search for and track the satellites, you may disable the WAAS feature to improve unit performance if WAAS reception is not available in your area. The unit will not search for WAAS satellites if the unit is in the Battery Saver mode.

To disable/enable WAAS capability:

1. From the 'System' tab, highlight the WAAS field, press **ENTER** and select either 'Enabled' or 'Disabled' and press **ENTER**.

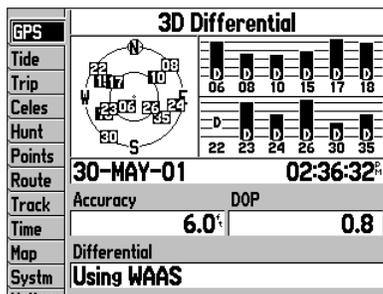
Main Menu: GPS Tab

GPS	System Mode	WAAS
Tide	Normal	Enabled
Trip	Backlight Timeout	Beeper
Celes	15 Seconds	Off
Hunt	Speed Filter	
Points	Auto	
Route	Language	
Track	English	
Time	External Power	
Map	⏏	
System		

From the Main Menu 'System' tab, highlight the WAAS field and press ENTER to 'Enable' or 'Disable' WAAS.

Reference

Main Menu: GPS Tab



When the GPSMAP 176 is using a differential correction signal either WAAS or DGPS, a “D” is displayed in the signal strength indicator bar for the satellites that are corrected.

Receiver Status, Accuracy and DOP

Receiver status is indicated at the top field of the page, with the current Accuracy and Dilution Of Precision (DOP) to the right of the sky view. DOP is an indication of satellite geometry quality measured on a scale of one to ten (lowest numbers the best, highest numbers the poorest). Accuracy uses DOP and other factors to calculate horizontal position accuracy in feet or meters.

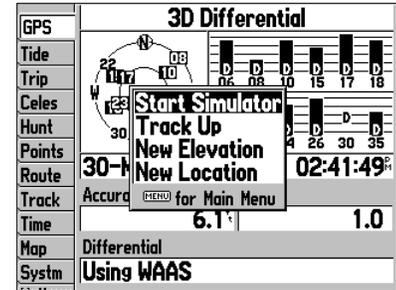
The status field will show one of the following conditions:

- Searching the Sky— the receiver is looking for any satellites.
- AutoLocate— the receiver is looking for any satellite whose almanac has been collected. This process can take up to five minutes.
- Acquiring Satellites— the receiver is looking for and collecting data from satellites visible at its last known or initialized position, but has not collected enough data to calculate a fix.
- 2D GPS Location— at least three satellites with good geometry have been acquired and a 2 dimensional position fix (latitude and longitude) is being calculated. ‘2D Differential’ will appear when you are receiving DGPS corrections in 2D mode and a ‘D’ will show on the strength bar of satellites being corrected.
- 3D GPS Location— at least four satellites with good geometry have been acquired and your position is now being calculated in latitude, longitude and altitude. ‘3D Differential’ will appear when you are receiving DGPS corrections in 3D mode and a ‘D’ will show on the strength bar of satellites being corrected.
- Lost Satellite Reception— the receiver is no longer tracking enough satellites for a 2D or 3D fix.
- Receiver Not Usable— the receiver is unusable, possibly due to interference or abnormal satellite conditions. Turn the unit off and back on to reset.
- Simulating GPS— the receiver is in simulator mode.
- GPS Off—the GPS receiver is turned off.

Main Menu: GPS Tab



Note: If a DGPS receiver is attached to the unit and GARMIN DGPS, RTCM In/NMEA Out, or Other DGPS is enable on Port 2, WAAS will be automatically disabled (WAAS Off). It is not possible for the GPSMAP 176 to receive WAAS and DGPS corrections at the same time.



GPS Tab (Main Menu) Options

The Differential Receiver status will show one of the following:

- None— No optional beacon receiver is attached or enabled in the Comm tab (Main Menu) or WAAS is turned Off
- Searching for WAAS— WAAS is enabled and the receiver is searching for WAAS signal
- Using WAAS— WAAS capability is enabled and the unit is receiving WAAS corrections
- Check Beacon Wiring— the DGPS setting is enabled in the Comm tab (Main Menu) but no DGPS device is detected
- No Beacon Signal— DGPS receiver is attached, but not transmitting RTCM data to GPS
- Tuning Beacon— Receiver is tuning manual DGPS frequency
- Using Differential— Unit is receiving DGPS corrections
- Scanning for Beacon— DGPS receiver is scanning for available frequency

The Differential SNR (Signal to Noise Ratio) indicates, on a scale to 0-30db with 30db being the best, the strength of the DGPS signal being received. If no optional DGPS receiver is used with the GPSMAP 176, the 'DGPS Rcvr' field will display 'Off'. The SNR will depend upon the mounting of your DGPS receiver and the distance from the DGPS transmitting station.

The GPSMAP 176's GPS Info tab features an options page that provides access to functions and features relating to the GPS Info tab.

To display the GPS Tab options:

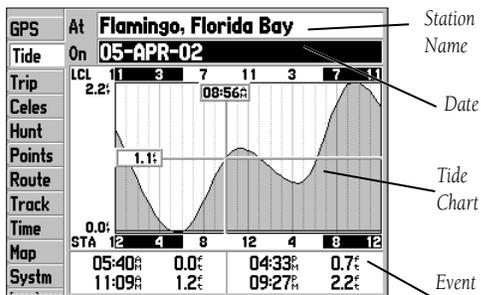
1. With the GPS information displayed, press **MENU**.

The following options are available:

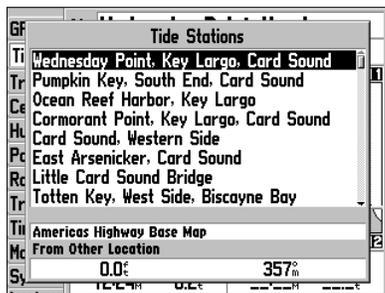
- Start/Stop Simulator— toggles the unit simulator on or off.
- Track Up/North Up— allows you to select between a north up or track up sky view display for the GPS Info tab only.
- New Location— allows you to initialize the receiver graphically on the Map Page to initially help the receiver acquire more quickly.
- New Elevation— allows you to manually enter the altitude when in 2D or Simulator mode only. Any altitude entered will be automatically calculated when the GPS is in 3D mode.

Reference

Main Menu: Tide Tab



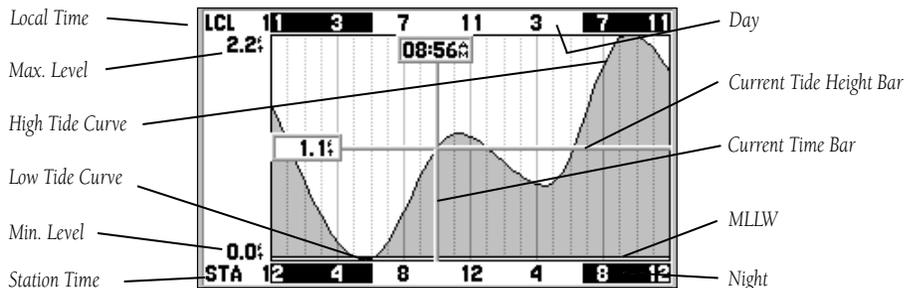
Tide Tab



Select from a list of tide stations.

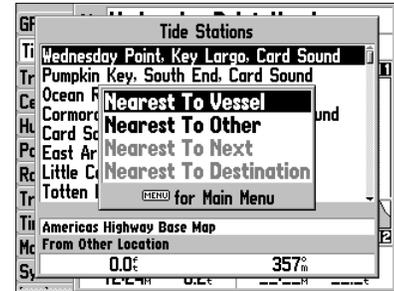
Tide Tab— shows a graphical chart which displays tide station information in a 24 hour span starting at midnight station time. You can choose from different dates and over 3000 tide stations around the USA coastline, Alaska, Hawaii, Western Canada and several of the Caribbean Islands.

The top of the page displays the tide station being referenced, below that the date. The top of the chart shows a 24-hour block of local time (LCL) for your position, with the reported station time (STA) appearing at the bottom. Daytime (light bar) and nighttime (dark bar) show across the time scale, with the time progressing from left to right (local time scales and sunrise/sunset info may not be available for a few stations). The solid, light vertical lines represent 4-hour increments, and the light, dotted vertical lines are 1-hour increments. A gray, vertical line (with a block at the top displaying time) indicates the time of day when using current date and will intersect the tide graph to show their relation.

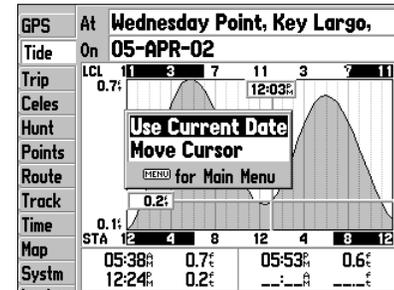


The tide curve shows as a shaded area, with higher tides being taller and lower tides shorter. The gray, horizontal line (with a block at the left displaying depth) indicates the current tide height. The Mean Lower Low Water (MLLW) appears as a solid, horizontal line near the bottom of the chart (this line only appears if the tide ranges to the zero value or below). The numbers directly below/above 'LCL' and 'STA' indicate the maximum/minimum levels, respectively. The four data fields below the chart, indicate event times and levels at which the tide changes starting in the upper left field, going downward, then to the upper right and down again.

Main Menu: Tide Tab



Searching for Tide Stations



Tide Tab Menu Options

To view the chart for a tide station nearest to your current location:

1. From the 'Tide' tab, press **FIND**, select 'Tide Stations' and press **ENTER**.
2. Press **MENU** and select 'Nearest to Vessel'. Select the desired station from the list and press **ENTER**.
3. Highlight 'Show Chart' and press **ENTER**. Selecting 'Next' will return to the list with the next station highlighted.

To view a tide chart for another station:

1. Highlight the name of the current tide chart displayed, and press **ENTER**.
2. A list of stations nearest to the currently selected station is displayed. Use the **ARROW KEYPAD** to highlight the desired station from the list and press **ENTER**.
3. With 'OK' or 'Show Chart' highlighted, press **ENTER** to view the chart.

To find the chart for a tide station nearest to a location on the map:

1. Press **FIND**, select 'Tide Stations' and press **ENTER**.
2. Press **MENU**, select 'Nearest to Other' and press **ENTER**.
3. Use the **ARROW KEYPAD** to select a position on the map with the Map Pointer and press **ENTER**.
4. Select the desired station from the list and press **ENTER** to view the Information page for the chart. This shows the station's distance and bearing from the selected map location, and the station's position coordinates.
5. Highlight 'Show Chart' and press **ENTER** to view the chart

To view the tide chart for another date:

1. With the desired chart displayed, highlight the 'On' (date) field and press **ENTER**.
2. Enter the desired date with the **ARROW KEYPAD** and press **ENTER**.
3. To return to the current date, press **MENU**, then highlight 'Use Current Date' and press **ENTER**.

To view a chart's details for another time during the day (other than current time):

1. With the desired chart displayed, press **MENU** and select 'Move Cursor'.
2. Press the **ARROW KEYPAD** RIGHT or LEFT to view the chart at another time.
3. To return to the current time, press **MENU** and select 'Stop Moving Cursor'.

Reference

Main Menu: Trip/ Celes (Celestial) Tab

GPS	Trip Odometer	Stopped Time
Tide	76.1%	04:16:05
Trip		
Celes	Moving Average	Moving Time
Hunt	0.9%	00:00:51
Points		
Route	Total Average	Total Time
Track	0.0%	04:16:55
Time		
Map	Maximum Speed	Odometer
System	32.9%	76.1%

Trip Tab

The diagram shows the Celestial Tab interface with the following labels and fields:

- Date/Time**: 30-MAY-01 03:11
- Location**: Current Location
- Sun Position**: Indicated by a dot on the skyview.
- Moon Position**: Indicated by a dot on the skyview.
- Horizon (0°)**: The bottom edge of the skyview.
- 20°**: A marked angle on the skyview.
- 45°**: A marked angle on the skyview.
- Overhead (90°)**: The top edge of the skyview.
- Sun/Moon Event Times**:
 - Sunrise: 05:56
 - Sunset: 08:36
 - Moonrise: 01:53
 - Moonset: 02:32
- Moon Phase**: A small image of the moon's phase.

The interface also includes a menu on the left with options: GPS, Tide, Trip, Celes, Hunt, Points, Route, Track, Time, Map, and System.

Celestial Tab

Trip Tab— displays Trip Odometer, Moving Average Speed, Total Average Speed, Maximum Speed, Stopped Time, Moving Time, Total Time, and Odometer.

To reset the trip data:

1. Press **MENU**, then select 'Reset Trip', 'Reset Max Speed', 'Reset Odometer' or 'Reset All' and press **ENTER**.

Celestial (Celes) Tab— displays celestial data for Sun and Moon rise/set, Moon phases, and approximate skyview location of the sun and moon. The moon phase will display the current visible portion of the moon as a light color. You may display this data for your current position, a position from the map, or a waypoint location. Also, you may select a different date and time, or use the current data.

To choose another position:

1. From the 'Celes' tab, highlight the location field and press **ENTER**.
2. The 'Find' window appears. Make a selection and press **ENTER** until the information for that location is displayed on the 'Celes' tab. See pages 38-39 for more information on using the Find feature.

The location the unit is using will appear in the Date/Time/Position field. The timetables displayed will be based upon your current time zone. When using a position from another location outside of your time zone, you will need to set the Time Zone for that location under the 'Time' tab on the Main Menu (see page 49).

To change the time or date:

1. From the 'Celes' tab, use the **ARROW KEYPAD** to highlight the date or time field and press **ENTER**.
2. Enter a new date or time and press **ENTER**.

To use current date and time:

1. From the 'Celes' tab, press **MENU**, then use the **ARROW KEYPAD** to highlight 'Use Current Date and Time' and press **ENTER**.

To change the skyview orientation:

1. From the 'Celes' tab, press **MENU**, then use the **ARROW KEYPAD** to highlight 'North Up' or 'Track Up' and press **ENTER**.

Hunt Tab— displays good and best times and a condition prediction for hunting. You can select a data and location of your choice.

To enter another date:

1. Highlight the Date field and press **ENTER**.
2. Enter a new date then press **ENTER** to accept.

To choose another location:

1. Highlight the location field and press **ENTER**.
2. The 'Find' window appears. Make a selection and press **ENTER** until the information for that location is displayed on the 'Hunt' tab. See pages 38-39 for more information on using the Find feature.

Points Tab— contains the 'User' and 'Proximity' waypoint lists. For detailed information on the Points Tab see pages 23-25.

Route Tab— contains a list of available routes. For detailed information on routes see pages 30-37.

Track Tab— lets you specify whether or not to record a track log (an electronic 'bread crumb trail' recording of your path), define how it is recorded, or save track log data for future use. The Track Tab also provides an indicator of the memory used for the active track log and options to clear the track memory or start a TracBack route. See pages 27-29 for TracBack information. The Track submenu is divided in two tabs: 'Active' tab and the 'Saved' tab.

Active Tab

The 'Active' tab is for the active log (the log currently being recorded). It displays track memory used and current settings.

For the 'Active' tab, the following settings are available:

- Record Mode— lets you select one of three track recording options:
 - Off: No track log will be recorded. Note that selecting the 'Off' setting will prevent you from using the TracBack feature.
 - Fill: A track log will be recorded until the track memory is full.
 - Wrap: A track log will be continuously recorded, wrapping through the available memory (replacing the oldest track data with new data).

Reference

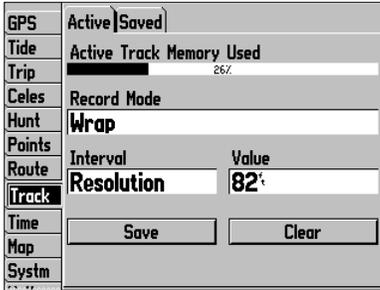
**Main Menu:
Hunt/Points/Route/Track Tabs**

GPS	Date/Location
Tide	30-MAY-01
Trip	Current Location
Celes	Prediction
Hunt	Normal
Points	Best Times
Route	06:52^h — 08:52^h
Track	07:08^h — 09:08^h
Time	Good Times
Map	12:41^h — 01:41^h
System	01:03^h — 02:03^h

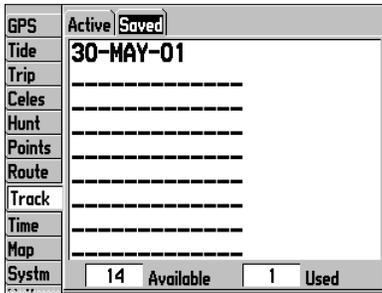
Hunt Tab

Reference

Main Menu: Track Tab



Track Menu— 'Active' Tab



Track Menu— 'Saved' Tab

- Interval— Defines the frequency at which the track is recorded. Three interval settings are available:
 - Distance: Records track based on a user-defined distance between points.
 - Time: Records track based on a user-defined time interval.
 - Resolution: Records track based upon a user-defined variance from your course over ground. The resolution option is the default setting and is recommended for the most efficient use of memory and TracBack performance. The distance value (entered in the value field) is the maximum error allowed from the true course before recording a track point.
- Value— Defines the distance or time used to record the track.
- Save— Allows you to save the current active track log.
- Clear— Allows you to clear the active track log currently stored in memory.

Saved Tab

The 'Saved' tab displays and manages a list of any saved track logs, and allows TracBack activation and map display of saved logs. The active log stores up to approximately 2500 track log points, based upon the criteria specified in the Track settings. Up to 15 track logs may be saved in memory, with up to 500 track log points in each saved log.

For the 'Saved' tab, the following menu options are available:

- Review On Map— Displays the saved track on a Track Map Page.
- Delete Track— Deletes highlighted saved track from memory.
- Delete All— Deletes all saved tracks from memory.

You may also activate a TracBack from any of the saved tracks on this tab.

To activate a TracBack from the 'Saved' tab list:

1. Using the **ARROW KEYPAD**, highlight the track you wish to use for a TracBack and press **NAV**.
2. The 'Follow <track name>' will automatically appear highlighted. Press **ENTER**.
3. Choose either 'Original', which will navigate you from the end to the start of your trip, or 'Reverse', which will navigate you from the start to the end of your trip and press **ENTER**.

Time Tab— displays the current time and date, allows you to adjust the 12 or 24 hour time format, enter a time zone and adjust for daylight savings to show correct local time.

The following menu options are available:

- Time Format— choose from 12 or 24 hour (military) time format.
- Time Zone- choose your correct time zone to show correct local time or enter a UTC Offset. The UTC (also called Greenwich Time) offset is how many hours you are ahead or behind the time line. See the table on page 59 for time offsets.
- Daylight Savings— choose from ‘Auto’, ‘On’, or ‘Off’ to adjust for daylight savings.

Map Tab— Contains setup options for the Map Page. For detailed information on the Map Tab, see pages 18-21.

System (System) Tab— controls system settings for the system mode, WAAS, backlight timeout, beeper, speed filter, languages, and current power status (external power or battery scale).

The following settings are available:

- System Mode— select from ‘Normal’ (Normal Navigation) or ‘Simulator’ (For practice ONLY).
- WAAS—enable/disable the search for WAAS satellites.
- Beeper— controls audible beep. Select from ‘Off’, ‘Alarms Only’ (sounds for alarms/messages), ‘Key and Alarm’ (sounds for key presses and alarms/messages).
- Backlight Timeout—setting are ‘Stays On’, ‘15 Seconds’, ‘30 Seconds’, ‘1 Minute’, or ‘2 Minutes’.
- Speed Filter— averages speed-readings. Choose from ‘Off’, ‘Auto’ (automatically controls filtering), or ‘On’ (allows you to enter a value from 1 to 255 seconds).
- Language— select from various languages for the unit’s on-screen display.
- Power Source— either displays battery power (battery level indicator) or shows that an external power source is in use (electrical plug).

Reference

Main Menu: Time/Map/System Tabs

GPS	Time Format
Time	12 Hour
Trip	Time Zone
Celes	Central
Hunt	Daylight Savings Time
Points	Auto
Route	Current Time and Date
Track	03:52:16 ^z 30-MAY-01
Time	
Map	
System	

Time Tab

GPS	System Mode	WAAS
Time	Normal	Enabled
Trip	Backlight Timeout	Beeper
Celes	15 Seconds	Off
Hunt	Speed Filter	
Points	Auto	
Route	Language	
Track	English	
Time	External Power	
Map		⏏
System		

System Tab

Main Menu: Location Tab



The Units tab settings will affect how navigation information is displayed on the GPSMAP 176. When in doubt, seek assistance.

If you are using a map or chart in conjunction with your GPS, make sure the settings under the 'Units' tab of the GPSMAP 176 match that of the map or chart. This information should be displayed somewhere on the map or chart. If the information is not present, contact the map or chart maker to determine what position format, datum, heading and units of measure are being used for the map or chart.

Hunt	Location Format
Points	hddd°mm.mmm'
Route	Map Datum
Track	WGS 84
Time	Heading
Map	Auto Mag Var
System	Magnetic Variation
Loctn	003°E
Units	
Comm	
Alarm	

Location Tab

The following options are also available from the 'System' tab:

- System Information— displays the unit's software, basemap version and electronic serial number.
- Defaults— restores settings on System page to default values.
- All Unit Defaults— restores all settings to Garmin's original setup values for the entire unit.

Location (Loctn) Tab— defines settings for Location Format, Map Datum, Heading, and Magnetic Variation.

The following settings are available:

- Location Format— is used to change the coordinate system in which a given position reading is displayed. You should only change the position format if you are using a map or chart that specifies a different position format or wish to use a format you are familiar with. The default format is latitude and longitude in degrees, minutes, and thousandths of a minute (hddd°mm.mmm'). The following additional formats are available:
 - hddd.dddd°— latitude/longitude in decimal degrees only
 - hddd°mm'ss.s"— latitude/longitude in degrees, minutes, seconds
 - UTM/UPS— Universal Transverse Mercator / Universal Polar Stereographic grids
 - British Grid
 - Dutch Grid
 - Finnish KKJ27
 - German Grid
 - Irish Grid
 - India Zone Grids
 - Maidenhead
 - MGRS
 - New Zealand
 - Qatar Grid
 - RT 90
 - Swedish Grid
 - Swiss Grid
 - Taiwan Grid
 - Loran TD
 - User Grid
 - W Malayan RSO

For additional information on Loran TD setup, see pages 66-67.

Main Menu: Location Tab



To enter a Magnetic Variation manually, highlight the 'Heading' field, press ENTER, select 'User Mag Var' and press ENTER again.

	Location Format
Hunt	hddd'mm.mmm'
Points	Map Datum
Route	WGS 84
Track	Heading
Time	User Mag Var
Map	Magnetic Variation
System	000'E
Loctn	
Units	
Comm	
Alarm	

Enter a magnetic variation.

- Map Datum— allows you to manually select the datum reference used to determine a given position. The default setting is 'WGS 84'. The unit will automatically choose the best datum depending upon your chosen position format. Datums are used to describe geographic positions for surveying, mapping, and navigation and are not actual maps built in the unit. Although over 100 datums are available (as listed on pages 60-61), you should only change the datum if you are using a map or chart that specifies a different datum.



WARNING: Selecting the wrong map datum can result in substantial position errors. When in doubt, use the default WGS 84 datum for best overall performance.

- Heading— lets you select the reference used in calculating heading information. You can select from 'Auto Mag Var', 'True', 'Grid' and 'User Mag Var'. 'Auto Mag Var' provides magnetic north heading references which are automatically determined from your current position. 'True' provides headings based upon a true north reference. 'Grid' provides headings based on a grid north reference (and is used in conjunction with the grid position formats described on page 50). 'User Mag Var' allows you to specify the magnetic variation at your current position and provides magnetic north heading references based upon the variation you enter.

To enter a user defined magnetic variation:

- With the "Heading" field set to 'User Mag Var', highlight the 'Magnetic Variation' field and press **ENTER**.
- Use the **ARROW KEYPAD** to enter the magnetic variation at your current position and press **ENTER**.



WARNING: If 'User Mag Var' is selected, you must periodically update the magnetic variation as your position changes. Using this setting, the unit will not automatically calculate and update the magnetic variation at your present position. Failure to update this setting may result in substantial differences between the information displayed on your unit and external references, such as a magnetic compass.

Reference

Main Menu: Units/Comm Tabs

Hunt	Elevation
Points	Feet (ft)
Route	Depth
Track	Feet (ft)
Time	Distance and Speed
Map	Statute (mi, mh, ft)
Systm	Temperature
Loctn	Fahrenheit (°F)
Units	Direction Display
Comm	Numeric Degrees
Alarm	

Units Tab

Hunt	Serial Data Format
Points	GARMIN Data Transfer
Route	Transfer Mode
Track	Host
Time	
Map	
Systm	
Loctn	
Units	
Comm	
Alarm	oz

Communication Tab

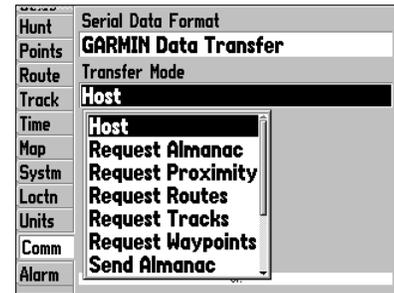
Units Tab— defines units of measure for Elevation, Depth, Distance and Speed, Temperature and Direction Display.

- Elevation— select Feet or Meters
- Depth— select Feet (ft), Fathoms (fa) or Meters (mt)
- Distance and Speed— select Nautical (nm, kt, ft), Statute (mi, mh, ft) or Metric (km, kh, mt)
- Temperature— select Fahrenheit (°F) or Celsius (°C). This setting is only available when the GPSMAP 176 is interfaced with a depth finder, and the transducer must have a temperature sensor in the water.
- Direction Display— select Numeric Degrees or Cardinal Letters. This setting is used in all fields that relate to direction throughout the unit.

Communication (Comm) Tab— lets you control the input/output format used when connecting your GPSMAP 176 to external NMEA devices, a DGPS beacon receiver, a personal computer, another GARMIN GPSMAP 176, etc. Note: If a DGPS receiver is used, WAAS capability will automatically be turned to 'Off'.

- Garmin Data Transfer— the proprietary format used to upload/download MapSource data, exchange waypoint, route, track, almanac, and proximity data with a PC or another GARMIN GPSMAP 176. When you select 'Garmin Data Transfer', there are 11 Transfer Modes to choose from: Host, Request Almanac, Request Proximity, Request Routes, Request Tracks, Request Waypoints, Send Almanac, Send Proximity, Send Routes, Send Tracks and Send Waypoints.
- Garmin DGPS— used to connect the GPSMAP 176 with a Garmin DGPS beacon receiver.
- NMEA In/NMEA Out— supports the input/output of standard NMEA 0183 version 2.3 data, and sonar NMEA input support for the DPT, MTW and VHW sentences.
- Text Out— allows the unit to output simple text data that includes, data, time, position and velocity. The Baud can be set to 1200, 2400, 4800, or 9600bps.
- RTCM In— allows Differential GPS (DGPS) input using a standard RTCM format.
- RTCM In/NMEA Out— allows Differential GPS (DGPS) input using a standard RTCM format and also provides NMEA 0183 version 2.3 output.

Main Menu: Comm Tab



When transferring data between two GARMIN units, be sure to always set one to 'Host' and use the other unit to either Send or Request the desired data.

- RTCM In/Text Out— allows Differential GPS (DGPS) input using a standard RTCM format and also outputs simple text data that includes, data, time, position and velocity.
- None— provides no interfacing capabilities.

To select a transfer mode:

1. Use the **ARROW KEYPAD** to select 'Garmin Data Transfer' in the 'Serial Data Format' field.
2. Highlight the 'Transfer Mode' field and press **ENTER**.
3. Use the **ARROW KEYPAD** to select the desired setting and press **ENTER**.

To restore the Serial Data Format settings back to the default 'Garmin Data Transfer':

1. From the Comm tab, press **MENU**, highlight 'Defaults' and press **ENTER**.

If 'Garmin DGPS' or 'RTCM In/NMEA Out' format is selected, additional fields are provided to control a GARMIN differential beacon receiver directly from your GPSMAP 176. You may have the unit automatically scan for the DGPS beacon signal or you can enter the beacon frequency and bit rate on the unit and the information will be used to tune the beacon receiver.

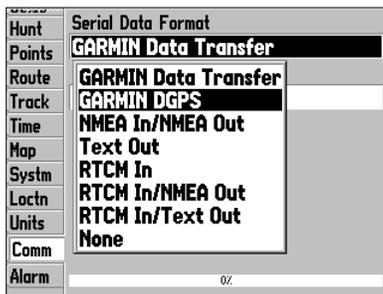
To have the unit automatically scan for a frequency:

1. With the unit set to 'Garmin DGPS' or 'RTCM In/NMEA Out', use the **ARROW KEYPAD** to highlight the "Beacon" field and press **ENTER**.
2. Highlight 'Scan' and press **ENTER**. The numbers in the "Frequency" field will change as the unit scans from '284 kHz' to '325 kHz', '200' bit rate, then '100', at 6-second intervals.

To restart the scan:

1. Press **MENU**, highlight 'Restart Scan' and press **ENTER**.

Main Menu: Comm Tab



If you select 'Garmin DGPS' or 'RTCM In/NMEA Out,' additional data fields are provided allowing you to control the frequency and bit rate that the DGPS receiver uses.

To manually enter a frequency and bit rate:

1. With the unit set to 'Garmin DGPS' or 'RTCM In/NMEA Out', use the **ARROW KEYPAD** to highlight the "Beacon" field and press **ENTER**.
2. Highlight 'User' and press **ENTER**.
3. Highlight the 'Frequency' or 'Bit Rate' field, press **ENTER**, then enter a frequency or bit rate and press **ENTER** when done.

The "Status" field will show one of the following:

- Tuning— unit is attempting to tune to the specified frequency and bit rate.
- Scanning— unit is automatically scanning through the frequencies and bit rates.
- Receiving— unit is receiving DGPS signal and ready for operation.
- Check Wiring— unit is not making connection with DGPS receiver.

When the unit is receiving a DGPS signal, the "SNR" (Signal to Noise Ratio) and 'Distance' fields will show data. The SNR range is 0dB to 30dB, with 30 being the best. The Distance may or may not show data, depending upon the signal being broadcast from the DGPS site.

The DGPS beacon transmitters are operated by the U.S. Coast Guard (or similar government agency in other countries), which is responsible for their accuracy and maintenance. For DGPS transmitter problems or to find the most updated list of frequencies and coverage areas, contact your local USCG, or see their web site at <http://www.navcen.uscg.mil/>.

NMEA Interface

If you are going to interface the GPSMAP 176 with another piece of equipment (such as a radar or autopilot), the unit needs to be set to output NMEA data. The NMEA data can be customized to shorten the update time from the unit. If too many NMEA sentences are activated, the unit may take longer than two seconds to update.

To activate the NMEA data:

1. With the GPSMAP 176 turned on, press **MENU** twice to display the Main Menu. Use the **ARROW KEYPAD** to select the Comm tab.
2. Highlight the 'Serial Data Format' field and press **ENTER**.
3. Select 'NMEA In/NMEA Out' and press **ENTER**.

Advanced NMEA Output Setup

The GPSMAP 176 NMEA data transmission can be customized to keep the output rate at two seconds. If the unit is set up to output all of the available NMEA sentences, the output rate may exceed two seconds. The 'Advanced NMEA Output Setup' page will allow you to turn on/off the GPS status (GSA, GSV), Waypoint/Route (WPL, RTE) and the GARMIN Proprietary sentences. You can also change the precision of the Lat/Lon minutes.

To set up the Advanced NMEA page:

1. With 'NMEA In/NMEA Out' selected, press **MENU**. Select 'Advanced NMEA Setup' and press **ENTER**.
2. To turn a field On/Off, place the highlight over the desired field and press **ENTER**. Make a selection and press **ENTER** again to accept the selection.

GPSMAP 176 NMEA Sentence Output (NMEA version 2.3 compliant)

Always transmitted: GPRMC, GPGGA, GPGLL, GPBWC, GPVTG, GPXTE, GPRMB

Switchable sentences: GPGSA, GPGSV, GPWPL, GPRTE

GARMIN proprietary: PGRME, PGRMZ, PGRMM

Main Menu: Advanced NMEA Setup

Advanced NMEA Output Setup	
GPS Status (GSA, GSV)	
On	
Waypoint/Route (WPL, RTE)	
Off	
GARMIN Proprietary	Waypoint IDs
On	Names
Lat/Lon Minutes Precision	
XX.XXXX' (4 digits)	
WARNING: Enabling GPS Status or Waypoint/Route sentences may cause output rate to exceed 2 sec.	

Advanced NMEA Setup Page

Main Menu: Alarm Tab

Hunt	Anchor Drag	Off	0.0%
Points	Arrival	Time	00:00:15
Route	Off Course	Off	0.00%
Track	Clock	Off	12:00#
Time	Shallow Water	Off	20.0%
Map	Deep Water	Off	100.0%
System	DGPS	On	
Locn	Accuracy	Off	328.1%
Units			
Comm			
Alarm			

Alarm Tab

Alarm Tab— allows you to define the alarm setting for Anchor Drag, Arrival, Off Course, Clock, Shallow Water, Deep Water, DGPS and Accuracy.

- Anchor Drag— sets an alarm to sound when you've exceeded a specified drift distance. Enter a value in the distance field and use the control field to turn the alarm on and off.
- Arrival— sets an alarm to sound when you're a specified distance or time away from a destination waypoint. Enter a distance radius or time for sounding the alarm and use the control field to set the alarm to 'Off', 'Dist' (Distance), or 'Time'.
- Off Course— sets an alarm to sound when you're off a desired course by a specified distance. Enter a distance in the distance field and use the control field to turn the off course alarm on and off.
- Clock— provides an alarm for the system clock. Enter a time in the time field and turn the alarm on and off from the control field menu. Remember to enter alarm times in the same time format (UTC or local) you're using for your system. The unit must be on for the clock alarm to work.
- Shallow Water/Deep Water— set alarms to sound when you enter an area of specified depth that is too shallow and/or too deep. Enter a depth in the distance fields and use the control fields to turn the alarms on and off. You must be receiving sonar NMEA data for this function to work.
- DGPS— sets an alarm to sound when the unit loses a differential fix.
- Accuracy— sets an alarm to sound when GPS accuracy falls outside of the user-set value.

To set an alarm:

1. Use the **ARROW KEYPAD** to highlight the field to the right of the alarm name you wish activate and press **ENTER**.
2. Change the mode to 'On' (Dist or Time for the 'Arrival' alarm) and press **ENTER**.
3. Highlight the next field to the right and press **ENTER**, then enter the desired settings and press **ENTER** to finish.

Maintenance

Cleaning

The GPSMAP 176 is constructed of high quality materials and does not require user maintenance other than cleaning. Clean the unit using a cloth dampened with a mild detergent solution and then wipe dry. Avoid chemical cleaners and solvents that may damage plastic components.



WARNING: *The GPSMAP 176 lens is coated with a special anti-reflective coating which is very sensitive to skin oils, waxes, and abrasive cleaners. CLEANERS CONTAINING AMMONIA WILL HARM THE ANTI-REFLECTIVE COATING. It is very important to clean the lens using an eyeglass lens cleaner which is specified as safe for anti-reflective coatings and a clean, lint-free cloth.*

Storage

Storing alkaline batteries in the unit for long periods of time is not recommended. In order to reduce the chance for battery leakage in the battery compartment and data card slot, remove the batteries when storing the unit for more than six months.

Do not store the GPSMAP 176 where prolonged exposure to temperature extremes may occur (such as in the trunk of a car) as permanent damage may result. User information, such as waypoints, routes, etc. will be retained in the unit's memory without the need for external power. It is always a good practice to back up important user data by manually recording it or downloading it to a PC (transferring it to MapSource).

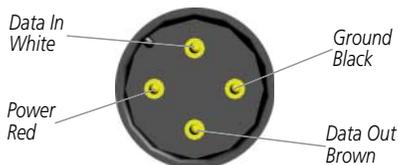
Water Immersion

The GPSMAP 176 is waterproof to IEC Standard 529 IPX7. It can withstand immersion in 1 meter of water for 30 minutes. Prolonged submersion can cause damage to the unit. After submersion, be certain to remove the batteries and data card and dry the compartments before reuse.

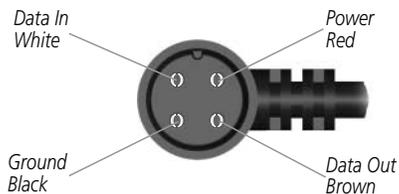
To resolve problems that cannot be remedied using this guide, contact GARMIN Customer Support in the U.S.A. at 800-800-1020 or GARMIN Europe at 44-1794-519944.

Appendix B

Wiring and Interfacing



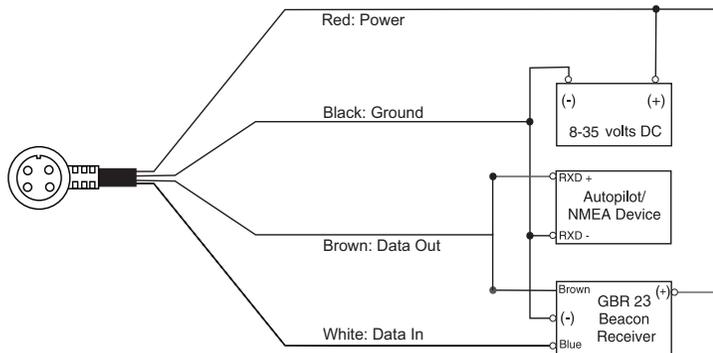
Unit View



Cable View

Connecting the Power/Data

The power/data cable connects the GPSMAP 176 to an 8-35 volt DC system and provides interface capabilities for connecting external devices. The color code in the diagram below indicates the appropriate harness connections. Replacement fuse is a AGC/3AG - 2.0 Amp fuse.



Interfacing

The following formats are supported for connection of external devices:

GARMIN proprietary Differential GPS (DGPS), NMEA 0180, 0182, 0183 (versions 1.5, 2.0, 2.3), ASCII Text Output, RTCM SC-104 input (version 2.0).

The following are the sentences for NMEA 0183, version 2.3 output:

Approved sentences — GPRMC, GPGGA, GPGSA, GPGSV, GPGLL, GPBOD, GPRTE, and GPWPL; Proprietary sentences — PGRME, PGRMZ, and PSLIB. The GPSMAP 176 also includes NMEA input with support for the BWC, DBT, DPT, MTW, VHW, VTG, and XTE sentences.

You can download a copy of GARMIN's proprietary communication protocol from the Help and Support section of our website at www.garmin.com

The chart below gives an approximate UTC (Universal Time Coordinate) time offset for the various longitudinal zones. Check with local charts for more detailed information. If you are in daylight savings time, add one hour to the offset.

Time Offsets

Longitudinal Zone	Offset	Longitudinal Zone	Offset
W180.0° to W172.5°	-12	E007.5° to E022.5°	+1
W172.5° to W157.5°	-11	E022.5° to E037.5°	+2
W157.5° to W142.5°	-10	E037.5° to E052.5°	+3
W142.5° to W127.5°	-9	E052.5° to E067.5°	+4
W127.5° to W112.5°	-8	E067.5° to E082.5°	+5
W112.5° to W097.5°	-7	E082.5° to E097.5°	+6
W097.5° to W082.5°	-6	E097.5° to E112.5°	+7
W082.5° to W067.5°	-5	E112.5° to E127.5°	+8
W067.5° to W052.5°	-4	E127.5° to E142.5°	+9
W052.5° to W037.5°	-3	E142.5° to E157.5°	+10
W037.5° to W022.5°	-2	E157.5° to E172.5°	+11
W022.5° to W007.5°	-1	E172.5° to E180.0°	+12
W007.5° to E007.5°	0		

Appendix D

Map Datums

Adindan	Adindan- Ethiopia, Mali, Senegal, Sudan
Afgooye	Afgooye- Somalia
AIN EL ABD '70	AIN EL ANBD 1970- Bahrain Island, Saudi Arabia
Anna 1 Ast '65	Anna 1 Astro '65- Cocos I.
ARC 1950	ARC 1950- Botswana, Lesotho, Malawi, Swaziland, Zaire, Zambia
ARC 1960	Kenya, Tanzania
Ascnsn Isld '58	Ascension Island '58- Ascension Island
Astro Dos 71/4	Astro Dos 71/4- St. Helena
Astro B4 Sorol	Sorol Atoll- Tern Island
Astro Bcn "E"	Astro Beacon "E"- Iwo Jima
Astr Stn '52	Astronomic Stn '52- Marcus Island
Aus Geod '66	Australian Geod '66- Australia, Tasmania Island
Aus Geod '84	Australian Geod '84- Australia, Tasmania Island
Austria	Austria
Bellevue (IGN)	Efate and Erromango Islands
Bermuda 1957	Bermuda 1957- Bermuda Islands
Bogata Observ	Bogata Observatry- Colombia
Campo Inchspe	Campo Inchauspe- Argentina
Canton Ast '66	Canton Astro 1966- Phoenix Islands
Cape	Cape- South Africa
Cape Canavrl	Cape Canaveral- Florida, Bahama Islands
Carthage	Carthage- Tunisia
CH-1903	CH 1903- Switzerland
Chatham 1971	Chatham 1971- Chatham Island (New Zealand)

Chua Astro	Chua Astro- Paraguay
Corrego Alegre	Corrego Alegre- Brazil
Djakarta	Djakarta (Batavia)- Sumatra Island (Indonesia)
Dos 1968	Dos 1968- Gizo Island (New Georgia Islands)
Dutch	Dutch
Easter Isld 67	Easter Island 1967
European 1950	European 1950- Austria, Belgium, Denmark, Finland, France, Germany, Gibraltar, Greece, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland
European 1979	European 1979- Austria, Finland, Netherlands, Norway, Spain, Sweden, Switzerland
Finland Hayfrd	Finland Hayford- Finland
Gandajika Base	Gandajika Base- Republic of Maldives
GDA	Geocentric Datum of Australia
Geod Datm '49	Geodetic Datum '49- New Zealand
Guam 1963	Guam 1963- Guam Island
Gux 1 Astro	Guadalcanal Island
Hjorsey 1955	Hjorsey 1955- Iceland
Hong Kong '63	Hong Kong
Hu-Tzu-Shan	Taiwan
Indian Bngldsh	Indian- Bangladesh, India, Nepal
Indian Thailand	Indian- Thailand, Vietnam
Indonesia 74	Indonesia 1974- Indonesia
Ireland 1965	Ireland 1965- Ireland
ISTS 073 Astro	ISTS 073 ASTRO '69- Diego Garcia
Johnston Island	Johnston Island NAD27 Central
Kandawala	Kandawala- Sri Lanka
Kerguelen Islnd	Kerguelen Island
Kertau 1948	West Malaysia, Singapore
L. C. 5 Astro	Cayman Brac Island
Liberia 1964	Liberia 1964- Liberia
Luzon Mindanao	Luzon- Mindanao Island
Luzon Philippine	Luzon- Philippines (excluding Mindanao Isl.)
Mahe 1971	Mahe 1971- Mahe Island
Marco Astro	Marco Astro- Salvage Isl.
Massawa	Massawa- Eritrea (Ethiopia)
Merchich	Merchich- Morocco
Midway Ast '61	Midway Astro '61- Midway

Map Datums

Minna	Minna- Nigeria		
NAD27 Alaska	North American 1927- Alaska		
NAD27 Bahamas	North American 1927- Bahamas		
NAD27 Canada	North American 1927- Canada and Newfoundland		
NAD27 Canal Zone	North American 1927- Canal Zone		
NAD27 Caribbn	North American 1927- Caribbean (Barbados, Caicos Islands, Cuba, Dominican Republic, Grand Cayman, Jamaica, Leeward and Turks Islands)		
NAD27 Central	North American 1927- Central America (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua)		
NAD27 CONUS	North American 1927- Mean Value (CONUS)		
NAD27 Cuba	North American 1927- Cuba		
NAD27 Grnland	North American 1927- Greenland (Hayes Peninsula)		
NAD27 Mexico	North American 1927- Mexico		
NAD27 San Sal	North American 1927- San Salvador Island		
NAD83	North American 1983- Alaska, Canada, Central America, CONUS, Mexico		
Naparima BWI	Naparima BWI- Trinidad and Tobago		
Nhrwn Masirah	Nahrwn- Masirah Island (Oman)		
Nhrwn Saudi A	Nahrwn- Saudi Arabia		
Nhrwn United A	Nahrwn- United Arab Emirates		
Obsrvtorio '66	Observatorio 1966- Corvo and Flores Islands (Azores)		
Old Egyptian	Old Egyptian- Egypt		
Old Hawaiian	Old Hawaiian- Mean Value		
Oman	Oman- Oman		
Ord Srvy GB	Old Survey Great Britain- England, Isle of Man, Scotland, Shetland Isl., Wales		
Pico De Las Nv	Canary Islands		
Potsdam	Potsdam-Germany		
Prov S Am '56	Prov So Amrcn '56- Bolivia, Chile, Colombia, Ecuador, Guyana, Peru, Venezuela		
Prov S Chln '63	So. Chilean '63- S. Chile		
Ptcairn Ast '67	Pitcairn Astro '67- Pitcairn		
Puerto Rico	Puerto Rico & Virgin Isl.		
Qatar National	Qatar National- Qatar South Greenland		
Qornoq	Qornoq- South Greenland		
Reunion	Reunion- Mascarene Island		
Rome 1940	Rome 1940- Sardinia Isl.		
RT 90	Sweden		
Santo (Dos)	Santo (Dos)- Espirito Santo		
		Sao Braz	Sao Braz- Sao Miguel, Santa Maria Islands
		Sapper Hill '43	Sapper Hill 1943- East Falkland Island
		Schwarzeck	Schwarzeck- Namibia
		SE Base	Southeast Base- Porto Santo and Madiera Islands
		South Asia	South Asia- Singapore
		Sth Amrcn '69	S. American '69- Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Venezuela, Trin/Tobago
		SW Base	Southwest Base- Faial, Graciosa, Pico, Sao Jorge and Terceira
		Taiwan	Taiwan
		Timbalai 1948	Timbalai 1948- Brunei and E. Malaysia (Sarawak and Sabah)
		Tokyo	Tokyo- Japan, Korea, Okinawa
		Tristan Ast '68	Tristan Astro 1968- Tristan da Cunha
		Viti Levu 1916	Viti Levu 1916- Viti Levu/Fiji Islands
		Wake-Eniwetok	Wake-Eniwetok- Marshall
		WGS 72	World Geodetic System 72
		WGS 84	World Geodetic System 84
		Zanderij	Zanderij- Surinam (excluding San Salvador Island)
		User	User-defined custom datum

Glossary of Terms

Avg Speed — The average of all second-by-second speed readings since last reset.

Bearing (BRG) — The compass direction from your current location to a destination.

Course — The desired course between the active 'from' and 'to' waypoints.

Distance (Dist) — The 'great circle' distance from current location to a destination.

Dist to Dest — The 'great circle' distance from current location to a GOTO destination, or the final waypoint in a route.

Dist to Next — The 'great circle' distance from current location to a GOTO destination, or the next waypoint in a route.

Elevation — Height above mean sea level (MSL).

ETA — Estimated Time of Arrival. The estimated time you will reach your destination waypoint, based on current speed and track.

ETA at Dest — The estimated time you will reach a GOTO destination, or the final waypoint in a route.

ETA at Next — The estimated time you will reach a GOTO destination, or the next waypoint in a route.

Fuel — The fuel required to travel from current location to the indicated route waypoint.

Leg Dist — The distance between two route waypoints.

Leg Fuel — The fuel required to travel from a route waypoint to the next waypoint (in sequence) in the route.

Leg Time — The time required to travel from a route waypoint to the next waypoint (in sequence) in the route.

Max Speed — The maximum second-by-second speed recorded since last reset.

Moving Average Speed — Average speed while the unit is moving.

Glossary of Terms

Moving Trip Timer — Total time the unit has been moving.

Odometer — A running tally of distance traveled, based upon the distance between second-by-second position readings.

Off Course — The distance you are off a desired course in either direction, left or right. Also referred to as ‘cross-track error’ or ‘course error’.

Speed — The current velocity at which you are travelling, relative to a ground position. Also referred to as ‘ground speed’.

Time To — The estimated time required to reach a GOTO destination, or the next waypoint in a route. Also referred to as ‘estimated time en route’.

Time to Dest — The estimated time required to reach a GOTO destination, or the final waypoint in a route.

Time to Next — The estimated time required to reach a GOTO destination, or the next waypoint in a route.

To Course — The recommended direction to steer in order to reduce course error or stay on course. Provides the most efficient heading to get back to the desired course and proceed along your route.

Track — The direction of movement relative to a ground position. Also referred to as ‘ground track’.

Trip Odometer — A running tally of distance travelled since last reset. Also see ‘Odometer’.

Total Average Speed — Average speed of unit for both moving and stopped speeds since last timer reset.

Total Trip Timer — Total time the unit has been in operation since last reset of the trip timers.

Turn — The angle difference between the bearing to your destination and your current track. ‘L’ indicates you should turn left, ‘R’ indicates you should turn right. The degrees indicate the angle you are off course.

VMG — Velocity Made Good. The speed you are closing in on a destination along a desired course. Also referred to as the ‘vector velocity’ to your destination.

Messages

Approaching Turn — is displayed when you are nearing a turn in a route.

Arriving at Destination — is displayed when you are nearing your destination.

Batteries Low — when displayed you have less than 10 minutes of battery left.

Cannot display all found, use city or postal code — The unit found too many items to display. Narrow the search using the city or postal code.

Cant Unlock Maps — No applicable unlock code for one or more maps was found. All MapSource map are not accessible.

Database Error — Internal problem with the unit. Contact your dealer or GARMIN Customer Service to have the unit repaired.

Deep Water — The water is deeper than the amount set in the Deep Water Alarm.

Dragging Anchor — is the message displayed when the distance set in the Anchor Alarm is exceeded.

Lost Satellite Reception — The unit is unable to continue receiving satellite signals.

Memory Full — Unit memory is full, no further data can be saved.

Near Proximity Point — You have reached the distance set for a proximity waypoint.

No Diff GPS Location — RTCM is selected but the unit is not receiving DGPS data.

None Found — No data matched the search criteria.

No Tide Stations for that Area — No tide stations within 100 miles of the area.

Off Course — You are off course the distance set in the 'Off Course' Alarm.

Proximity Memory Full — No additional proximity waypoints can be saved.

Proximity Radius Overlaps — The radius of two proximity waypoints overlap.

Route Already Exists — You have entered a route name that already exists.

Route Memory Full — No additional routes can be saved.

Route Truncated — Uploaded route from another device has more than 50 waypoints.

Messages

Route Waypoint Memory Full — No additional route waypoints can be saved.

Shallow Water — The water is shallower than the amount set in the Shallow Water Alarm.

Track Already Exists — A saved track with the same name already exists.

Track Log Full — Indicates the track log is full and track recording has been turned off. In order to record more track points, you will need to clear the track log and turn track recording on. This will only be displayed when the track recording setting is set to 'Stop When Full'.

Track Memory Full — No more track data can be stored without deleting old data.

Track Truncated — A complete uploaded track will not fit in memory. The oldest track log points have been deleted.

Transfer Complete — Data transfer has been completed.

Waypoint Already Exists — A waypoint with the same name already exists.

Waypoint Memory Full — The unit has stored the maximum number of waypoints.

LORAN TD Setup

LORAN TD System

LORAN C is a radio navigation aid operated and maintained in the United States by the United States Coast Guard. The name LORAN is an acronym for “LOng RANGE Navigation”. The LORAN system covers the entire United States and the U.S. Coastal Confluence Zone. From the perspective of a mariner, the system is used for ocean and coastal navigation. It can be used as a supplemental system for harbor and harbor approach navigation, and it is used for inland navigation by recreational vehicles.

LORAN TD Feature

The LORAN TD (Time Delay) feature eases the transition from using LORAN to using GPS. The GPSMAP unit automatically converts GPS coordinates to LORAN TDs for those who have a collection of LORAN fixes for favorite fishing spots and other waypoints recorded as TDs. You can display your position as a TD or enter waypoints as TDs. The accuracy to be expected from this conversion is approximately thirty meters. When the unit is placed in the LORAN TD format mode, it simulates the operation of a LORAN receiver. Position coordinates may be displayed as TDs, and all navigation functions may be used as if the unit was actually receiving LORAN signals.

Using the LORAN TD Format

When creating new waypoints using LORAN TD coordinates, you must set the correct LORAN chain number and secondary stations in the Setup TD field before storing the waypoint. After the waypoint is stored in unit memory, it will always reference the LORAN chain number and secondary stations currently selected in the Setup TD field. If you enter a different LORAN chain number, change the secondary stations or offsets in the Setup TD field, the active waypoint information will reflect those changes. Since the GPSMAP 176 does not rely on the LORAN signal for navigation, it can reference a different GRI chain and/or secondary stations and still navigate to the location stored in memory.

The LORAN Position Format field is located under the Units tab in the Main Menu. The ‘LORAN TD Setup’ window contains the fields to select the Loran GRI-Chain Number, Primary and Secondary Stations, and TD Offsets.

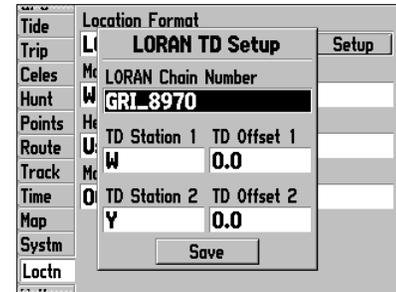
To set up Loran TD from the Main Menu:

1. Press the **MENU** key twice to display the Main Menu.
2. Using the **ARROW KEYPAD**, highlight the "Location Format" field on the 'Units Tab" and press **ENTER**.
3. Highlight 'Loran TD', press **ENTER**.
4. Highlight the Setup Button located on the right side of the Position Format Field and press **ENTER**.
5. To change the settings of any of the five fields, highlight the field, press **ENTER** select/enter the desired setting, then press **ENTER**.
6. When done, highlight the 'Save' button and press **ENTER**.

If the active GRI Chain, secondary stations or offsets have been changed since the waypoint was created, the waypoint will now reference the active GRI-chain and secondary stations and adjust the TD coordinates accordingly. Remember that the GPS is not relying on the LORAN signal for navigation and actually converts the TD coordinate to a useful LAT/LON coordinate before storing the waypoint to memory or using it for navigation. Because of this, the unit can navigate to a TD coordinate anywhere in the world.

You must know your GRI chain number, secondary stations to create a LORAN TD position. For more information please read our LORAN TD Position Format Handbook, available at the GARMIN web site, at www.garmin.com/support/userManual.html.

Loran TD Setup



LORAN TD Setup page

Appendix H

Accessories



Data Card



Data Card Programmer

Standard Accessories

The following standard accessories are included with your GPSMAP 176:

Owner' Manual

Quick Reference Guide

Marine Mount

PC Interface Cable

Power Data Cable

Optional Accessories

In addition to the standard accessories included with your GPSMAP 176, the following optional accessories are designed to enhance the operation of the GPSMAP 176.

To obtain replacement parts and optional accessories, contact your GARMIN Dealer, GARMIN Customer Support in the U.S.A. at 800-800-1020, or GARMIN Europe at 44-1794-519944.



WARNING: *GARMIN accessories have been designed and specifically tested for use with GARMIN products. Accessories offered for sale by other manufacturers have not been tested or approved for use with GARMIN products. Use of such accessories could cause damage to the GPSMAP 176 and void the warranty.*

MapSource Software CD-ROMs— Enhance the basemap, create waypoints and routes from your PC. MapSource offers several detailed mapping options that are compatible with the GPSMAP 176, including MetroGuide, BlueChart, Fishing Hot Spots and Topo.

Programmable Data Cards— Blank data cards are available in 8MB, 16MB, 32MB, 64MB, and 128MB sizes. Download street-level map detail, points of interest, business addresses and phone numbers, marine data, topographical information and more from MapSource CD-ROMs to a data card, either directly through your GPSMAP 176 using the PC Interface Cable, or with the USB Data Card Programmer.

USB Data Card Programmer— Programs blank data cards at high speed through a PC.

Pre-Programmed Data Cards— Data cards pre-programmed with either GARMIN BlueChart or Fishing Hot Spots map data.

A/C Adapter— Allows you to operate the unit using a standard AC house current.

GA 26C Low Profile Remote Auto Antenna— Magnetic and suction mounts with 8-ft. cable and BNC connector. For use in vehicles with a coated windshield or an in-screen heating system that can block GPS signals.

Automotive Mounting Bracket— Requires the Marine Mount. Kit includes the mounting base, temporary and permanent adhesive pads and a swivel bracket.

Non-Skid Friction Mount— Portable vehicle mount, no installation required.

Carrying Case— Protects the GPSMAP 176 when not in use; with storage for data cards.

Vehicle Power Adapter— Allows the GPSMAP 176 to operate from the vehicle's power system through the cigarette lighter adapter.

PC Interface Cable with Cigarette Lighter Adapter— Allows you to connect the GPSMAP 176 to a vehicle's electrical system on one end, and a PC, beacon receiver, marine autopilot or other compatible device on the other end.

Accessories



Non-Skid Friction Mount



Carrying Case

Specifications

Physical Specifications

Size:	6.18"W x 3.4"H x 2.22"D (15.7 x 8.64 x 5.72cm)
Weight:	12 ozs (.34kg)
Display:	GPSMAP 176 — 3.8" diagonal (9.65cm) high-contrast, FSTN display with backlighting (320 x 240 pixels) GPSMAP 176C — 3.8" diagonal (9.65cm) Transflective, 16 color display with backlighting (320 x 240 pixels)
Case:	Fully gasketed, high-impact plastic alloy, waterproof to IEC 529-IPX-7
Temp. Range:	5°F to 158°F (-15°C to 70°C)

Performance

Battery Life:	Up to 13 hours in Battery Saver Mode
Receiver:	Differential-ready 12 parallel channel receiver
Acquisition Times:	Approx. 15 seconds (warm start) Approx. 45 seconds (cold start) Approx. 5 minutes (First Time/AutoLocate™)
Update Rate:	1/second, continuous
GPS Accuracy:	* < 15 meters (49 feet) RMS 95% typical
DGPS (USCG) Accuracy:	3-5 meters (10-16 ft), 95% typical
DGPS (WAAS) Accuracy:	3 meters (10ft) 95% typical with DGPS corrections
Velocity Accuracy:	0.1 knot RMS steady state
Dynamics:	6g's

* Subject to accuracy degradation to 100m 2DRMS under the U.S. DOD-imposed Selective Availability Program.

Power

Batteries:	Four 1.5-volt AA batteries ¹
Source:	8-35V DC
Fuse:	AGC/3AG - 2.0 Amp

¹Alkaline batteries lose a significant amount of their capacity as the temperature decreases. Use lithium batteries when operating the GPSMAP 176 in below freezing conditions. Extensive use of screen backlighting will significantly reduce battery life. Different battery brands will vary in useful life.

A

- Accessories 68-69
- Accuracy 40-43, 56, 70
- Accuracy Alarm 56
- Accuracy Circle 12
- Active Route Page 16, 37
 - Options 37
- Advanced NMEA Setup 55
- Alarms 56
- Anchor Drag Alarm 56
- Arrival Alarm 56
- AutoLocate 42

B

- Battery Alarm 56
- Bearing/Distance Measuring 7
- Bearing Line 11
- Beeper 49

C

- Capabilities vi
- Cautions iv
- Celestial Page 46
- Changing Data Fields 8-9, 14, 16
- Clearing the Track Log 27
- Cleaning 57
- Clock Alarm 56

- Color Mode 10
- Communication Settings 52
- Compass Page 13-14
 - Options 14
- Configuring the Map 6-13
- Course Line 11
- Cursor Movement 3-5

D

- Data Card Info 10, 12-13
- Data Transfer 52, 58
- Date/Time 49
- Datum, Map 50-51, 60-61
- Daylight Savings Time 49
- Declutter On/Off 13
- Deep Water Alarm 56
- Depth Units 52
- DGPS 42-43, 52-54, 56, 58
- Dilution Of Precision (DOP) 42
- Direction Display 52
- Distance and Speed Units 52

E

- Editing Waypoints 20-22
- Elevation Units 52
- ENTER Key 17-18

Index

F

- FCC Compliance ii
- Features vi
- Find Function 38-39
- Follow Track 28
- Follow Route (Activate) 31, 32
- Fuel Flow 36
- Full Screen Map 7

G

- Glossary 62-63
- GPS Status 42-43
- Go To Waypoint 26-27
- Going to a Destination 26-29

H

- Heading 51
- Heading Line 11
- Hide Next Street 7
- Highway Page 14-16
 - Configuration 15-16
 - Options 15-16

Appendix J

Index

H (cont.)

“How To” Index	viii
Hunt Page	47

I

Initialization	1-2
Interfacing	52-55, 58

L

Land Mode	10
Local Time Offset	49, 59
Location Format	50
Loran TD	50, 66-67

M

Magnetic Variation	51
Main Menu	39-56
Alarm Tab	56
Celestial Tab	46
Communication Tab	52
GPS Tab	40
Hunt Tab	47
Location Tab	50

Map Tab	49
Points Tab	47
Route Tab	47
System Tab	49
Tide Tab	44
Time Tab	49
Track Tab	47
Trip Tab	46
Units Tab	52
Maintenance	57
Map Datums	50-51, 60-61
Map Page	3-13
Configuration/Setup	7-13
Cursor	3-5
Data Fields	8
Options	6-13
Scales/Zooming	5-6
Measure Distance/Bearing	7
Messages	64-65
MOB Key	29
Moonrise/Moonset	4 6
N	
NAV Key	2 6
Navigation Terms	62-63
NMEA Output Formats	52-55, 58

Numbers Page	16
--------------------	----

O

Odometers, Trip	46
Off Course Alarm	56
Overzoom	5

P

Points Page	23-24
Power/Data Cable Connection	58
Preface	i
Product Support	i
Proximity Waypoints	24-25

R

Receiver Status	42-43
Registration	i
Restore GARMIN Setup	50
Restore Map Page Defaults	12
Reviewing Waypoints	20-25
Route List Page	32
Route Review Page	33
Routes	30-37
Activating	31, 32
Copying	32
Creating	30-31
Deactivating	32

Index

Deleting	32, 36	Sunrise/Sunset	46
Editing	32-37	Symbols, Waypoint	17
Editing Route Points	34-35	System Mode	49
Adding Points	30-31, 34, 35	T	
Naming	33	Table of Contents	vii
Trip Planning	36	Temperature Units	52
Removing Points	35	Tide Page	44-45
Reversing	36, 37	Time Format	49
Reviewing Points	33, 34	Time Offsets	59
S		Time Zone	49
Satellite Sky View	40-41	Time, Daylight Savings	49
Search	38-39	Timers, Trip	46
Serial Data Format	52-53	TracBack - Activating	27-29, 48
Serial Number	v	Track - Showing on Map	11, 48
Shallow Water Alarm	56	Track Log- Clearing	27, 48
Show Data Fields	7	Track Log- Saving	28, 48
Show Next Street	7	Track Log - Setup	47-48
Signal Strength Bars	40	Trip and Fuel Planning	36
Simulator	49	Trip Odometers	46
Software License Agreement	iii	Trip Timers	46
Software Version	49	U	
Specifications	70	Units Setting	52
Speed and Distance Units	52	W	
Stop Navigation	26, 27, 29, 32	WAAS	41, 43, 49
Storage of Unit	57		

Warnings	iv
Warranty	v
Water Mode	10
Waypoint Lists	23-24
Waypoints	17-24
Appending to a Route	20
Calculating Average Location	20
Creating	5, 17-20
Deleting	22, 24, 25
Editing	20-22
Moving	22
Naming	21
Projecting	19
Proximity List	24-25
Reviewing	20-23
User List	23-24
Water Immersion	57
Wiring Installation	58
Z	
Zooming	5

Notes

**For the latest free software updates throughout the life of your GARMIN products,
visit the GARMIN web site at www.garmin.com.**



© Copyright 2001-2002 GARMIN Ltd. or its subsidiaries

GARMIN International, Inc.
1200 East 151st Street, Olathe, Kansas 66062, U.S.A.

GARMIN (Europe) Ltd.
Unit 5, The Quadrangle, Abbey Park Industrial Estate, Romsey, SO51 9AQ, U.K.

GARMIN Corporation
No. 68, Jangshu 2nd Road, Shijr, Taipei County, Taiwan

www.garmin.com

Part Number 190-00185-10 Rev. A