

GPSMAP 188/188C/238 Sounder



(GPSMAP 188C Shown)

*chartplotting receiver
& depth-finder*

owner's
manual
and
reference
guide

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Garmin International, Inc.

1200 East 151st Street, Olathe, KS 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 9DL, 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

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Preface

Congratulations on choosing one of the most advanced marine navigation systems available! The Garmin GPSMAP® 188/188C/238 Sounders utilize the proven performance of Garmin GPS and full featured mapping to create an unsurpassed marine navigation chartplotters.

This manual covers instructions for the GPSMAP 188, GPSMAP 188C (color), and GPSMAP 232. **Unit operation and specifications will be the same on all three models, unless otherwise specified.** To get the most out of your new navigation system, take the time to go through this owner's manual and learn the operating procedures for your unit. This manual is broken down into two parts for your convenience.

Part One introduces you to the GPSMAP 188/188C/238 Sounder and provides a Getting Started tour so that you may become more familiar with the unit. This section will provide you with a basic working knowledge necessary to use the unit to its fullest potential.

Part Two is divided into sections that provide detailed references to the advanced features and operations of the GPSMAP 188/188C/238 Sounder. This allows you to concentrate on a specific topic quickly and look up detailed information about the GPSMAP 188/188C/238 Sounder.

Customer Service Product Registration

Help us better support you by completing our on-line registration today!

Have the serial number of your GPSMAP 188/188C/238 handy and connect to our web site (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 iv of this manual.



NOTE: If you have previously registered a Garmin product purchase, we invite you to re-register using our NEW on-line system. Many services provided by our new product registration system are now being automated and re-registering your purchase ensures you the best possible support from Garmin.

Introduction

Preface and Registration

Introduction

FCC Compliance



FCC Compliance

The GPSMAP 188/188C/238 Sounder 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 GPS 188C Sounder 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.

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 188/188C/238 is a precision electronic NAVigation AID (NAVAID), any NAVAID can be misused or misinterpreted and, therefore, become unsafe.

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.

Use the GPSMAP 188/188C/238 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 188/188C/238 to all available navigation sources, including the information from other NAVAIDs, visual sightings, charts, etc. For safety, always resolve any discrepancies before continuing navigation.

FCC Compliance

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The GPSMAP 188/188C/238 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.



Warnings and Cautions

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.*

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.*

WARNING: *This product, its packaging, and its components contain chemicals known to the State of California to cause cancer, birth defects, or reproductive harm. This Notice is being provided in accordance with California's Proposition 65. If you have any questions or would like additional information, please refer to our web site at <http://www.garmin.com/prop65>.*

Introduction

Warranty and Serial Number

Serial Number

Use this area to record the serial number (8-digit number located on the back 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 GPSMAP 188/188C/238 Sounder 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.

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, contact your local Garmin authorized dealer. Or call Garmin Customer Service at one of the numbers shown below, 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 then 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.

Products sold through online auctions are not eligible for rebates or other special offers from Garmin. Online auction confirmations are not accepted for warranty verification. To obtain warranty service, an original or copy of the sales receipt from the original retailer is required. Garmin will not replace missing components from any package purchased through an online auction.

Garmin International, Inc.
1200 East 151st Street
Olathe, Kansas 66062, U.S.A.
Phone: 913/397.8200
USA Only: 800/800.1020
FAX: 913/397.0836

Garmin (Europe) Ltd.
Unit 4, The Quadrangle, Abbey Park Industrial Estate
Romsey, SO51 9DL, U.K.
Phone: 44/1794.519944
FAX: 44/1794.519222

Software License Agreement

BY USING THE GPSMAP 188/188C/238, 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 or 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

Introduction

Packing List



GPSMAP 188/188C/238 Sounder Standard and Optional Transducers

Unit part numbers 010-00268-01, 010-00239-02, 010-00239-03, and 010-00250-11 include a 200/50kHz, 10/40 degree, plastic, depth and temp, transom mount transducer. For a complete list of optional transducers, see page 96.

For the most recent list of available accessories for your GPS unit, current user manuals and software updates, visit our web site at www.garmin.com.

Before installing and getting started with your unit, please check to see that your package includes the following items. **If any parts are missing, please contact your Garmin dealer immediately.**

Standard Package:

- GPSMAP 188/188C/238 Sounder Unit
- GA 29 External Antenna and 30' cable
- Gimbal Mount and Knobs
- Power/Data Cable
- Owner's Manual
- Quick Reference Card
- Protective Cover

Optional Accessories:

- US A/C PC Adapter
- EURO A/C PC Adapter
- Cigarette Lighter Adapter
- BlueChart Marine Data Cards, MapSource CDs, USB Data Card Programmer and Data Cards
- USB Data Card Programmer
- GBR21 Beacon Receiver for differential corrections; GA 22 H-Field Antenna
- 2nd Mounting Station
- Marine Swivel Mount, 1" RAM® Mount (GPSMAP 188 with external antenna only)

Designed for detailed electronic charting capability, the Garmin GPSMAP 188/188C/238 Sounder is a powerful navigation device that can give you the information you need:

Precision Performance

- 188C: High-contrast, 16-color LCD screen with backlighting; 188/238: High-contrast, ten-level gray, LCD screen with backlighting
- 12-channel parallel receiver tracks and uses up to 12 satellites for fast, accurate positioning
- WAAS Capable — receive signals from the additional set of WAAS (Wide Area Augmentation System) satellites to give you better accuracy
- Differential-Ready — just add an optional Garmin beacon receiver for better than 5-meter accuracy
- Fully gasketed, high-impact plastic alloy case, waterproof to IEC 529 IPX7

Advanced Navigating and Plotting

- 3000 alphanumeric waypoints with selectable icons and comments
- Built-in Worldwide marine basemap to 20 miles includes detailed ocean, river and lake coastlines, cities, interstates, US state highways, and local thoroughfares
- 50 reversible routes with up to 254 (188C; 50 on 188/238) waypoints each
- Uploadable maps using Garmin's MapSource™ PC products and BlueChart™ Data Cards
- Coordinates: Lat/Lon, UTM/UPS, Loran TD, plus over 20 grids, including Maidenhead
- TracBack route feature which allows you to quickly retrace your track log to a starting position
- Built-in simulator mode
- Built-in tide information from over 3,000 tide stations around the USA coastline, Alaska, Hawaii, western Canada and several Caribbean Islands

Superior Fishfinding Ability

- Whiteline feature provides a clear image of both bottom hardness and structure
- See-Thru® technology which helps separate fish returns from thermoclines and structure
- Four zoom levels with a moving view window
- Underwater waypoint marking
- Map/Sonar split screen combines navigation and fishfinding information
- Fish and depth alarms

Introduction

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Using the Keypad

ZOOM IN Key— adjusts the map scale to display a smaller area with more detail (Zooms in).

ZOOM OUT Key— adjusts the map scale to display a larger area with less detail (Zooms out).

NAV Key— displays the Go To and Follow navigation menu.

PAGE Key— selects the main pages in sequence and returns display from a submenu page.

QUIT Key— returns the display to the previous page and, when entering data, it restores the previous value (cancels data entry).

MENU Key— displays a menu of available options for the current page. Press twice to display the Main Menu.

ARROW KEYPAD— used to select (Highlight) menu options and enter data. It also controls cursor movement on the Map Page.

FIND Key— activates the find function to search for nearby items and user waypoints.

ENTER/MARK Key— selects a highlighted menu option. When entering data, it allows you to initiate entry, and then to accept the selected value(s). It also marks the current location as a waypoint when pressed and held for more than one second.

MOB (Man OverBoard) Key— activates the Man OverBoard navigation feature when pressed.

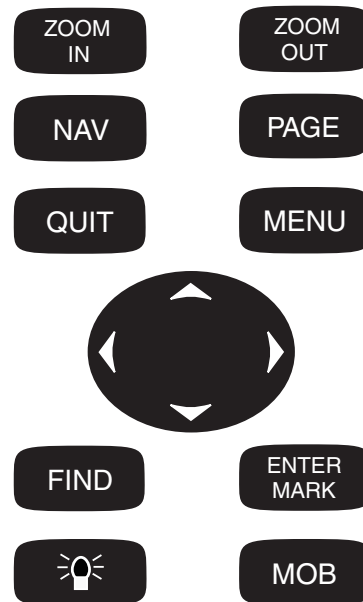
POWER/BACKLIGHT/CONTRAST Key— turns the unit on/off and adjusts display illumination. Also controls Contrast on monochrome units.



NOTE: Always press and release a key to perform its primary function. Pressing and holding the **ENTER/MARK** key will activate its secondary function.

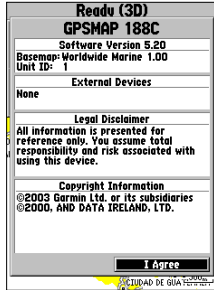
Getting Started

Keypad Usage



Getting Started

Initializing the Receiver/ Power On



GPSMAP 188/188C/238 Sounder Warning Screen

The GPSMAP 188/188C/238 Sounder's advanced keypad system is designed to allow for fast, convenient selection of navigation options and data entry. The Getting Started Tour will introduce you to the keypad and provide a 'hands-on' lesson in using the GPSMAP 188/188C/238 Sounder. We strongly encourage you to follow the Getting Started tour before using your unit for actual navigation.

The GPSMAP 188/188C/238 Sounder Quick Reference Guide contains helpful tips on using the unit and performing various navigation tasks. It's a good idea to keep the Quick Reference Guide nearby whenever you're operating your GPSMAP 188/188C/238 Sounder.

Initializing the Receiver

The first time you power up your GPSMAP 188/188C/238 Sounder, the receiver must be given an opportunity to collect satellite data and establish its present position. To ensure proper initialization, the GPSMAP 188/188C/238 Sounder is shipped from the factory in AutoLocate mode, which allows the receiver to "find itself" anywhere in the world. To speed up the initialization process, we recommend using the graphic initialization process described on the next page, which usually provides a position fix within a few minutes.

Before you initialize, make sure the GPSMAP 188/188C/238 Sounder unit and antenna have been correctly installed on your vessel according to the instructions in Appendix A. The antenna needs to be in a location with a clear and unobstructed view of the sky to receive satellite signals.

To turn on the GPSMAP 188/188C/238 Sounder:

1. Press and hold the **POWER** key until the power tone sounds and the display comes on, then release the **POWER** key. A warning page appears, asking you to read and acknowledge important information regarding the use of the unit.
2. After reading the warning, press **ENTER** to agree and move to the next display.

To graphically initialize the GPSMAP 188/188C/238 Sounder:

1. Press the **MENU** key twice for the Main Menu. Press Up or Down on the **ARROW KEYPAD** until the 'GPS' tab is highlighted, then press the **MENU** key once.
2. Using the **ARROW KEYPAD**, highlight 'Initialize Position' and press **ENTER** to initialize the receiver from the map. The Initialize Position Page appears, prompting you to select your approximate location with the map cursor.
3. Use the **ARROW KEYPAD** to move the map cursor and point to your approximate location within 200 miles. If you have difficulty identifying your position, press and release the **IN** key to see the next lower map scale.
4. Once you have determined your approximate location on the map, press the **ENTER** key.



***NOTE:** This does not "calibrate" the unit in any way, but rather helps to speed up the initial satellite acquisition. If the unit displays "Ready (2D) or (3D)" during this process, it is not necessary to initialize the unit.*

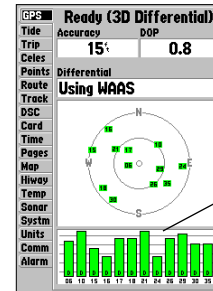
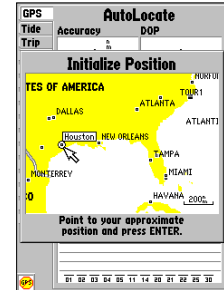
The GPSMAP 188/188C/238 Sounder will now begin searching for the appropriate satellites for your region and should acquire a fix within a few minutes. When viewing the 'GPS' tab on the Main Menu, a signal strength bar for each satellite in view appears on the bottom of the page, with the appropriate satellite number under each bar. The progress of satellite acquisition is shown in three stages:

- No signal strength bars— the receiver is looking for the satellites indicated.
- Hollow signal strength bars— the receiver has found the indicated satellites and is collecting data.
- Solid signal strength bars— the receiver has collected the necessary data and the satellites are ready for use.

Once the receiver has collected information from at least three satellites, the top of the screen displays either "Ready (2D or 3D)", and the GPSMAP 188/188C/238 Sounder is ready for use.

Initializing the Receiver

Point to your approximate location and press **ENTER/MARK**.



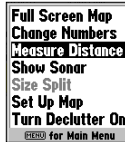
A satellite's strength bars turn green when it's ready for use.

Getting Started

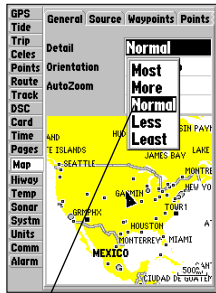
Selecting Options



Options Menu with highlighted option.



Use the **ARROW KEYPAD** to highlight the next option. Press **ENTER/MARK** to activate.



Pop-up list of options for a highlighted field.

Selecting Options and Entering Data

Before moving ahead into the features of the GPSMAP 188/188C/238 Sounder, you will need to learn basic operations. You can select and activate options and enter data to customize the GPSMAP 188/188C/238 Sounder to fit your requirements. You can use the **ENTER/MARK** key and **ARROW KEYPAD** to select options, enter names and numbers in data fields, and activate your selections.

To select and activate an optional feature:

1. With any page displayed, press the **MENU** key to pop-up the options menu. The options menu display a list of optional features which are specific for that particular page. To select any feature on the list of options requires movement of the cursor, which is identified as highlighting, selecting or choosing an item in a list or a field (box) on a page.
2. Use the **ARROW KEYPAD** to move the cursor (highlight) up and down a list or up, down, and sideways on menus.
3. Once you have moved to the selection desired, press the **ENTER** key to either activate the feature or the **MENU** key to pop-up a sub-menu or list of yet more feature options. Just repeat this process to select an option from the list or press the **QUIT** key to return to the previous setting.

The **QUIT** key will move backwards through these steps or when pressed, back to the main page you started on.

To select and activate a function button:

1. When moving about a page with function buttons, like the 'New Map Waypoint' page, you will observe functions such as 'Delete', 'Show Map' and 'OK'. To activate the function, highlight the desired button and press the **ENTER** key.

Naming a waypoint or placing any sort of data that has not been predefined requires the use of both the **ARROW KEYPAD** and the **ENTER/MARK** key.

To enter a name or number in a data field:

1. Once you have accessed a page with programmable data fields (i.e. 'Waypoint Edit') you can use the **ARROW KEYPAD** to move the cursor (Highlight) to fields on the page. Use the UP/DOWN arrows to move up or down and the LEFT/RIGHT arrows to move sideways.
2. Pressing the **ENTER** key with the field highlighted begins the process for entering data in the form of alphanumeric characters.
3. Use the **ARROW KEYPAD** UP/DOWN arrows to cycle through numbers 0 to 9, plus/minus symbols, blank space, and the alphabet. Pressing and releasing the keypad moves you character by character through the list. Pressing and holding the keypad moves you rapidly through the list.
4. Use the **ARROW KEYPAD** LEFT/RIGHT arrows to move to the next character on the line or backwards to edit characters. If there are more than two lines of data, keep pressing to the RIGHT to drop down to the next line.
5. When data entry is completed press **ENTER** to accept data, then move to the next programmable field. Not all data fields are programmable, like the date and time. When moving about a page with these type of fields, the cursor will skip over them.

Every field and button on this page can be programmed or activated.

A waypoint symbol can be selected from a list of symbols.

A comment can be added.

The coordinates can be changed.

The waypoint can be renamed.

A depth can be entered.

Option buttons can be activated.

Getting Started

Entering Data

N 28°28.327'
W082°42.401'

N 28°28.328'
W082°42.401'



Pressing UP or DOWN on the **ARROW KEYPAD** changes numbers and letters.

N 28°28.328'
W082°42.401'

N 28°28.328'
W082°42.401'



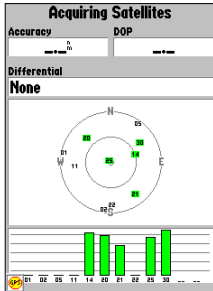
Pressing LEFT or RIGHT on the **ARROW KEYPAD** moves the cursor along the line or to the next line.

Data Entry Field

Non-programmable data fields

Getting Started

Tour/Backlighting



A full-screen GPS Information pop-up page is displayed after you press the **ENTER** key to acknowledge the Warning Page. The pop-up page will go away after the unit gets a position fix or you press either **ENTER** or **QUIT**. The page can be disabled and enabled on the Pages Tab (see page 83).

GPSMAP 188/188C/238 Sounder Getting Started Tour

The Garmin GPSMAP 188/188C/238 Sounder is a powerful electronic navigation system that provides detailed map coverage and convenient control of many advanced features right from the screen display. This tour is designed to take you through the basic pages and functions of the system using the simulator mode. Once you're familiar with the main pages and functions of the unit, refer to the reference section for instructions on performing specific tasks and functions.

The Getting Started Tour assumes that the receiver has been properly installed and initialized, and you have not changed any of the default unit settings. If you have changed any settings (position formats, units of measure, etc.), the descriptions and pictures in the tour may not match your configuration.

After powering on the GPSMAP 188/188C/238 Sounder, the GPS Information Page appears as the receiver begins acquiring satellites. From this or any other page, you may also adjust the backlighting.

The GPSMAP 188/188C/238 Sounder's adjustable screen backlighting is controlled with the **POWER** key, and may be adjusted at any time from any page. The backlight can cycle through off, user-defined, and maximum backlight levels by repeatedly pressing the **POWER** key.

To turn on and adjust the backlighting:

1. Press **POWER** and the Light window appears.
2. Press **POWER** again and the user-defined level of backlighting activates. You may adjust this level by pressing UP or DOWN on the **ARROW KEYPAD**. If you press **POWER** one more time, the backlighting will be at the maximum setting.
3. Press **ENTER** or **QUIT** when done.

The backlight will now cycle through off, the user-defined, and maximum backlight levels by repeatedly pressing the **POWER** key.

Getting Started

You may also adjust the screen contrast (GPSMAP 188/238 monochrome only).

To adjust the screen contrast:

1. Press **POWER** and the Light and Contrast window appears.
2. To decrease or increase the screen contrast, press left or right on the **ARROW KEYPAD**.
3. Press the **ENTER/MARK** key to finish.

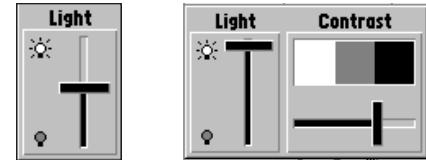
Each page of the GPSMAP 188/188C/238 Sounder's system also features an options page, which gives you access to other functions and features that relate to the specific page you are viewing. To get a feel for how the option pages work, let's put the GPSMAP 188/188C/238 Sounder into simulator mode.

To activate the simulator mode:

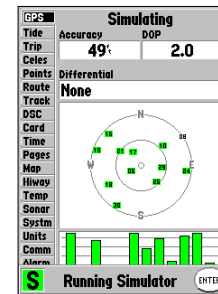
1. Press the **MENU** key twice for the Main Menu. Press Up or Down on the **ARROW KEYPAD** until the 'GPS' tab is highlighted, then press the **MENU** key once.
2. Use the UP or DOWN arrow of the **ARROW KEYPAD** to highlight the 'Start Simulator' option and press **ENTER**. Choose 'No' to the retail demonstration and press the **ENTER** key.
3. Press the **ENTER** key to confirm the 'Running Simulator' message that appears at the bottom of the display. 'Simulating' appears at the top of the Main pages.

While in Simulator mode, a 'Running Simulator' message appears after 2 minutes of inactivity. Now you're ready to continue the rest of the simulated tour. **Keep in mind that the GPSMAP 188/188C/238 Sounder does not track satellites in simulator mode, and this mode should never be used for actual navigation.** All the waypoint and route planning done in simulator mode is still retained in memory for future use.

Simulator Mode



Use the **ARROW KEYPAD** to move the backlighting slider UP for brighter or DOWN for dimmer backlighting. Monochrome units will have an additional Contrast adjustment.



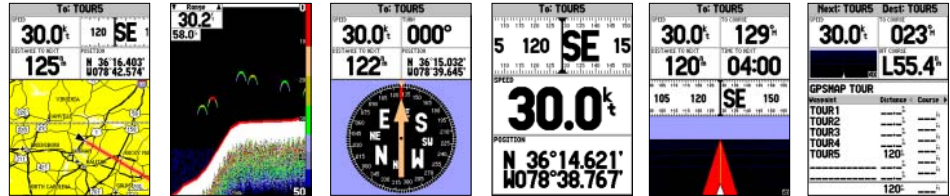
A "Running Simulator" message appears after 2 minutes of inactivity.

Getting Started

Main Pages/ Map Page

Main Pages

The Map Page is one of six main pages used in the GPSMAP 188/188C/238 Sounder's system. The six main pages are the Map Page, Sonar Page, Compass Page, Numbers Page, Highway Page, and Active Route Page. All six pages are linked together in a simple chain, which allows you to scroll through the pages in either direction using the **PAGE** and **QUIT** keys.



Map Page

Sonar Page

Compass Page

Numbers Page

Highway Page

Active Route Page



Map Page

The GPSMAP 188/188C/238 Sounder's Map Page combines digital chartplotting with a user-selectable display of navigation data and a built-in worldwide database. It will also be the page you use most to create and edit waypoints and routes. Before we take off on our practice route, let's take a brief look at its various features and displays.

The map display shows your "boat" as a triangle marker on an electronically generated chart. Geographic names, roads, markers and buoys that are provided by the optional BlueChart or MapSource data are also shown. It also displays your track, routes and nearby waypoints. An on-screen cursor lets you pan to other map areas, determine the range and bearing to a position, and perform various waypoint and route functions.

The data window, located at the top of the page, provides a user-selectable display of various navigation data, including speed over ground, distance to the next navigation point, compass ribbon, and current position coordinates. The current map scale setting is located at the bottom right of the page.

Map Cursor

Using the Map Cursor

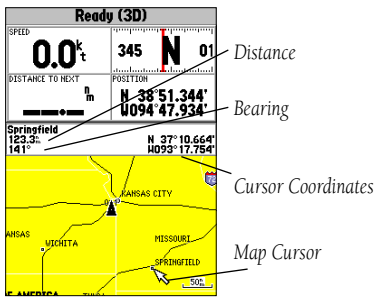
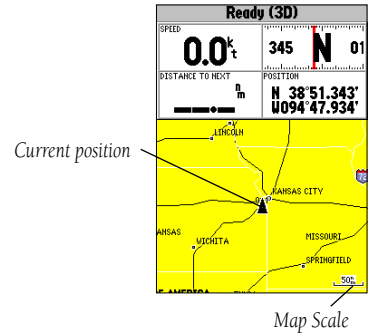
Working from the Map Page is a simple process that centers around the use of the cursor. Controlled by the **ARROW KEYPAD**, the cursor is an important tool that can be used to pan to other map locations, mark and edit waypoints and routes, and review position data of on-screen map items and waypoints.

To get a feel for using the Map Page and using the cursor, try the following exercise:

1. Use the **IN/OUT** keys to set the map scale to the 50 nm setting. Your boat should be near the center of the map, at the receiver's last known position. (If your boat isn't where it should be, make sure that you have initialized the receiver and acquired a position as described on pages 4-5.)
2. Use the **ARROW KEYPAD** to move the cursor. Notice how another data field appears, showing the bearing and distance from your boat to the cursor, along with the latitude/longitude of the cursor.
3. Press the **QUIT** key to remove the cursor and re-center your boat on the map display.

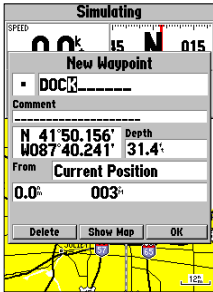
As you become more familiar with the cursor, you'll see that the map display actively scrolls or 'pans', letting you explore areas around the world and create waypoints and routes. Wherever you move the cursor, you'll always be just one **QUIT** keystroke away from returning the map to your present position.

Now that you've seen how the Map Page can be used to monitor your present location, let's take a minute to learn how to mark and store your present position as a waypoint. Since you're in simulator mode, the present position displayed will be the last position calculated by the receiver, which should be the spot where you've initialized the unit. This will also give you an opportunity to see how the GPSMAP 188/188C/238 Sounder's keypad and **ENTER/MARK** key are used for data entry and changing the waypoint name and symbol.



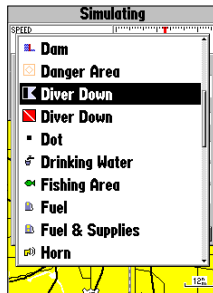
Getting Started

Marking Waypoints



Press **ENTER/MARK**
after entering the name.

You can choose from a list of useful symbols. There are two Diver Down waypoint symbols to select from: the International and U.S. versions.



To mark your present position:

1. Hold down the **ENTER/MARK** key until the 'New Waypoint' window appears then release the key. The window will show a default three-digit waypoint name/number (001), symbol (dot), and position. You can leave the name as the auto-assigned number, but for this exercise, let's change the name to 'DOCK'.
2. Use the **ARROW KEYPAD** to highlight the waypoint name field (001) and press **ENTER/MARK**. You will see that just the first '0' is now highlighted.
3. Press LEFT on the **ARROW KEYPAD** to clear the name field.
4. Press UP or DOWN on of the **ARROW KEYPAD** until the letter 'D' appears, and then press RIGHT to go to the next space to the right, then UP or DOWN again until 'O' appears. Repeat this until you have entered the name 'DOCK'. If you make a mistake and select an incorrect character, simply press LEFT on the **ARROW KEYPAD** to backspace the cursor and then UP or DOWN to correct the entry. (If you accidentally press **ENTER/MARK** before you are done, simply press **ENTER/MARK** again and move the highlight to where you left off.)
5. After you have entered all the letters, press **ENTER/MARK** to confirm the name.
6. To access the waypoint symbol page, highlight the waypoint symbol field, which is to the left of the waypoint's name and press **ENTER/MARK**. The default symbol is a dot.
7. You will see an alphabetical list of available waypoint symbols to choose from. Press the **ARROW KEYPAD** UP or DOWN until you highlight the 'ANCHOR' symbol. You will see a scroll bar on the right of the window indicating your current position on the entire list of symbols.
8. Press **ENTER/MARK** to confirm the 'ANCHOR' symbol.
9. Highlight 'OK' at the bottom of the window and press **ENTER/MARK** again to confirm the 'OK' prompt and save the waypoint.

The waypoint is now stored in memory. Note that waypoints may also be created graphically from the map display or by manually entering position coordinates. Each of these techniques is described in the reference section of the manual and/or on your GPSMAP 188/188C/238 Sounder Quick Reference Guide.

Going to a Destination

GPS is all about marking positions as waypoints and navigating to them using the receiver's steering guidance and map displays. We've already seen how to use the **ENTER/MARK** key to store your present position, so it's time to move on to the fun part—going to a destination.

The **NAV** key, located on the keypad above the **QUIT** key, is the primary tool used to select a destination waypoint, TracBack, or a route to navigate. The **NAV** key can be used in two primary ways:

- Pressing **NAV** once displays a list of options from which you can select 'Go To Point', 'Follow Route', 'Follow Track', or 'Stop Navigation'.
- Highlighting an on-screen waypoint or map item as a destination directly from the Map Page and pressing **NAV** allows you to graphically select points to "Go To".

For our simulated trip, you're going to select a pre-programmed tour route using the first method. This will also show how the **MENU** key is used throughout the GPSMAP 188/188C/238 Sounder system to provide tab style options and functions. Let's start by changing the position to where the practice route is located.

To change the GPSMAP 188/188C/238 Sounder position in simulator mode:

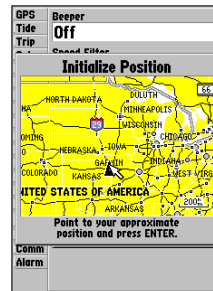
1. Press the **MENU** key twice to display the list of Main Menu tab items.
2. Use the **ARROW KEYPAD** to highlight the 'System' tab.
3. Highlight 'Set Position' in the simulator setup window and press **ENTER**.
4. From the Initialize Position page, press the **MENU** key. With 'Enter As Text' highlighted, press **ENTER**.
5. On the Enter Position window, press **ENTER** then use the **ARROW KEYPAD** to enter $N34^{\circ}56.800'$, $W076^{\circ}24.066'$ and press **ENTER** when done, then press **QUIT** to return to the Map Page.

Getting Started

Using the NAV Key

Text entry for simulator position.

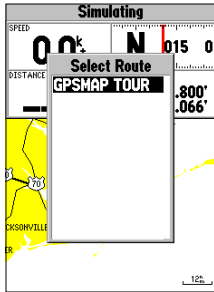
GPS	Beeper
Tide	Off
Trip	Speed Filter
Celes	Auto
Points	Language
Route	English
Track	
DSC	
Card	
Time	
Pages	Enter Position
Map	N 38°51.337'
Way	W094°47.930'
Temp	357°
Speed	Transducer
System	0.0° Temp
Units	
Comm	System Information
Alarm	



*For future practice, you may skip steps 3 through 5 and use the **ARROW KEYPAD** to point to a location from the Initialize Position page.*

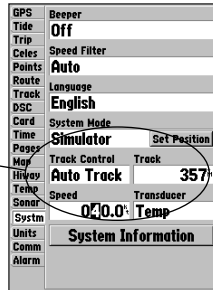
Getting Started

Simulated Tour



Select the practice route and press **ENTER/MARK**.

The Set Position, Track Control, Track and Speed fields will only show while in simulator mode.



To activate the practice route stored in memory for navigation:

1. Press **NAV**. A list of options appear.
2. Use the **ARROW KEYPAD** to highlight 'Follow Route' and press **ENTER**.
3. The Select Route page appears, with the 'GPSMAP TOUR' route highlighted.
4. Press **ENTER**, highlight 'Activate', and press **ENTER** again to activate the route.

To zoom in to a closer map scale:

1. Repeatedly press the **ZOOM IN** key until you select the 3 nm scale.

You may also hold the **ZOOM IN** or **ZOOM OUT** keys down to quickly scroll through the map scales. The Map Page should now display five waypoints chained together in a simple route, with your boat at the first route waypoint.

A data field at the top of the page now displays the speed, distance to the second route waypoint, your position coordinates and a compass ribbon which shows you which way to go. To get started, let's enter a speed for our vessel, which we can do from the Main Menu Page.

To enter a boat speed:

1. Press the **MENU** key twice to display the Main Menu Page.
2. Use the **ARROW KEYPAD** to highlight the 'System' tab, then press **RIGHT** then **DOWN** until the field below the word 'Speed' is highlighted and press **ENTER**.
3. Use the **ARROW KEYPAD** to enter a speed of 40 knots.
4. Press **ENTER** to finish, and **QUIT** until you return to the Map Page.

Once a speed has been entered, you'll notice that the map automatically begins to move slowly, keeping your boat centered on the display. The direction of movement, also called 'track', is controlled by the simulator.

Getting Started

You'll now have a clearer picture of the route you are navigating. Keep in mind that when you exceed the usable range of the built-in database or the optional MapSource or BlueChart data in use, the range field displays 'overzoom' to indicate that you should exercise extreme caution using the map data. Press the **ZOOM IN** key to zoom into the 2 nm scale. Now that you've zoomed in a little closer to your route, you can pan ahead of your vessel with the cursor to review map items and create on-screen waypoints. Move the cursor to highlight the 'TOUR3' waypoint—just use the **ARROW KEYPAD** to move the cursor as close as possible to the waypoint (To move the cursor in small increments, try a series of short key presses).

Once the cursor is over the TOUR3 waypoint, you'll notice that the waypoint symbol and name are highlighted. The data field at the top of the page displays the waypoint name, the range and bearing from your present position, and the coordinates for the waypoint.

To review the waypoint page for a selected waypoint:

1. With the waypoint highlighted, press **ENTER**.
2. To return to the Map Page, press **ENTER** again or press **QUIT**.

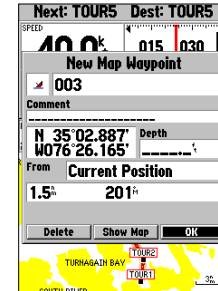
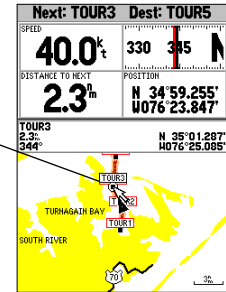
The cursor can also be used to create new waypoints right from the map display.

To create a new waypoint using the cursor:

1. Use the **ARROW KEYPAD** to move the cursor as close as possible to the following position: N35° 02.914'; W 076° 26.152' (Use the data window to verify the cursor position.)
2. Press and release the **ENTER/MARK** key to capture the cursor position. Do not hold the button down, as doing so will mark your present position, not the map position.
3. Use the **ARROW KEYPAD** to highlight the waypoint symbol field to the left of the waypoint name/number.
4. Press **ENTER** to access the symbol page.
5. Use the **ARROW KEYPAD** to select the 'Shipwreck' symbol and press **ENTER** to confirm.
6. Highlight 'OK' and **ENTER** again to finish.

Reviewing/Creating Map Waypoints

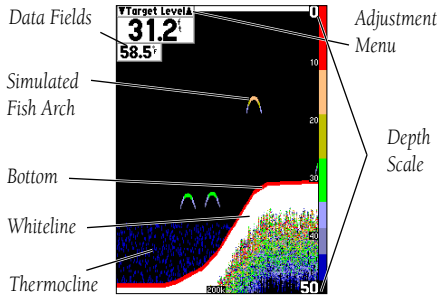
The waypoint will 'highlight' when the cursor is moved over it.



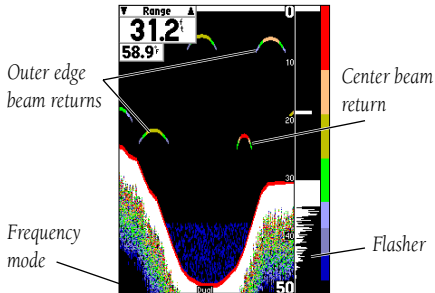
Creating a new waypoint with the map cursor.

Getting Started

Sonar Page



Sonar Page



Dual frequency returns

Sonar Page

The Sonar Page is where your GPSMAP 188/188C/238 Sounder becomes a powerful fishfinder/flasher. The top left of the screen contains data fields, while the Adjustment Bar above the data fields allows direct access to the settings most commonly changed while using the Sonar Page. The middle of the page contains a right-to-left moving sonar image of the water beneath your boat (Items appear as they pass under your transducer. Those items on the right side of the screen are closer to you than those on the left.). Along the right side of the screen is an adjustable scale which reflects the depth of the area being displayed. If the unit does not detect a transducer attached to the unit, a “Sonar Turned Off” message appears across the Sonar Page. You may also show a sonar flasher and color bar on the right side.

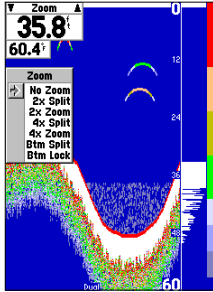
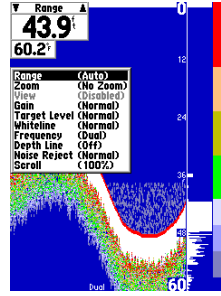
The sonar display may also be set to show a split screen view of a zoomed portion of the sonar, bottom lock (display scaled from the bottom up), or a combination of these options (see pg. 34). For example, you may choose to show dual frequency at a 2X zoom (Dual 2X) on one half and normal range dual frequency (Dual) returns on the other half. The current display mode will be displayed at the bottom of each sonar display.

On color models, sonar returns show as red (strongest), then oranges (strong), yellows (medium), greens (weaker) and blues (weakest). On grayscale models, stronger returns appear darker and weaker returns lighter. The ‘Fish Symbols’ option (see page 38) allows you to view the actual sonar data, a fish symbol, or a combination of both. ‘Fish Symbols’ appear as green. When the unit is set to ‘Dual’ (see page 35), the appearance of the fish symbols (and simulated fish returns) will change. Fish symbols from the narrower beam (200kHz) will be solid (or narrow returns), but the returns from the wider beam (50kHz) will be hollow (or wide returns). Simulated fish icons are displayed in three different sizes. Actual fish returns may not always appear as perfect arches, due to the speed, fish orientation, and/or other conditions.

More on understanding the Sonar Page may be found on pages 111 and in Appendix I.

Sonar Page

Press **MENU**, highlight 'Adjustments' and press **ENTER** to see a list of all options and their current settings.



Zoom adjustment options

Using the Adjustment Menu

The Adjustment Menu allows direct access to the settings and features most commonly used on the Sonar Page. There are 10 main adjustment options available: Range, Zoom, View/Scan, Gain, Target Level, Whiteline, Frequency, Depth Line, Noise Reject, and Scroll. The currently selected option appears in the upper left of the display with up and down arrows on either side of the option name.

To select an adjustment option from the Sonar Page:

1. Press the **ARROW KEYPAD** LEFT/RIGHT to scroll through the options in the upper left of the display, then press **ENTER** to access the desired option's adjustment window.

OR:

1. Press **MENU**, highlight 'Adjustments' and press **ENTER**. A list of all options and their current settings appears, with the selected option highlighted. Press UP/DOWN on the **ARROW KEYPAD** to select the desired option and press **ENTER** to access the adjustment window.

To easily exit any of the adjustment options, press the **QUIT** key.

To change an Adjustment Menu setting:

1. Select an adjustment option to change using one of the two methods described above. The adjustment window will automatically timeout and disappear when idle for 20 seconds.
2. Press the **ARROW KEYPAD** UP/DOWN to place the pointer or setting bar at the desired setting, range or percentage (Off, 1-100%).
3. Press **ENTER** or **QUIT** to exit the adjustment window; or press LEFT/RIGHT on the **ARROW KEYPAD** to view another adjustment window.

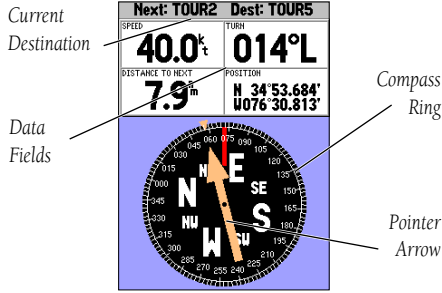
To change a setting back to 'Normal' or 'Auto':

1. On the adjustment window for the desired option, press **MENU**.
2. Select the desired setting and press **ENTER**.

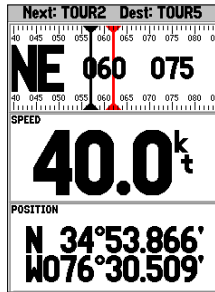
For detailed information on the functions and options of the Sonar Page, see pages 33-39. To learn more about how sonar works, see Appendix I.

Getting Started

Compass Page/ Numbers Page



Compass Page



Numbers Page

Now that we're navigating to an actual destination, let's move on to the GPSMAP 188/188C/238 Sounder's navigation pages by pressing the **PAGE** key.

Compass Page

The Compass Page provides graphic steering guidance to a destination waypoint, with an emphasis on the bearing to your destination and current direction of travel. The middle of the page features a rotating 'compass ring' that shows your course over ground (track) while you're moving, and a bearing pointer that 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.

The current speed, distance to the next waypoint, turn angle, and current position are displayed at the top of the screen. This page provides better steering guidance when travelling at slower speeds and/or when making frequent directional changes. When you are not navigating to a waypoint, the compass will show your direction of travel as you move but the arrow will not appear.

Numbers Page

Press **PAGE** to see the next page appearing in the main sequence, the Numbers Page. The Numbers Page allows for precision navigation to 1 degree of steerage. The default page displays 3 large numbers fields. You may customize the Numbers Page to display the size and number of fields along with the type data you wish to see. (See pages 26-28 for changing the types of data.)

To split the data fields:

1. Press **MENU**, then press **ENTER**. Highlight the 'SPEED' data field and press **MENU**.
2. Highlight 'Split Numbers', then press **ENTER**. You will now see four new data fields. Press **QUIT** when done.
3. To return to the original configuration, repeat the above steps, but instead of 'Split Number', select either 'Merge Numbers' or 'Defaults'. Press **QUIT** when done.

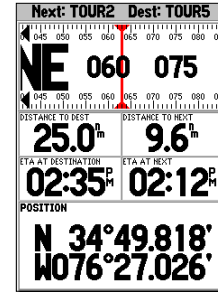
Let's move on to the Highway Page by pressing the **PAGE** key.

Highway Page

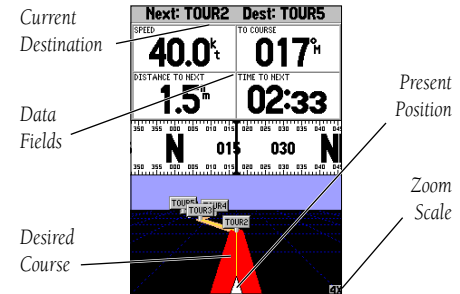
The GPSMAP 188/188C/238 Sounder's Highway Page also provides graphic steering guidance to a destination waypoint, placing greater emphasis on the straight-line desired course and the distance and direction you are off course. As you head toward your destination, the middle of the screen provides visual guidance to your waypoint on a moving graphic "highway." Your present position is at the bottom center of the highway display. The line down the middle of the highway represents your desired course.

As you navigate toward a waypoint, the highway will actually move, indicating the direction you're off course. To stay on course, simply steer toward the center of the highway or "keep it on the road". The four default data fields at the top of the page indicate 'Speed' and 'Distance To Next' point, along with 'To Course' which shows the bearing to get you back on course and 'Time To Next' point. Additionally, a compass ribbon is displayed to show your current heading along with a dark, vertical bar which will indicate the direct bearing to the navigation point. When the red, vertical indicator lines up with the black bar in the middle, you are heading directly to the navigation point. Use the Highway Page as your primary navigation page (in lieu of the Compass Page) when your main concern is following a defined course.

Numbers Page/ Highway Page



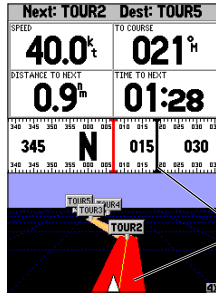
Numbers Page with split numbers



Highway Page

Getting Started

Highway Page



Steer towards the center of the highway or towards the black vertical bar on the compass ribbon to get back on course.

Whenever the GPSMAP 188/188C/238 Sounder is in simulator mode, you can also adjust your speed and course from the Highway Page using the **ARROW KEYPAD**. As you head toward each waypoint in the tour route, try adjusting your boat speed and course to get a feel for how the highway works.

To adjust the simulated boat speed/heading from the Highway Page:

1. Press the UP arrow of the **ARROW KEYPAD** to increase the speed in 10 knot/kph/mph increments. Press the DOWN arrow to decrease the speed in the same increments. Press the LEFT and RIGHT arrows of the **ARROW KEYPAD** to steer the boat (adjust the heading).



NOTE: In simulator mode, you may also change the simulated speed by pressing UP or DOWN on the **ARROW KEYPAD** from the Compass page.

Notice that as you get off course, the highway will move to give you graphic guidance to get back on course. You can zoom in or out on the Highway display for a smaller or larger view. Five available settings range from 1X to 16X, with a default setting of 8X. The current scale appears in the bottom right of the display.

To zoom in or out on the highway display:

1. Press either the **IN** or **OUT** key to increase or decrease the zoom scale.

Changing Data Fields

The data fields on the main pages may also be configured to display several different information categories (see pages 26-27 for the complete list). On the Highway Page, let's change the 'TIME TO NEXT' field to 'TIME OF DAY'.

To change a data field:

1. Press the **MENU** key to display the Highway Page options.
2. With 'Change Numbers' highlighted, press **ENTER**.
3. Use the **ARROW KEYPAD** to highlight 'TIME TO NEXT', then press **ENTER**.
4. On the alphabetical list of options, use the **ARROW KEYPAD** to highlight 'TIME OF DAY' and press **ENTER**. (You will see a scroll bar on the right side of the window indicating your current position on the entire list of options.)
5. Press **QUIT** when finished.

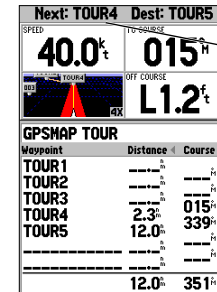
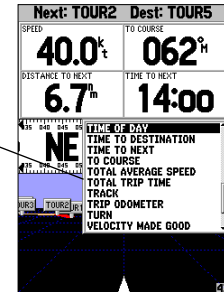
Active Route Page

Press **PAGE** to see the last page appearing in the main sequence, which is the Active Route Page. Whenever you have activated a route or Follow Track, this page lists the names of the route points along with useful data for each point. As you navigate the route, the information will automatically update to indicate the next point along the route. For more detailed information on the Active Route Page, see page 64.

Getting Started

Changing Data Fields/ Active Route Page

You may choose from several different types of data

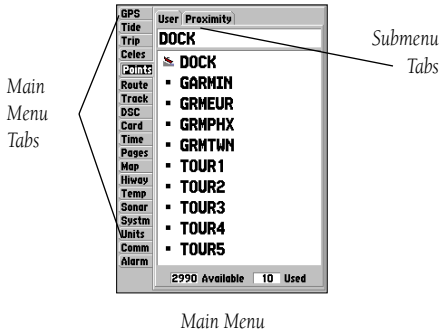


Current waypoint

Active Route Page

Getting Started

Main Menu Page/ Deleting Waypoints



Main Menu Page

As you've seen, the primary pages provide map and navigation information. The tour's last page is the Main Menu page, which allows access to the GPSMAP 188/188C/238 Sounder's waypoint, route, and planning functions, as well as various operational and navigation setup features, and celestial and tide data.

The Main Menu is available from any page, and is accessed through the **MENU** key.

To access the main menu page:

1. Press the **MENU** key twice.

The Main Menu page lists 19 vertical 'tabs' that are divided into categories by function. You can view a particular menu by simply highlighting the desired tab, which will then show any secondary (horizontal) submenu tabs and options for that tab.

To get a basic feel for how the Main Menu page works, let's delete the two waypoints you created during the simulated tour. This will ensure that you have a clean slate once you start navigating in your home waters.

To delete the practice waypoints:

1. Use the **ARROW KEYPAD** to highlight the 'Points' menu tab. You will see a list of stored waypoints appear to the right of the Main Menu list.
2. Press RIGHT one time on the **ARROW KEYPAD** to highlight the 'User' tab.
3. Press DOWN on the **ARROW KEYPAD** and highlight waypoint '001' with the shipwreck symbol.
4. You may delete the waypoint by either pressing **MENU**, then highlighting 'Delete Waypoint'; or by pressing **ENTER** and then highlighting 'Delete' from the Waypoint Edit page.
5. Press **ENTER** to delete the waypoint, then **ENTER** again to confirm. Repeat the above steps to delete the 'Dock' waypoint also.

Congratulations! You've now gone through the basic operation of the Garmin GPSMAP 188/188C/238 Sounder. Your new digital chartplotter is a powerful tool with many advanced features not covered in the Getting Started tour. For detailed instructions on using these features or performing a specific task, please refer to the Quick Reference Guide or the appropriate reference section of this manual. The unit is still in Simulator mode for practice, but automatically returns to its 'Normal' operation mode when you shut it off and turn it back on.

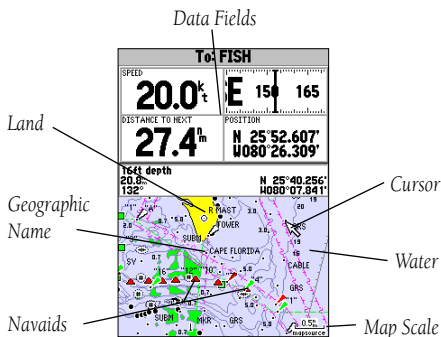
To turn the GPSMAP 188/188C/238 Sounder off:

1. Press and hold the **POWER** key for about 2 seconds, until the screen is blank.
2. When the screen is blank, release the **POWER** key.

The next section of the manual describes the pages and functions of the GPSMAP 188/188C/238 Sounder in detail. If you are unable to locate a specific option or function, please refer to the Index on pages 118-120. Thank you for choosing the Garmin GPSMAP 188/188C/238 Sounder navigation unit. We hope it will be a useful and fun tool for you wherever you go!

Reference

Map Page



Map Page (shown in cursor mode and using optional MapSource data).

Map Page

The GPSMAP 188/188C/238 Sounder'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 boat on a digital chart, complete with geographic names, map items, navais, 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.

The **ZOOM IN** and **ZOOM OUT** keys, combined with the **ARROW KEYPAD**, let you select zoom ranges and move the cursor. The map scale displays at the bottom right of the page.

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 (triangle) within the display area, while cursor mode pans the cartography to keep the cursor (arrow pointer) within the display area. The GPSMAP system will always power up in position mode, with your vessel centered on the map display. When the **ARROW KEYPAD** is pressed, the GPSMAP 188/188C/238 Sounder will enter cursor mode.

When the cursor is active, an additional data window appears below the data fields 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. As you pan past the edge of the current map display, the screen actively scrolls forward to provide continuous map coverage. Keep in mind that the boat icon (triangle marker) moves 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 map pause as it load new data.

To activate and move the cursor:

1. Press the **ARROW KEYPAD** in an UP, DOWN, LEFT or RIGHT direction.

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

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

1. Press the **QUIT** key. The GPSMAP 188/188C/238 returns to position mode.

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

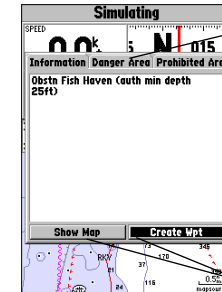
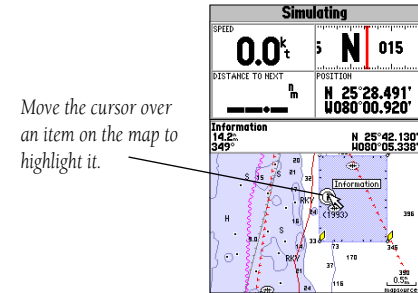
To select an on-screen waypoint or map item with the cursor:

1. Use the **ARROW KEYPAD** to move the cursor to the desired waypoint or map item. If there are several items grouped closely together, zoom IN closer for a better view.
2. When a waypoint or map item is selected, it is highlighted on the screen, with the name and position displayed.

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

1. With the desired item highlighted, press **ENTER**.
2. If the symbol is a waypoint, the Waypoint Review page appears, allowing you to review and edit the properties of the selected waypoint (see pages 48-49 for more information on the Waypoint Review page).

If the item is a map feature, an Information page appears, showing details about the map item. With many map items, additional information tabs appears. Use the **ARROW KEYPAD** to highlight the individual tabs to display additional details and options.

Map Page Cursor

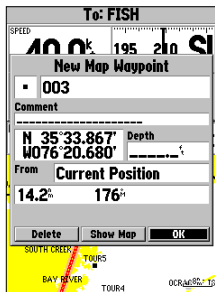
Additional information tabs.

Pressing **ENTER** while highlighting a map item will bring up additional details and options.

Option buttons

Reference

Map Page: Cursor and Zooming



Creating a New Map Waypoint



Using Built-In Basemap



Using BlueChart/MapSource Data



Overzoom, no additional data

The cursor may also be used to create new waypoints 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** key to capture the cursor location (pressing and holding the **ENTER** key captures the current location, not the cursor location).
3. The 'New Map Waypoint' window appears. With 'OK' highlighted, press **ENTER** to save the new waypoint using the default 3-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 **ENTER** to capture the cursor location. The Information page for that feature appears. Use the **ARROW KEYPAD** to highlight 'Create Wpt' and press **ENTER**.
3. The New Waypoint window appears. 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 m 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.



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

The GPSMAP 188/188C/238 Sounder'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 188/188C/238 Sounder displays cartography as long as there is chart information available for the range you've selected. 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, overzoom cartography will be displayed and an 'overzoom' warning appears below the scale field.

Map Page Options

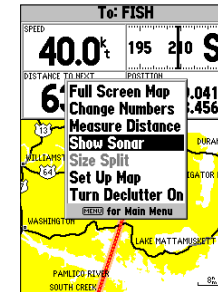
Many features of the GPSMAP 188/188C/238 Sounder are menu driven. Each of the main pages has an options menu, allowing you to custom tailor the corresponding page to your preferences and/or select special features that specifically relate to that page. The data window, located at the top of the main pages provides a user-selectable layout of various types of useful data or sonar information. Each data field may be configured to display any one of 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. The GPSMAP 188/188C/238 Sounder's Map Page provides access to functions and features relating to the Map Page and the layout options.

To select an option on the Map Page:

1. Press **MENU**.
2. Use the **ARROW KEYPAD** to highlight the desired option and press **ENTER**.

The available options on the Map Page are: Full Screen Map/Show Data, Change Numbers, Measure Distance, Show Sonar/Show Numbers, Size Split, Set Up Map, and Turn Declutter On/Turn Declutter Off. Following are details on using each of these options.

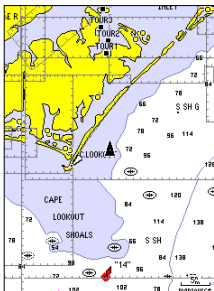
Map Page Options



Map Page Options (with Numbers shown)

Reference

Map Page Options



Full Screen Map (with BlueChart data)

- **Full Screen Map/Show Data** — toggles between a full screen map or a map with sonar information and/or data fields on the top half of the display. This allows for quick viewing of a full screen map.
- **Change Numbers** — 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 the 'Change Numbers' option 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:

- BEARING – Compass direction from your position to destination
- COMPASS – Compass ribbon
- COURSE – Desired Track
- DEPTH – Depth below transducer
- DISTANCE TO DESTINATION – Distance to final waypoint
- DISTANCE TO NEXT – Distance to next waypoint
- ELEVATION – Altitude above/below MSL (Mean Sea Level)
- ETA AT DESTINATION – Estimated Time of Arrival to final waypoint
- ETA AT NEXT – Estimated Time of Arrival to next waypoint
- GPS ACCURACY – Shows estimated GPS accuracy
- HIGHWAY – Smaller version of the Highway Page
- MAXIMUM SPEED – Fastest speed the unit has traveled
- MOVE AVERAGE SPEED – Average moving speed
- MOVE TRIP TIME – Time unit has been moving for a trip
- OFF COURSE – Distance from desired track

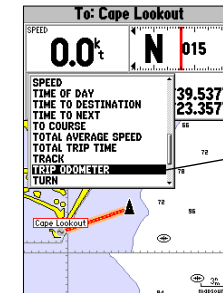
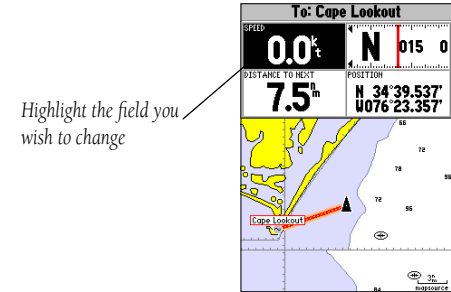
- POINTER – Arrow points to your destination
- POSITION – Current position coordinates
- SONAR – Compressed view of sonar data
- SPEED – Speed over ground
- TIME OF DAY – Current time
- TIME TO DESTINATION – Time to final waypoint
- TIME TO NEXT – Time to next waypoint
- TO COURSE – Bearing to desired track
- TOTAL AVERAGE SPEED – Total average speed
- TOTAL TRIP TIME – Total travel time of trip, stopped and moving
- TRACK – Current compass direction of travel
- TRIP ODOMETER – Trip Odometer
- TURN – Directional amount of turn needed to match bearing
- VELOCITY MADE GOOD – Velocity Made Good to destination
- VOLTAGE – Current voltage reading being received by unit
- WATER SPEED – Speed through the water (if equipped with optional speed transducer/sensor)
- WATER TEMP LOG – Smaller version of the Temperature Log (if equipped with temperature transducer/sensor)
- WATER TEMPERATURE – Water temperature (if equipped with temperature transducer/sensor)



NOTE: COMPASS, HIGHWAY and POSITION will only be available on medium and large sized data fields.

Reference

Map Page Options

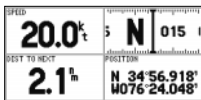


Reference

Map Page Options



Single, large data field



Default, medium fields

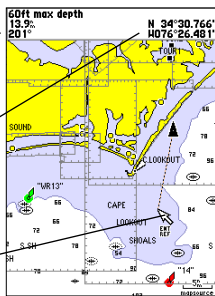


Split, small fields

Distance and Bearing

Cursor Coordinates

Map Cursor



Full screen map shown (with BlueChart data)

You may also choose to 'merge' the four medium, default data fields to a single, large field for better readability, or 'split' any or all of the default data fields to show 4 small data fields. This option is available from any of the main pages with the exception of the Numbers Page. One the Numbers Page, you may split each of the 3 large data fields into 4 medium fields, for a total of 12 data fields.

To split or merge the Numbers fields:

1. While in 'Change Numbers' mode, highlight the data field you want to change and press **MENU**.
2. Choose 'Split Number' or 'Merge Numbers', then press **ENTER**. You will now see four new data fields or one large field. Press **QUIT** when done.
3. To return to the factory configuration, repeat the above steps, but instead choose 'Defaults', then press **ENTER**. Press **QUIT** when done.

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

To measure the bearing/distance between two points:

1. Highlight the 'Measure Distance' option and press **ENTER**. An on-screen pointer appears 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 start measuring from) and press **ENTER**.
3. Move the cursor to the point that you want to measure to. The bearing and distance from the reference point, will be displayed in the data window below the data fields, along with the cursor's coordinates. Press the **QUIT** key to finish.

- **Show Sonar/Show Numbers** — toggles between a Map Page with Sonar information on the top portion, or a Map Page with data fields on the top of the display.

To show sonar or show data fields:

1. Highlight either the 'Show Sonar' or 'Show Numbers' option and press **ENTER**. The Map Page will now be split with sonar and depth information or data fields showing on the top.

- **Size Split** — enables height adjustment of the Map Page sonar split screen. You may adjust the size of the map/sonar split window anywhere from 1/3 to 2/3 height from the top of the screen. You must be showing sonar information to use this option.

To resize the Map Page sonar split screen:

1. From the Map Page split screen, press **MENU**.
2. Highlight 'Size Split' and press **ENTER**.
3. Use the **ARROW KEYPAD** to move the vertical double-arrow UP or DOWN until the desired horizontal height line shows, then press **ENTER**.

- **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 set up option uses a 'file tab' feature, making it easier to organize the various settings for ease of use. The following lists the settings available under each tab:

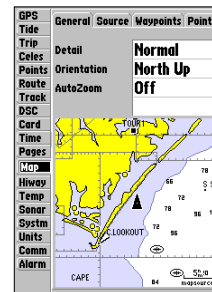
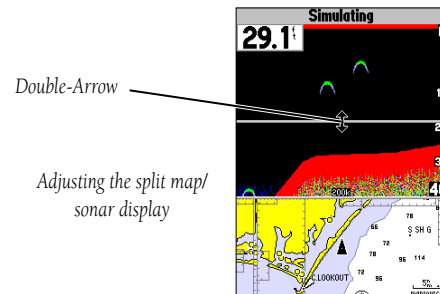
General	Detail, Orientation, AutoZoom
Source	Basemap, Data Card Maps
Waypoints	Waypoints, Active Route
Points	Spot Soundings, Tide Stations, Services
Nav aids	Symbol Set, Text Size, Light Sectors
Nav Line	Heading Line, Bearing Line, Course Line
Track	Saved Tracks, Track Log
Other	Accuracy Circle, Lat/Lon Grid, Map Outlines

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 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**. To exit, press **QUIT**.

Reference

Map Page Options



Main Menu—
Map Configuration Tab

Map Page Options

General	Source	Waypoints	Points
Detail	Normal		
Orientation	North Up		
AutoZoom	Off		

General Tab

General	Source	Waypoints	Points
Basemap	On		
Data Card Maps	On		
Data Card Maps			

Source Tab

Map Information	
US13003 (120000), US12208 (5000), US12207 (80000, Jul 2002)	
Show	Map Name
<input checked="" type="checkbox"/>	Us11009 (120000), America
<input checked="" type="checkbox"/>	Us11520 (432720), America
<input checked="" type="checkbox"/>	Us11539 (80000), America
<input checked="" type="checkbox"/>	Us11541-a (40000), America
<input checked="" type="checkbox"/>	Us11541-B (40000), America
<input checked="" type="checkbox"/>	Us11541-C (40000), America
<input checked="" type="checkbox"/>	Us11542-a (40000), America
<input checked="" type="checkbox"/>	Us11543 (80000), America
<input checked="" type="checkbox"/>	Us11544 (80000), America
Americas BlueChart v4.00: Us11009 (120000), Americas BlueChart v4.00	

Data Card Information page

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.

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

Source Tab

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

Data Card Maps— On/Off: turns all optional BlueChart/MapSource data loaded on the data card on or off. The ‘Data Card Maps’ option box shows a list of the optional BlueChart/MapSource data loaded on the data card. Each area is described by name and may be deselected if you do not wish to display the data on the Map Page.

To view data card map information:

1. Highlight the ‘Data Card Maps’ option box and press **ENTER**.
2. Use the **ARROW KEYPAD** to scroll through the list of maps.
3. To select/deselect a map, highlight the check box to the left of the name of the desired map. Press **ENTER** to select/deselect the map. The map is selected and will be displayed on the Map Page when an “✓” appears in the box adjacent to that map. You may also press **MENU** and choose to ‘Show All’ or ‘Show None’ and press **ENTER**.
4. To display detailed information and notes for each area, highlight the desired name and press **ENTER**. To view the notes for that area, choose ‘Show Notes’. To scroll through the notes, you may either highlight the notes, press **ENTER** and press UP/DOWN on the **ARROW KEYPAD**; or press **MENU**, choose the desired scroll option and press **ENTER**.
5. To exit the notes, highlight ‘Next’ to view the notes for the next map area, or highlight ‘Map List’ to return to the map list and press **ENTER**. Press **QUIT** to exit.

Waypoints Tab— Waypoints/Active Route

Text— None, Small, Medium, and Large: controls the screen size of the name.

Zoom— Auto, Off, 20 ft.–800 ft., 0.2 nm–800 nm: sets the maximum scale at which the feature appears on the screen. Some types of data will only show up to certain zoom scales.

Points Tab— Spot Soundings/Tide Stations/Services/Nav aids

Text— None (except Spot Sound), Small, Medium, and Large: controls the screen size of the name.

Zoom— Auto, On (Spot Soundings only), Off, 20 ft.–800 ft., 0.2 nm–800 nm: sets the maximum scale at which the feature appears on the screen. Some types of data will only show up to certain zoom scales.

Nav aids Tab

Symbol Set— controls the desired Navaid symbol set. Auto: BlueChart maps are drawn using symbols similar to the NOAA/NIMA standard; non-BlueChart symbols are drawn using traditional Garmin symbols. Garmin: All maps are drawn using traditional Garmin symbols. NOAA: All maps are drawn using a symbol set similar to NOAA/NIMA. International: All maps are drawn using a symbol set similar to the IALA symbol set.

Text Size— None, Small, Medium and Large: controls the screen size of the name.

Light Sectors— Controls the drawing of light sectors on the map. When enabled, color units indicate the actual color of each sector using the color of the light. Monochrome units draw white and yellow sectors as white, and draw blue, red & green sectors as dark gray. Off: no light sectors are ever drawn. Auto: Light sectors appear when you point to them with the map cursor. On: Light sectors are drawn for all lights that have them.

Nav Line Tab

Heading Line— On/Off: draws an extension from the end of the boat icon in the direction of travel.

Bearing Line— Auto, Off, 20 ft.-800 ft., 0.2 nm-800 nm: sets the 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 ft., 0.2 nm-800 nm: sets the 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.

Map Page Options*Waypoints Tab*

General	Source	Waypoints	Points
		Text	Zoom
Waypoints		Med	Auto
Active Route		Med	Auto

General	Source	Waypoints	Points
		Text	Zoom
Spot Soundings		Small	On
Tide Stations		None	Auto
Services		None	Auto

*Points Tab**Nav aids Tab*

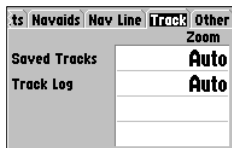
Source	Waypoints	Points	Nav aids
			Symbol Set
			Text Size
			Light Sectors
			Auto

ts	Nav aids	Nav Line	Track	Other
				Zoom
				Heading Line
				Off
				Bearing Line
				Off
				Course Line
				Auto

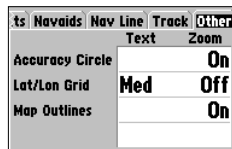
Nav Line Tab

Reference

Map Page Options



Track Tab



Other Tab



Map Setup Menu Options

Track Tab— Saved Tracks/Track Log

Zoom— Auto, Off, 20 ft.–800 ft, 0.2 nm–800 nm.: sets the maximum scale at which the feature appears on the screen. Some types of data will only show up to certain zoom scales.

Other Tab

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.

Lat/Lon Grid— Text: None, Small, Medium, and Large; controls the screen size of the name.

Zoom— Auto, Off, 20 ft.–800 ft, 0.2 nm–800 nm.: sets the maximum scale at which the feature appears on the screen.

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

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

Map Setup Menu Options

From the map setup page, you can access the following menu options:

- Defaults— restores settings back to factory settings for the tab highlighted.
- All Map Defaults— restores settings back to factory settings for all tabs.

To restore defaults for map settings:

1. From the Map tab in the Main Menu, highlight the tab 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**.

Sonar Page

The Sonar Page is where your GPSMAP 188/188C/238 Sounder becomes a powerful fishfinder/flasher. Fish are displayed as colored arches or as fish icons in three different sizes. Thermoclines are shown as shades of blue. The area of strongest sonar return (or whiteline) is displayed as solid white. Typically, the bottom will be the primary whiteline. A thin whiteline indicates a soft bottom while a thick whiteline will follow the contour of the bottom and show any objects of reasonable size. For more information on understanding sonar and the display, see page 14 and Appendix I.

Using the Adjustment Menu

The Adjustment Menu allows direct access to the settings and features most commonly used on the Sonar Page. The currently selected option appears in the upper left of the display.

To select an adjustment option from the Sonar Page:

1. Press the **ARROW KEYPAD** LEFT/RIGHT to scroll through the options in the upper left of the display, then press **ENTER** to access the desired option's adjustment window.

OR:

1. Press **MENU**, highlight 'Adjustments' and press **ENTER**. A list of all options and their current settings appears, with the selected option highlighted. Press UP/DOWN on the **ARROW KEYPAD** to select the desired option and press **ENTER** to access the adjustment window.

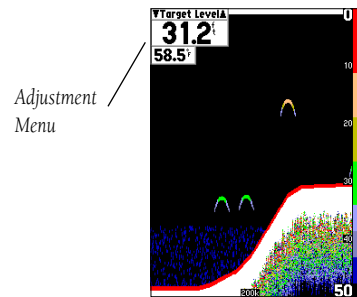
To easily exit any of the adjustment options, press the **QUIT** key.

To change an Adjustment Menu setting:

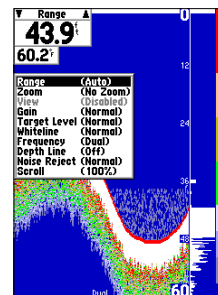
1. Select an adjustment option to change using one of the two methods described above. The adjustment window will automatically timeout and disappear when idle for 20 seconds.
2. Press the **ARROW KEYPAD** UP/DOWN to place the pointer or setting bar at the desired setting, range or percentage (Off, 1-100%).
3. Press **ENTER** or **QUIT** to exit the adjustment window; or press LEFT/RIGHT on the **ARROW KEYPAD** to view another adjustment window.

Reference

Sonar Page



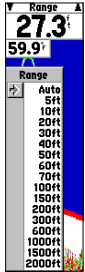
Sonar Page



Press **MENU** and highlight 'Adjustments' to see a list of all options and their current settings.

Reference

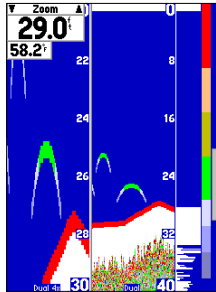
Sonar Page: Adjustment Menu



Range Adjustment



Zoom Adjustment



4X Split Zoom Display (Dual Frequency Mode)

To change a setting back to 'Normal' or 'Auto':

1. On the adjustment window for the desired option, press **MENU**.
2. Select the desired setting and press **ENTER**.

Adjustment Menu Options

Range— sets the display depth range used for viewing. The unit can be set to automatically track the bottom or set to a user-specified depth range. Auto mode displays the most information possible while continuously showing the bottom.

Zoom— used to quickly select a display zoom scale or split the display. When a scale other than 'No Zoom' is selected, the Adjustment Menu displays a new selection labeled 'View.' The Zoom setting is divided into six display levels:

- 2X Split: shows two reduced-size sonar pictures at the same time. The right half of the display screen shows the complete sonar picture at its original scale. The left half shows a portion of the original picture at 1/2 depth scale.
- 2X Zoom: displays the 2X zoomed picture on the full screen and does not show the original depth scale.
- 4X Split: shows two reduced pictures; the right at the original depth scale and the left at 1/4 the original depth scale.
- 4X Zoom: displays only the 4X zoomed picture on the full screen. However, if 'Dual Frequency Display' is set to 'Split', then a 50/200kHz split screen will be displayed.
- Btm (Bottom) Split: shows two reduced pictures; the right at the original depth scale and the left showing sonar returns from the bottom up. All target depths will read as a distance from the bottom.
- Btm (Bottom) Lock: displays only the Bottom Lock picture (returns from the bottom up) on the full screen. However, if 'Dual Frequency Display' is set to 'Split', then a 50/200kHz split screen will be displayed.

Once activated, the zoomed picture becomes the Sonar Page display. You may also cycle through the sonar zoom display levels by pressing the **IN** or **OUT** keys. The Zoom function can be deactivated by pressing the **OUT** key until the 'No Zoom' setting appears.

View/Span— available when a Zoom scale other than 'No Zoom' is selected. The 'View' or 'Span' setting is used to change the viewing range of a zoomed display. If the Zoom is set to 2X split or 4X split, only the zoomed portion on the left side of the screen is affected by the change. If the Zoom is set to Bottom Split or Bottom Lock, 'Span' adjusts how far off the bottom the unit displays data. In Zoom mode, you can control the view of the left side of the split.

Gain— allows you to control the sensitivity of the unit's receiver. This provides some flexibility in what is seen on the display. To see more detail, increase the receiver sensitivity by selecting a higher gain percentage. If there is too much detail or if the screen is cluttered, lowering the sensitivity may increase the clarity of the display.

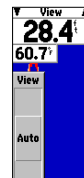
Target Level— adjusts how dark/light a return (or target) is displayed on the screen. A Color Bar (see also page 39) appears on the right side of the screen as you adjust this setting. The higher the percentage, the darker the return appears. This setting does not increase/decrease the unit Gain.

Whiteline— controls how the unit displays information about the bottom type (hard or soft). With the Whiteline 'Off', the bottom return displays as red and contains no information on bottom hardness. With Whiteline set at 'Normal' or 1-100%, the bottom return becomes white with a red line indicating where the water meets the bottom. To turn the Whiteline Off, press the **ARROW KEYPAD DOWN** until the setting bar is all the way at the bottom of the range and reads "Off". See page 114 for more detail on this feature.

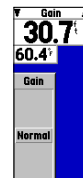
Frequency— allows you to choose a transducer frequency. Frequency refers to the "pitch" of the sound that the transducer sends and receives. You may choose '200kHz', '50kHz' or 'Dual' frequency.

Reference

Sonar Page: Adjustment Menu



View Adjustment



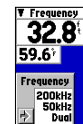
Gain Adjustment



Target Level Adjustment



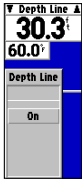
Whiteline Adjustment



Frequency Adjustment

Reference

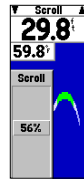
Sonar Page Options



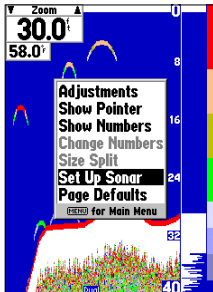
Depth Line Adjustment



Noise Reject Adjustment



Scroll Adjustment



Sonar Page Menu Options

Depth Line— adds a horizontal depth line across the display which is used to measure the depth of underwater objects. The depth of the line appears in a box on the right side of the line. Press UP or DOWN on the **ARROW KEYPAD** to control the position of the line on the graph. The depth is displayed in a window on the right side of the line. To turn the Depth Line Off, press the **ARROW KEYPAD UP** until the setting bar is all the way at the top of the range and reads “Off”.

Noise Reject— helps filter unwanted noise from the graph. The ‘Noise Reject’ tool can be turned ‘Off’, set to ‘Normal’ (automatically adjusts for optimum viewing) or to a fixed 1-100% setting. When setting the Noise Reject tool: the HIGHER the noise rejection setting, the unit is more likely to NOT show fish or structure. To turn the Noise Reject Off, press the **ARROW KEYPAD DOWN** until the setting bar is all the way at the bottom of the range and reads “Off”.

Scroll— adjusts the rate that the graph scrolls from right to left. If you are sitting still or the graph is moving too fast, slowing the scroll rate or pausing it can be beneficial.

Sonar Page Options

The GPSMAP 188/188C/238 Sounder’s Sonar Page features a menu page that provides access to additional functions and to layout and data field options.

To display the Sonar Page options:

1. Press **MENU**.

To select a menu option:

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

The following options are available:

- **Adjustments** — lists the Adjustment Menu options and their current settings (see page 33-35).

To change an Adjustment setting:

1. On the Adjustment options list, use the **ARROW KEYPAD** to highlight the desired option and press **ENTER**.
2. Use the **ARROW KEYPAD** to make the desired change and press **ENTER**.

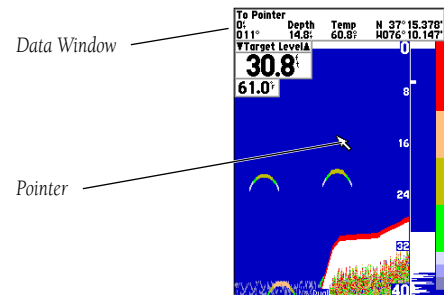
- **Show/Hide Pointer** — allows you to reference sonar items and mark underwater waypoints. This makes it easier to find and use an object such as a stump for a future fishing location. When using this feature, the Sonar Page pauses. The pointer does not move off the paused display and cannot show an area that has scrolled off the screen. The depth is updated while the display is paused, but the unit will not show any new sonar data until the standard Sonar Page is resumed. You may see a discontinuity from where the sonar information stops to where it starts again.

To mark an underwater waypoint:

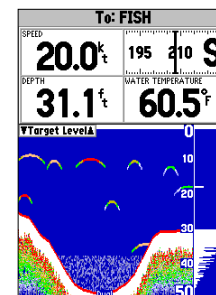
1. From the Sonar Page, press **MENU**, highlight 'Show Pointer' and press **ENTER** to pause the screen movement.
 2. Use the **ARROW KEYPAD** to move the cursor onto the target (underwater drop off, stump, etc.) you want to mark. The data window at the top of the screen displays the cursor's depth, coordinates, and bearing and distance from your current position.
 3. Press **ENTER/MARK**. The New Waypoint page appears with the waypoint's coordinates, default three-digit name, and pointer depth automatically filled in.
 4. To change the name, symbol or depth, highlight the appropriate field and press **ENTER**. Make your changes and press **ENTER** when done.
 5. When done, move the field highlight back to the 'OK' prompt and press **ENTER**.
 6. To return to the standard Sonar Page, press **QUIT**; or press **MENU**, then highlight 'Hide Pointer' and press **ENTER**.
- **Show/Hide Numbers** — toggles showing/hiding the data fields on the sonar display.
 - **Change Numbers** — allows you to specify the type of data displayed in each data field. For detailed instructions on changing the data fields on the Sonar Page, see pages 26-28.

Reference

Sonar Page Options



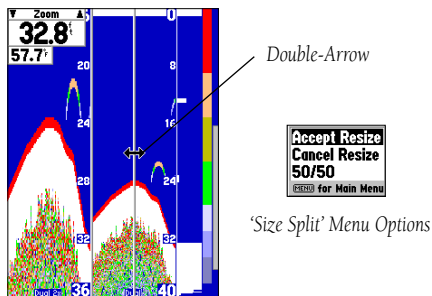
'Show Pointer' option enabled



'Show Numbers' option enabled

Reference

Sonar Page Options



Resizing the Split Sonar Display

Off

Fish Symbols Off— All available information will be displayed.



Suspended targets displays as fish symbols. Background information will be displayed.



Same as above with the target depth attached.



Suspended targets display as fish symbols. No background information will be displayed.



Same as above with target depth attached.

- **Size Split** — enables width adjustment of the Sonar Page split screen. This option is only available when a split screen zoom scale is selected. You may adjust the size of the split window anywhere from 1/4 to 3/4 width of the right half of the Sonar Page.

To resize the Sonar Page split screen:

1. From the Sonar Page split screen, press **MENU**.
2. Using the **ARROW KEYPAD**, highlight 'Size Split' and press **ENTER**.
3. Move the horizontal double-arrow LEFT or RIGHT using the **ARROW KEYPAD** until the desired vertical width line shows, then press **ENTER**.
4. If you wish to cancel this operation, press **QUIT** or press **MENU**, highlight 'Cancel Resize' and press **ENTER**.

- **Set Up Sonar** — jumps to the Sonar tab of the Main Menu, which contains sonar configuration settings that should not require frequent change. You may also press **MENU** twice from any screen, then highlight the 'Sonar' tab using the **ARROW KEYPAD**. Press RIGHT on the **ARROW KEYPAD** to access the selection fields. Each time the Setup Menu is accessed, the unit will return to the last edited selection field.

To change a setting on the Sonar tab:

1. Using the **ARROW KEYPAD**, highlight the desired field and press **ENTER** and the available options appears.
2. Highlight the desired setting and press **ENTER**.
3. Press **QUIT** to return to the Sonar Page or previous page.

Sonar Tab Options

Fish Symbols — allows you to determine how the graph displays underwater targets and background information. If Fish Symbols are set to 'Off', the unit displays all of the available information about the underwater environment. If a fish symbol is selected, the graph displays only the information related to that symbol. Actual fish returns may not always appear as perfect arches (like in simulator mode), due to the speed, fish orientation and/or other conditions.

Water Type — since sound waves travel through ‘Fresh’ and ‘Salt’ water at different rates it is necessary to select the ‘Water Type’ to ensure accurate readings on the unit.

Depth Number — controls the efficiency of the digital depth update rate. ‘Fast Update’ will update more quickly and is recommended for low-noise, deeper water (>50 ft.). ‘Auto’ is best for shallow water or high noise areas, will have a slower screen update and is best used if you travel a wide variety of depths.



If the unit is unable to track the bottom for any reason, the digits in the depth window will flash on and off to alert you that the unit is not tracking the bottom.

Scale — controls the depth ‘Scale’ displayed vertically along the right side of the graph. The depth ‘Scale’ can be configured to display four different ways: as an ‘Overlay’, in the ‘Corners’, with ‘Basic’ or ‘No Scale’.

Color Bar — shows a gradient scale of the current Target Level setting (see page 35).

Flasher — with the ‘Flasher’ active, a graphic Flasher representation will be displayed on the far right side of the graph. This graphic Flasher displays structure and bottom returns much the same as a true Flasher. You may find this feature particularly useful when using ‘Fish Symbols’.

Keel Offset — used to offset the surface reading for the depth of a keel. This makes it possible to measure depth from the bottom of your keel instead of from the transducer’s location. Enter a positive number to offset for a keel, or enter a negative number to compensate for a large vessel that may draw several feet of water. The ‘Keel Offset’ will be reflected in the depth reading.

Map Split Sonar Detail — controls Map Page sonar split range scale. ‘Full Range’ will show entire scale of 2X or 4X left side split of Sonar Page. ‘Maximum Detail’ displays what is shown on the left side of a split sonar screen.

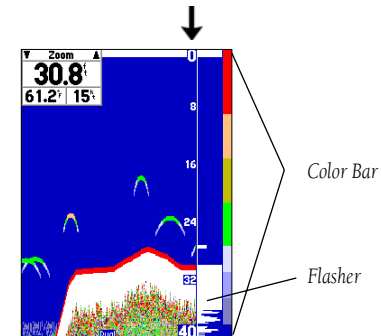
Background Color — (GPSMAP 188C only) sets the background color on the Sonar Page to Black, Blue or White.

Sonar Tab Options

GPS	Fish Symbols	Water Type
Tide	Off	Salt
Trip		
Center	Depth Number	Scale
Points	Fast Update	Overlay
Route	Color Bar	Flasher
Track	Off	Off
DSC		
Card	Keel Offset	
Time	0.0'	
Pages		
Map	Map Split Sonar Detail	
Hivey	Maximum Detail	
Temp	Temperature Graph	
Sonar	Off	
System		
Units	Background Color	
Comm	Black	
Alarm		
	Calibrate Water Speed	

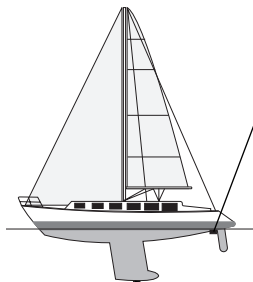
Main Menu—Sonar Tab
(GPSMAP 188C shown)

Depth Scale (Overlay)



Reference

Sonar Page Options



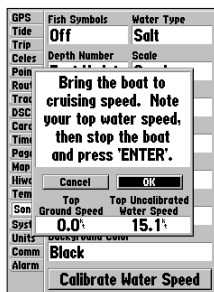
**Keel Offset:
Transducer at Surface**

Enter (+) positive
number to show depth
from bottom of keel

**Keel Offset: Transducer
at Bottom of Keel**

Enter (-) negative number to
show depth from surface

Calibrating the
Speed Sensor



Calibrate Water Speed — this is only available if you are using a speed-capable transducer/sensor.

Calibration is required to ensure that the Water Speed displayed on your unit will be accurate. The unit will automatically use the GPS ground speed, if it is available, for comparison on the calibration. If a GPS ground speed is not available, use either your boat's speedometer reading (not always accurate) or a stopwatch to determine your speed over a certain distance (distance / time = speed). It is recommended that the calibration take place in water having little or no current.

To calibrate the water speed:

1. On the Sonar tab, use the **ARROW KEYPAD** to highlight 'Calibrate Water Speed' and press **ENTER**.
2. Bring the boat to a cruising speed. The top ground and uncalibrated water speeds will be shown at the bottom of the calibration window. Note your top water speed, then stop the boat and press **ENTER**.
3. By default, the top ground speed is automatically shown in the 'What was your top water speed?' field. If a ground speed is not available, the top uncalibrated water speed is used instead. If the new speed is correct, highlight 'OK' and press **ENTER**. If you wish to manually enter a calibration, press **ENTER** on the speed field, enter a new speed and press **ENTER**.
4. You may also press **MENU** from the calibration screen and choose 'Use Top Ground Speed' to default back to ground speed or 'Use No Calibration' to use the speed sensor's uncalibrated speed.



NOTE: If the boat is not moving fast enough or the speed sensor is not outputting a speed, you will see a "Boat Is Not Moving Fast Enough To Calibrate" message at the bottom of the display. Check that the speed sensor wheel is moving or safely increase boat speed. If there is a problem with the speed sensor/unit or if a speed sensor is not installed, a "Water Speed Sensor Is Not Working" message appears at the bottom of the display. Check connections of speed sensor cables.

- **Page Defaults** — restores the Sonar Page settings to the original factory setup.

To restore default settings to the Sonar Tab:

1. Press **MENU**. With 'Page Defaults' highlighted, press **ENTER**.

Compass Page

The GPSMAP 188/188C/238 Sounder features two different navigation pages: Compass and Highway. Whenever a **NAV**, Follow Track (TracBack), or Follow Route have been activated, the GPSMAP 188/188C/238 Sounder'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 arrow, in the middle of the compass ring, and a bearing 'bug' indicator on the outside of the compass ring, indicate 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.



The bearing pointer, bearing bug 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.

The 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.

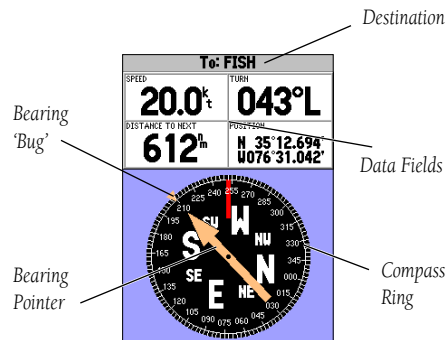
To change the data fields or layout of the Compass Page:

1. Press **MENU**. With 'Change Numbers' highlighted, press **ENTER**.
2. Highlight the data field you want to change. Press **ENTER** to select from a list of data to be displayed; or press **MENU** to split or merge the numbers. Make your selection and press **ENTER**.

For detailed instructions on changing the data fields and layout of the Compass Page, see pages 26-28.

Reference

Compass Page

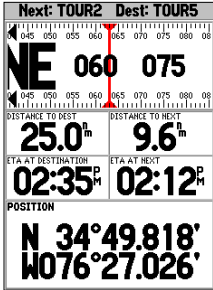


To restore defaults to the Compass Page:

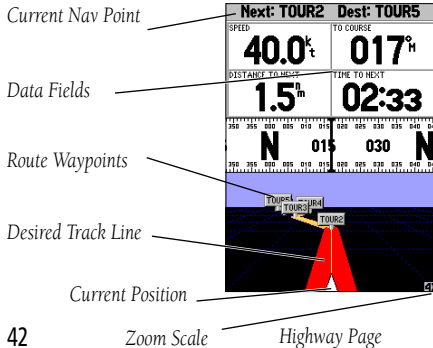
1. Press **MENU**, then press **ENTER**.
2. Press **MENU** again, highlight 'Defaults' and press **ENTER**.

Reference

Numbers Page/ Highway Page



Numbers Page with the middle data field split into four small data fields.



Numbers Page

The Numbers Page provides a quick reference for the important data you want to display. The default page displays three large, user-selectable data fields showing a compass ribbon, speed and current position coordinates. You may also choose to show the three data fields in large lettering for better readability or you may 'split' any or all of the data fields to show 4 smaller data fields. For detailed instructions on changing the data fields and layout of the Numbers page, see pages 26-28.

Highway Page

When a Go To, TracBack, or route has been activated, the GPSMAP 188/188C/238 Sounder's Highway Page provides digital and graphic steering guidance to the destination. The top half of the Highway Page features user-selectable data fields that display useful navigation data. Additionally, a compass ribbon is displayed to show your current heading along with a dark, vertical bar indicates the bearing to your course. To stay on course, steer towards the black vertical indicator (or arrows) until it lines up with the red 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.

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 red "road" with a yellow 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 **ZOOM IN** or **ZOOM OUT** key to select the desired setting.

The Highway Page options menu provides access to functions and features relating to the Highway Page and the layout 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 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**.

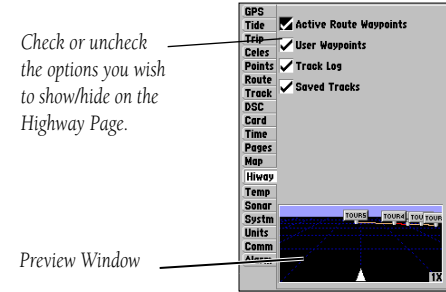
The following options are available from the Highway Page menu:

- **Change Numbers** — allows you to specify the type of data displayed in each data field on the Highway display. For detailed instructions on changing the data fields and layout of the Highway page, see pages 26-28.
- **Set Up Highway** — jumps to the Hiway tab of the Main Menu, allowing you to select which waypoints and tracks are shown on the Highway display. Use the **ARROW KEYPAD** and **ENTER** key to select/deselect the desired options. Four options are available:
 - Active Route Waypoints— all active route waypoints.
 - User Waypoints— only nearby waypoints to the route.
 - Track Log— current active track log.
 - Saved Tracks— any saved track logs near the route.

Active Route Page

When a route is activated in the GPSMAP 188/188C/238 Sounder system, 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 64.

Highway Page Options



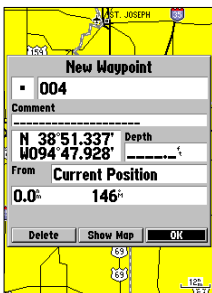
Selecting the 'Setup Highway' option takes you to the Hiway tab of the Main Menu.

Waypoint	Distance	Course
TOUR1	---	---
TOUR2	---	---
TOUR3	---	015°
TOUR4	20.6 ^m	339°
TOURS	30.4 ^m	---
	30.4 ^m	351°

Active Route Page

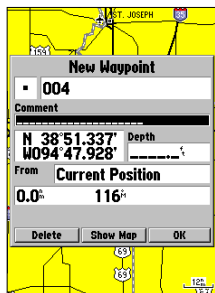
Reference

Creating Waypoints



Highlight 'OK' and press **ENTER** to use the default name and symbol.

Highlight a field and press **ENTER** to enter a new symbol, name, comment or depth.



Creating and Using Waypoints

The Garmin GPSMAP 188/188C/238 Sounder stores up to 3000 alphanumeric waypoints with a user-defined icon, comments and depth available for each waypoint. Waypoints can be created using three basic methods:

- **ENTER/MARK** key– used primarily for marking your present position, the **ENTER/MARK** key also provides options that allow you to select a map position or map item from the map display.
- Graphically– allows you to define a new waypoint position from the map display using the **ARROW KEYPAD**. (For creating underwater waypoints, see page 37.)
- Text Entry– allows you to enter a new waypoint's coordinates manually (from a chart, etc.).

Marking Your Present Position

The Garmin GPSMAP 188/188C/238 Sounder's **ENTER/MARK** key lets you quickly capture your present position (or cursor or map item position) in order 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/MARK** 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 letters/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 or a depth, highlight the appropriate field and press **ENTER**, then use the **ARROW KEYPAD** to enter a value and press **ENTER**.

- 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.
- When done, use the **ARROW KEYPAD** to highlight the 'OK' prompt and press **ENTER** to save the waypoint into memory.

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 188/188C/238 Sounder uses 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:

- Use the **ARROW KEYPAD** to move the cursor to the desired map position.
- Press and quickly release the **ENTER/MARK** key to capture the cursor position (press and hold **ENTER/MARK** to mark your present location, not the map cursor's position).
- The 'New Map Waypoint' page appears. To accept the waypoint with the default name and symbol, press **ENTER**.

To change the name, symbol, position, or add a comment 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**.

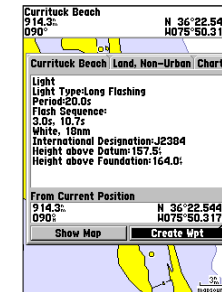
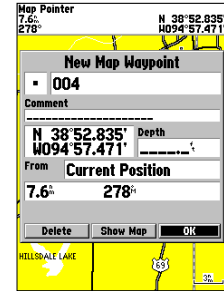
To create a new waypoint from a map feature:

- Use the **ARROW KEYPAD** to move the cursor and highlight the desired map feature.
- Press **ENTER/MARK** to capture the cursor position. An Information page for that map feature appears. Use the **ARROW KEYPAD** to highlight 'Create Wpt' and press **ENTER**.
- The 'New Waypoint' page appears. To accept the waypoint with the default name and symbol (based on the map feature), highlight 'OK' and press **ENTER**.

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

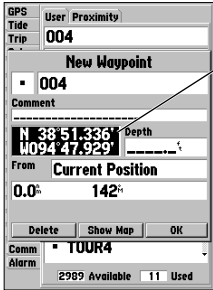
Creating Waypoints

Creating a waypoint on an open map location.

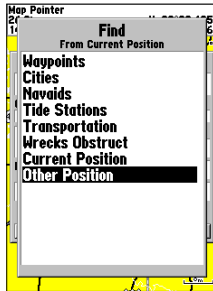


Using a map item to create a new waypoint.

Creating Waypoints



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



Select a point from which to project a new waypoint.

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 appears, with the next available waypoint number and the receiver's last know 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 Position' (if not, highlight the field and press **ENTER**, highlight 'Current Position' and press **ENTER**).
2. To select a map location from which to project a waypoint, highlight the field next to 'From' and press **ENTER**. The 'Find' screen appears. Highlight 'Other Position' and press **ENTER**. Use the zoom **IN** key and **ARROW KEYPAD** to highlight the desired position on the map and press **ENTER**.

Creating Waypoints



Waypoint Options Menu

- To select another location from which to project a waypoint, 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**. With 'OK' highlighted, press **ENTER** again.
- Highlight the distance and/or bearing fields below 'From Current Position' 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**.
- Make any other desired changes to the new waypoint data (name, symbol, etc.), then highlight 'OK' and press **ENTER** to save the waypoint.

Waypoint Menu Options

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

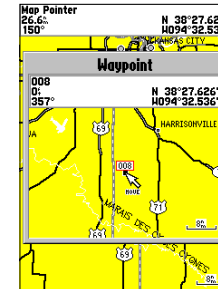
- Append to Route— Adds the new waypoint to the end of a route.
- Move Waypoint— Allows you to move the waypoint to a new location on the map display.

To append a new waypoint to a route:

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

To move a waypoint:

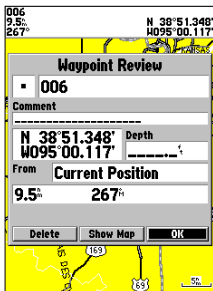
- Select 'Move Waypoint' from the options menu.
- The selected waypoint will be centered and highlighted on a map display. Use the **ARROW KEYPAD** to move the waypoint to the new position and press **ENTER**. Press **QUIT** to exit.



Use the **ARROW KEYPAD** to move the waypoint to a new position on the map.

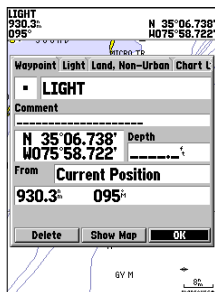
Reference

Reviewing/Editing Waypoints



Waypoint Review Page—
Highlight 'OK' and press
ENTER to exit/save
changes and return to the
Map Page.

Waypoint Review Page
for a waypoint located on
multiple map features.



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 on a MapSource or BlueChart feature, the Waypoint Review page includes 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 on a 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.

Editing Waypoints

To change the comment/position coordinates/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.

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:

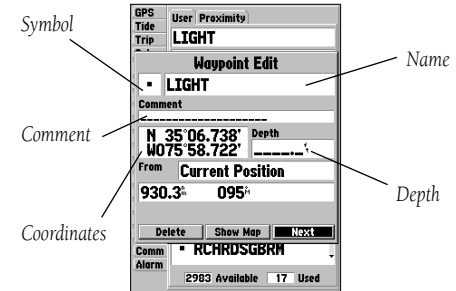
1. On the Waypoint Review/Waypoint Edit page, use the **ARROW KEYPAD** to highlight 'Delete' and press **ENTER**. With 'OK' highlighted, press **ENTER** again to confirm the deletion.

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 is highlighted on a map screen with an information window 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 changes to show the distance, bearing, and position of the map cursor (in relation to the waypoint's original 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, an additional option is available by pressing **MENU**:

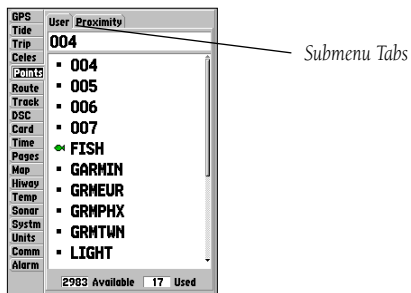
- Point to on Map Page— returns to the highlighted waypoint on the Map Page (exits the Waypoint Review/Waypoint Edit Page).



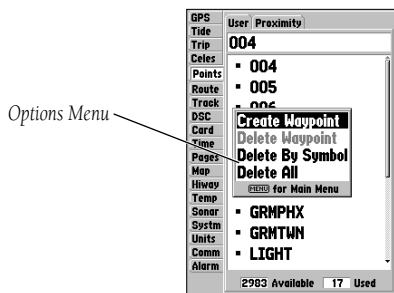
Waypoint Edit Page

Reference

Waypoint Lists



Main Menu—Points Tab



Waypoint Lists

The GPSMAP 188/188C/238 Sounder's Main Menu Page features two waypoint submenu tabs, '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 page 48-49 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— allows you to create a waypoint. (See pages 44-47)
- Delete Waypoint— deletes selected waypoint from list and any route in which it was used.
- Delete By Symbol— deletes waypoints that use the same symbol.
- Delete All— deletes all waypoints from the unit.



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 an optional PC cable and interface software, save them to a data card, 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**, highlight 'Delete Waypoint' and press **ENTER**.
OR, press **ENTER**, 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:

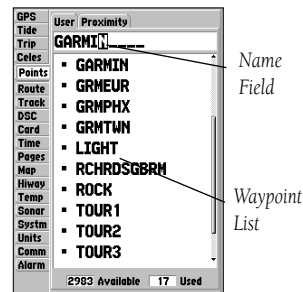
1. Press the **MENU** key to select the options window.
2. Use the **ARROW KEYPAD** to highlight 'Delete All' and then press **ENTER**.
3. Highlight the 'OK' prompt and press **ENTER** to confirm.

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 or statute miles or kilometers. If a proximity alarm circle overlaps with an existing alarm circle, the message 'Proximity Overlaps Another Proximity Waypoint' appears. 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.

Reference

Waypoint Lists



You can also search for a waypoint by name:

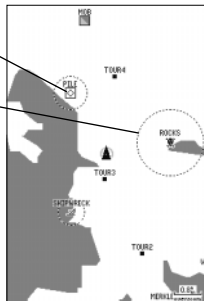
1. Highlight the name field and press **ENTER**.
2. Use the **ARROW KEYPAD** to select the first letter of the name.
3. Move to the **RIGHT** and enter the second letter if you do not see it on the list below.
4. Repeat this until the name appears. Press **ENTER** when you see the name.
5. Highlight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

Reference

Waypoint Lists

GPS	User	Proximity
Title	Proximity Alarm	
Trip	Off	
Celex	Off	
Point:	Waypoint	Distance
Route	004	20.00
Track	FISH	00.00
DSC		
Card		
Time		
Pages		
Map		
Hivey		
Temp		
Sonar		
System		
Units		
Comm		
Alarm		

Proximity Waypoints List



Proximity Waypoint

Proximity Circle

A dashed circle appears showing the alert boundary for the proximity waypoints.

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 is now 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:

- Delete Alarm— removes selected waypoint from proximity list.
- Delete All— removes all waypoints from 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 'Delete Alarm' option and press **ENTER**.
3. To clear all proximity waypoints, select the 'Delete All' option and press **ENTER**.
4. Use the **ARROW KEYPAD** to highlight the 'OK' prompt and press **ENTER** to confirm.

Going to a Destination

Using the **NAV** key, the GPSMAP 188/188C/238 Sounder provides three ways to navigate to a destination: Go To Point, Follow Route, and Follow Track (TracBack). 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 for selecting a destination is the 'Go To' function, which lets you select a destination point, then quickly sets a direct course from your present position. If you highlight a point on a list or the map and press **NAV**, 'Go To <point names>' appears 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 a point 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**. To display the Waypoint Review page for the selected waypoint.
5. With the 'Go To' button highlighted, press **ENTER** to begin navigation.

To stop navigation:

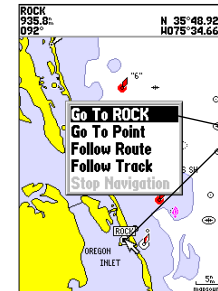
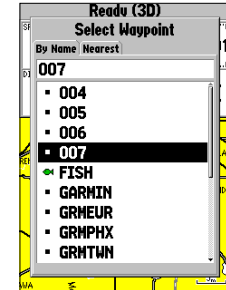
1. Press the **NAV** key. Use the **ARROW KEYPAD** to highlight 'Stop Navigation' and press **ENTER**.

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 select a map item as the 'Go To' destination, the GPSMAP 188/188C/238 Sounder will automatically use the name of the map item, but the point will not be stored in the waypoint list (see page 45 for creating waypoints using map items). If you select a new map point (non-map item) as the 'Go To' destination, the GPSMAP 188/188C/238 Sounder automatically creates or moves a waypoint named 'MAP' at the cursor position.

Going to a Destination

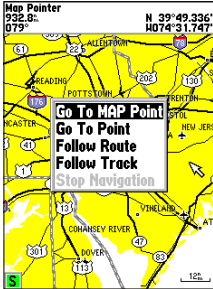
Choose a waypoint from either the 'User' or 'Nearest' tab list.



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

Reference

Going to a Destination/ TracBack Navigation



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

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



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 the screen and press **NAV**.
2. With 'Go To <waypoint name>', 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 and press **NAV**.
2. With 'Go To MAP Point' highlighted, press **ENTER**.

To stop navigation:

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

TracBack Navigation (Follow Track)

The TracBack function allows you to retrace your path using the track log automatically stored in the receiver's memory, which eliminates 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 leads you back to the oldest stored track log point, so it's a good idea to clear the existing track log before you start 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 highlight 'Erase' and press **ENTER**.
4. Highlight 'OK' and press **ENTER**.

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

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.

- Use the **ARROW KEYPAD** to select 'Save' and press **ENTER**.
- On the 'Save Back Through' window, highlight the desired time, date, or 'Entire Log' and press **ENTER**.
- Next, the track will begin saving and then display the 'Saved 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 choose a style (monochrome units) or color (color models) that will be used to display the saved track line, highlight the field and press **ENTER**, choose a Color or Style 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**. Press **QUIT** to exit the Track Map window.

- Highlight 'OK' and press **ENTER** to save the track.

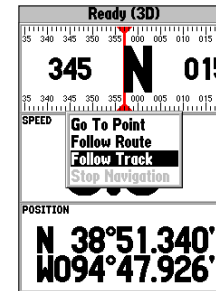
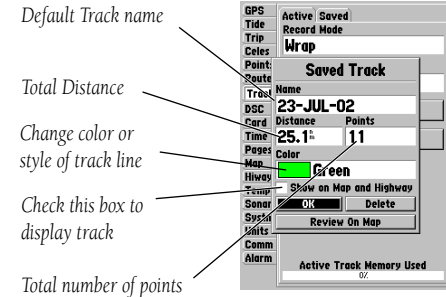
To activate a TracBack using the NAV key:

- Press the **NAV** key, then highlight the 'Follow Track' option and press **ENTER**.
- Highlight the track you wish to follow and press **ENTER**.
- 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 and press **ENTER**.

Once a TracBack has been activated, the GPSMAP 188/188C/238 Sounder will take the track log currently stored in memory and divide it into segments called 'legs'. Up to 254 temporary 'turns' (BEGIN, TURN 1, TURN 2, TURN 3, ..., TURN X, END) will be created to mark the most significant features of the track log in order to duplicate your exact path as closely as possible. To get the most out of the TracBack feature, remember the following 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.

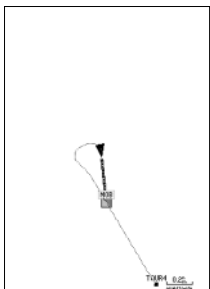
TracBack Navigation



You must first save a track before using the 'Follow Track' option. If there are no saved tracks, the message "There are no saved Tracks to follow" appears after you select 'Follow Track.'

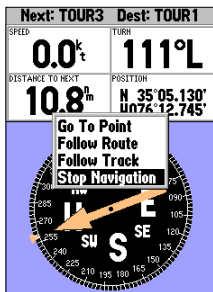
Reference

TracBack Navigation/ MOB: Man OverBoard



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

Highlight 'Stop Navigation' and press **ENTER** to stop navigating.



- If the track log interval is set to the 'Time' option, the route may not follow 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 log's changes in distance and direction are too complex, 254 waypoints may not mark your path accurately. The receiver then assigns the 254 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 75-76.

MOB Key

The GPSMAP 188/188C/238 Sounder'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 the **MOB** key.
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 is created and the unit is set on an active navigation to that point. Use any of the Navigation Pages to guide you back to the MOB point. The MOB waypoint is stored in the waypoint list and may be deleted like any other waypoint (see page 50).

To stop navigation to the MOB position:

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

Creating a Route

The last way to navigate to a destination is to create a user-defined route. The Garmin GPSMAP 188/188C/238 Sounder lets you create and store up to 50 reversible routes (numbered 1-50), with up to 254 waypoints each. Routes can be created in two ways. The first way is by selecting points from the Map Page, allowing you to see each route graphically on-screen as you create the route. The second way 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 'New Route' and press **ENTER**. Or, highlight the first available blank slot in the Route List 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 45.
4. To add a new waypoint to the route, use the map cursor to select the desired map position and press **ENTER**. Press **ENTER** again to confirm the new waypoint. You may also change the name, symbol and other properties of the new waypoint (see pages 48-49).

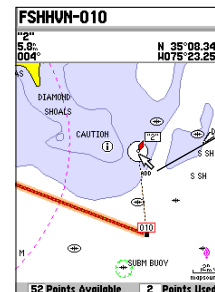
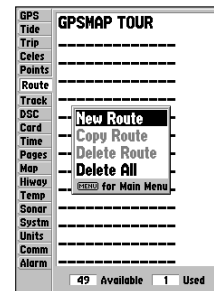
As you add each new waypoint to the route, the data window at the top of the map display will show the waypoint/map item name, bearing and distance from your location, and coordinates of the cursor. The bottom of the display will show you the number of available and used points. A route line appears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

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 return to the Route Review page.

Reference

Creating a Route

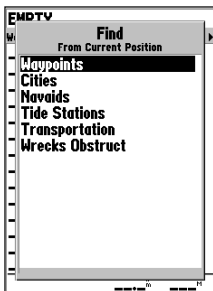
Main Menu—Route Tab
and Route Options Menu



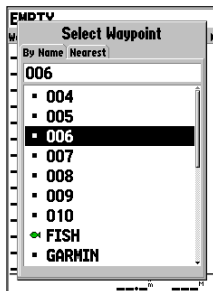
You will see 'ADD' below the cursor as you add points.

Reference

Creating a Route/ Following a Route



Choose the type of point you want 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 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 a waypoint from either the "By Name" or "Nearest" list and press **ENTER**. (See page 45 for searching for waypoints by 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/Point 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 followed in the same sequence as it was originally created, or inverted and followed from the end point back to the beginning point.

To activate and follow a route:

1. From any page, press the **NAV** key, then using the **ARROW KEYPAD**, highlight 'Follow Route' and press **ENTER**. (If you highlight a route from the Route List or Route Review page and press **NAV**, the window will automatically display, 'Follow <the route name>'.)

- Highlight the route you wish to navigate and press **ENTER**.
- Choose 'Activate' or 'Invert and Activate' and press **ENTER**. ('Activate' will use the route as is, 'Invert and Activate' will reverse the route then activate it.)

To deactivate (stop navigation) of a route:

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

Route List Page

The GPSMAP 188/188C/238 Sounder 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 **MENU** while on the Route List page, the following menu options appear: 'New Route' (page 57), 'Copy Route', 'Delete Route', or 'Delete All'.

To select and follow a route:

- On the Route List page, use the **ARROW KEYPAD** to highlight the desired route and press **NAV**.
- With 'Follow <route name>' highlighted, press **ENTER**. Highlight 'Activate' or 'Invert and activate' and press **ENTER**.

To deactivate (stop following) the route:

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

To copy or delete a route:

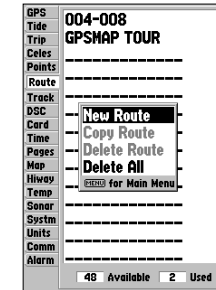
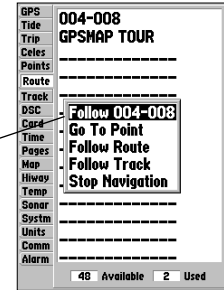
- From the Route List, using the **ARROW KEYPAD**, highlight the route you want to copy or delete and press **MENU**.
- Choose either 'Copy Route' or 'Delete Route' and press **ENTER** and with 'OK' highlighted, press **ENTER** again to confirm a deletion. Copy will use the same route name with an additional number, starting at 1, at the end of the route name.

To delete all routes:

- From the Route List, press **MENU**.
- Highlight 'Delete All' and press **ENTER**. With 'OK highlighted, press **ENTER** again to confirm.

Route List Page

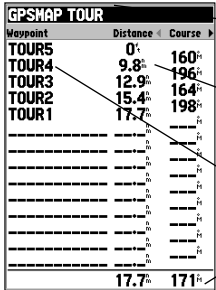
If you highlight a route name from the Route List and press **NAV**, the name will automatically appear.



Route List Options Menu

Reference

Route Review Page



A screenshot of the 'GPSMAP TOUR' screen. The title bar reads 'GPSMAP TOUR'. Below it is a table with three columns: 'Waypoint', 'Distance', and 'Course'. The data rows are: TOUR5 (0', 160'), TOUR4 (9.8', 196'), TOUR3 (12.9', 164'), TOUR2 (15.4', 198'), and TOUR1 (17.7', 171'). Below the table are several rows of dashes representing route points. At the bottom, there are two columns of data: '17.7'' and '171''.

Waypoint	Distance	Course
TOUR5	0'	160'
TOUR4	9.8'	196'
TOUR3	12.9'	164'
TOUR2	15.4'	198'
TOUR1	17.7'	171'

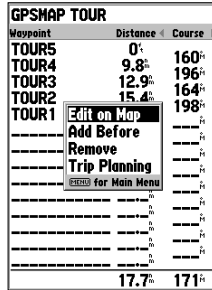
Route Name

Data Fields

Route Points

Data Totals

Route Review
Options Menu



A screenshot of the 'GPSMAP TOUR' screen with an options menu overlaid. The menu options are: 'Edit on Map', 'Add Before', 'Remove', and 'Trip Planning'. At the bottom, there are two columns of data: '17.7'' and '171''.

Waypoint	Distance	Course
TOUR5	0'	160'
TOUR4	9.8'	196'
TOUR3	12.9'	164'
TOUR2	15.4'	198'
TOUR1	17.7'	171'

Route Review Page

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

To access 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 also 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 delete 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 48-49 for details).

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

Route Review Options Menu

By pressing **MENU** on the Route Review page, the following options are available: Edit on Map, Add Before, Remove, and Trip Planning.

- **Edit on 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.

To edit a route on the map:

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

To review a route point:

1. Highlight the point and press **ENTER**. The Review page appears. 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 and press **MENU**.

A pop-up menu of editing choices appears, with the following options: Edit as Text (return to the Route Review page), Remove, Move (user waypoints only), and Add.

To remove a route waypoint:

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

To move a route waypoint:

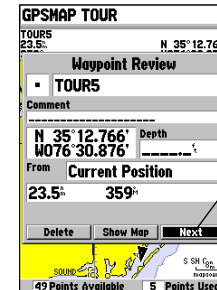
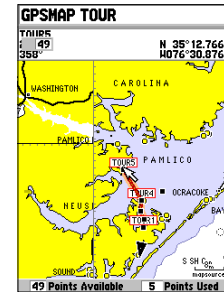
1. Highlight the 'Move' option and press **ENTER**.
2. Move the cursor to the new map position and press **ENTER**.

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 adding an existing waypoint, press **ENTER** to confirm the new waypoint.
5. Repeat steps 3 and 4 to add additional waypoints or press **QUIT** to finish.

Editing Routes

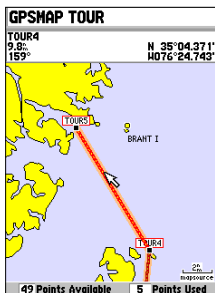
Highlight a route point and press **ENTER** to review it.



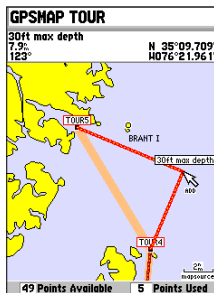
Choose 'Next' to center the map on the next point in the route. You can step through the points by repeatedly pressing **ENTER**.

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, map item, or an open spot on the map (shown) to create a new route point.

The GPSMAP 188/188C/238 Sounder's route edit mode also allows you to insert a new route point 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 'ADD' 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.

• Add Before — Insert a waypoint into the route points list.

To insert a point into the route:

1. From either the Route Review or Active Route pages, use the **ARROW KEYPAD** to highlight the point you wish to insert the new point before and press **MENU**.
2. Highlight 'Add Before' 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.) Select the point you want and press **ENTER** twice. (See page 51 for searching for waypoints by name.)

• Remove — 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' and press **ENTER**.

- **Trip Planning** — The Route Review and Active Route pages also display trip-planning information for each leg or the entire route. Available information includes Course, 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. 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. 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 'Trip Planning' from the options list. Enter the figures for Speed, Fuel Flow, Departure Time, and Departure Date.
4. Press **QUIT** to return to the Route Review Page.



NOTE: 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.).

Reference

Editing Routes

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

GPSMAP TOUR			
Waypoint	Distance	Leg	Dist
TOUR5	0'	9.8'	
TOUR4	9.8'	3.1'	
TOUR3	12.9'	2.5'	
TOUR2	15.4'	2.3'	
TOUR1	17.7'		
		17.7'	17.7'

GPSMAP TOUR			
Waypoint	Distance	Leg	Dist
TOUR5	0'	9.8'	
TOUR4	9.8'	3.1'	
TOUR3	12.9'	2.5'	
TOUR2	15.4'	2.3'	
TOUR1	17.7'		
		17.7'	17.7'

Trip Planning	
Speed	Depart Time
0.0	08:53
Fuel Flow	Depart Date
0.0/hr	23-JUL-02

Trip Planning Data Fields

Reference

Active Route Page

Next: TOUR2		Dest: TOUR5	
SPEED	TO COURSE		
60.0 ^k	018 ^h		
OFF COURSE			
L83.9 ^t			
GPSMAP TOUR			
Waypoint	Distance	Course	
TOUR1	---	017 ^h	
TOUR2	71.2 ^m	343 ^m	
TOUR3	73.7 ^m	015 ^m	
TOUR4	76.8 ^m	339 ^m	
TOUR5	86.6 ^m	---	
-----	---	---	
-----	86.6 ^m	351 ^h	

Active Route Page

Next: TOUR2		Dest: TOUR5	
SPEED	TO COURSE		
60.0 ^k	018 ^h		
OFF COURSE			
L83.9 ^t			
GPSMAP TOUR			
Waypoint	Distance	Course	
TOUR1	---	017 ^h	
TOUR2	71.2 ^m	343 ^m	
TOUR3	73.7 ^m	015 ^m	
TOUR4	76.8 ^m	339 ^m	
TOUR5	86.3 ^m	---	
-----	---	---	
-----	86.3 ^m	351 ^h	

Active Route Page
Menu Options

Active Route Page

Whenever you have activated a route in the GPSMAP 188/188C/238 Sounder, the Active Route page shows each point (waypoint or map item) of the active route, with the point name, distance and choice of Course, 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 point list automatically updates to indicate the next 'active' point first. The Active Route and Route Review pages share many of the same features and options.

Active Route Page Options

The following options are available by pressing **MENU** on the Active Route page:

- **Hide/Show Numbers** — see page 26 and 28 for instructions.
- **Change Numbers** — see pages 26-28 for instructions.
- **Edit on Map** — see pages 61-62 for instructions.
- **Add Before** — see page 62 for instructions.
- **Remove** — see page 62 for instructions.
- **Invert** — reverses the direction of the route.
- **Re-evaluate** — recalculates and reactivates the current route data. Selects the route leg closest to your current position as the active leg (the active leg defines the current 'from' and 'to' waypoints).

To invert an active route:

- 1 From the Active Route page, press **MENU**.
2. Using the **ARROW KEYPAD**, highlight 'Invert' and press **ENTER** to reverse the route.

To re-evaluate an active route:

- 1 From the Active Route page, press **MENU**.
2. Using the **ARROW KEYPAD**, highlight 'Re-evaluate' and press **ENTER/MARK** to recalculate.

Find Key

The **FIND** key allows you to search the units for user waypoints, map items, and any optional BlueChart or MapSource information loaded on a data card. Press the **FIND** key to search for items from your current location by default. You may also search from other locations. When you press **FIND**, a list of available items to search from appears. The default items are Waypoints, Cities, Tide Stations, and Transportation. Additional items, such as Anchorages, Businesses, Exits, Nav aids, Restricted Areas, Wrecks, Obstructions, etc., are displayed depending on the optional BlueChart or MapSource data card inserted into the unit. If you pan around on the Map Page and press **FIND**, the unit centers its search from the point where the cursor is located. When using BlueChart or MapSource data, your position or the map pointer must be within the map outline area to search for information from that area.

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**.
3. For Waypoints and Cities, you may search using 'By Name' or 'Nearest'. Use the **ARROW KEYPAD** to highlight the desired tab. For 'By Name', you may use the top field to spell out the name or scroll down through the list.

To find a waypoint or item from another location:

1. Once the search results list is displayed for a particular item, press **MENU**.
2. 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'.
3. Select a reference point on the map and press **ENTER**. The search results list will change to list items nearest to the new map position.

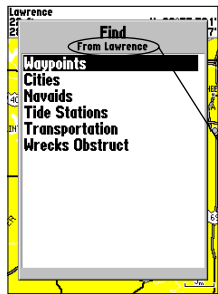
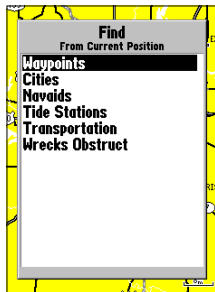
To find a waypoint or item from another location on the map:

- 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**.

Reference

Find Key

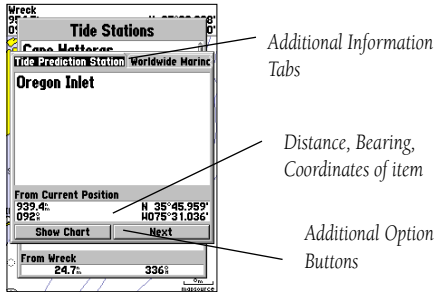
*Find Items List
From the Current
Location*



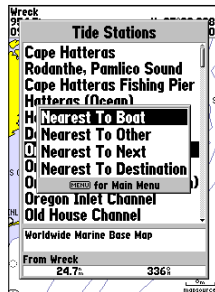
*You may also start a
'Find' from items found
on the Find List or from
another location on the
map.*

Reference

Find Options



Additional Information Window



Find Menu Options

To view details about an item:

1. With the desired item highlighted in the search results list, press **ENTER**.
2. An Information page appears with details about the item organized 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 a list of maps on your data card, and viewing the next item in the search results list.

The Find option supports a “find from” feature, which allows you to center your search around an item that 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.

Find Options

Using the Find options, you may search from various map data and utilize variety of nearest criteria for all items, except waypoints. Available Find options are:

- Nearest To Boat— centers search from your boat’s current location
- Nearest To Other— allows you to choose another map location from which to search.
- Nearest To Next— centers search from the next point of your active route.
- Nearest To Destination— centers search from the last point of your active route.

To find an item using the find options:

1. From any page, press **FIND**.
2. Using the **ARROW KEYPAD**, highlight the desired category from the list and press **ENTER**.
3. From the search results list, press **MENU**, then highlight the desired option and press **ENTER**.

Main Menu Page

The GPSMAP 188/188C/238 Sounder'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 188/188C/238 Sounder's system, and is accessed through the **MENU** key. See pages 2-3 for additional instructions changing settings and entering data.

To access the Main Menu Page:

1. Press **MENU** twice. The 19 Menu tabs are divided into categories by function.

To select a Menu tab from the Main Menu page:

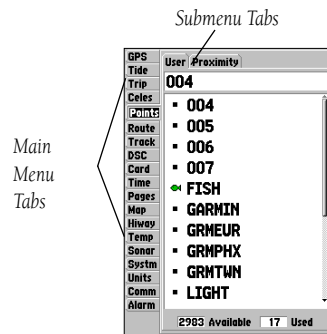
1. Move the **ARROW KEYPAD** UP or DOWN to highlight the tab you want to view. The information for the highlighted tab will automatically appear to the right. If you want to highlight any of the tab items, press to the RIGHT on the **ARROW KEYPAD**, then move UP or DOWN to select individual items.
2.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

The Main Menu tabs are:

- GPS – shows satellite status, accuracy, initialize position.
- Tide – shows 24 hour tide chart with levels and times.
- Trip – provides trip speeds, odometers, averages, and trip timers.
- Celes – shows sun/moon time cycles and positions.
- Points – allows you to create, edit or delete waypoints. See pages 50-52.
- Route – allows you to create, edit, activate or delete routes. See pages 57-63.
- Track – lets you record a track, define how it is recorded and displayed.
- DSC— allows you to control the Digital Selective Calling (DSC) interface.
- Card – interface control for saving waypoints, routes and tracks to a data card.
- Time – sets up time format, time zones, and daylight savings. (continued)

Reference

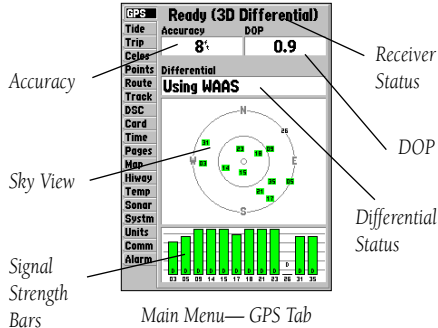
Main Menu Page



Main Menu Page

Reference

Main Menu: GPS Tab



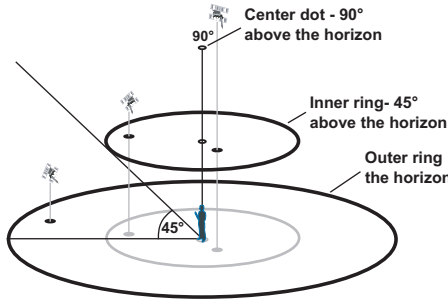
- Pages – enables main pages to be shut off, turned on, or 'jumped to'.
- Map – sets up Map Page features, zooms, and text size. See pages 29-32.
- Temp – sets up and shows the water temperature log.
- Hiway – sets up Highway Page features. See pages 42-43.
- Sonar – sets up Sonar Page features, speeds and calibrations. See pages 38-40.
- System – defines beeper and simulator, restores setup, and displays software version.
- Units – defines position format, datum, heading, and distance and speed units.
- Comm – interface settings for use with a PC or second device.
- Alarm – sets up alarms for anchor drag, arrival, off course, and clock.

GPS Tab— provides a visual reference of satellite acquisition, receiver status, and accuracy. The status information will give you an idea of what the receiver is doing at any given moment. The sky view and signal strength bars give you 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 appears for each satellite in view. The progress of satellite acquisition is shown in three stages:

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

As soon as the GPSMAP 188/188C/238 Sounder 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 188/188C/238 Sounder 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 188/188C/238 Sounder. Initial reception of the WAAS signal may take up to 15-20 minutes, then 1-2 minutes afterwards. When WAAS differential correction has been received for GPS satellites (numbers 32 or below), a 'D' appears in the signal bar of the sky view and '2D or 3D Differential' appears 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 188/188C/238 Sounder 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.

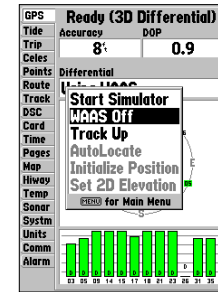
To disable/enable WAAS capability:

1. From the GPS tab, press **MENU**, then use the **ARROW KEYPAD** to highlight 'WAAS Off' or 'WAAS On' and press **ENTER**.

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.

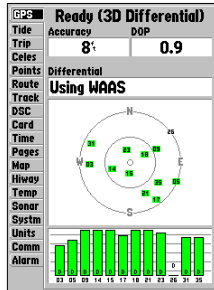
Main Menu: GPS Tab



Highlight 'WAAS Off' and press **ENTER** to disable the WAAS capabilities.

Reference

Main Menu: GPS Tab



When the GPSMAP 188/188C/238 Sounder is using a differential correction signal (either WAAS or DGPS), a "D" is displayed at the bottom of the signal strength indicator bars for the satellites that are corrected.

The status field will show one of the following conditions:

- Looking For Satellites – 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 – at least three satellites with good geometry have been acquired and a 2 dimensional position fix (latitude and longitude) is being calculated. '2D Differential' appears when you are receiving DGPS corrections in 2D mode and a 'D' will show on the strength bar of satellites being corrected.
- 3D – at least four satellites with good geometry have been acquired and your position is now being calculated in latitude, longitude and elevation. '3D Differential' appears when you are receiving DGPS corrections in 3D mode and a 'D' will show on the strength bar of satellites being corrected.
- Poor GPS Coverage – 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 – the receiver is in simulator mode.

The Differential Receiver status will show one of the following:

- Off – No optional beacon receiver attached or enabled in the Comm menu or WAAS Off
- Searching For WAAS – WAAS is enabled and receiver is searching for WAAS signal
- Using WAAS – WAAS capability enabled and unit receiving WAAS corrections
- No Beacon Signal – DGPS receiver attached, but not transmitting RTCM data to GPS
- Tuning Beacon – Receiver is tuning manual DGPS frequency
- Receiving Beacon – Unit is receiving DGPS corrections
- Scanning Beacon – DGPS receiver is scanning for available frequency
- Using DGPS – Indicates a Differential signal is being received (only displays when the Serial Data Format is set to "Other DGPS" on the Comm Tab of the Main Menu)

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 188/188C/238 Sounder, the 'DGPS Rcvr' field displays 'Off'. The SNR will depend upon the mounting of your DGPS receiver and the distance from the DGPS transmitting station.

The GPS Info tab features an options menu that provides access to functions and features relating to the GPS Info display.

The following options are available by pressing **MENU** on the GPS Info Tab of the Main Menu:

- **Start/Stop Simulator**— toggles the unit simulator on or off. Retail Demo mode will restore factory settings to the unit if left unattended for over 2 minutes. This mode should only be used for display purposes. User waypoints will NOT be deleted.
- **WAAS On/WAAS Off**— toggles the WAAS capability of the receiver 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 display only.
- **AutoLocate**— allows the receiver to locate your position automatically. This process can take up to five minutes.
- **Initialize Position**— allows you to initialize the receiver graphically on the Map Page to initially help the receiver acquire more quickly. See pages 4-5 for instructions on initialization.
- **Set 2D Elevation**— allows you to manually enter the elevation when in 2D or Simulator mode only. Any elevation entered will be automatically calculated when the GPS is in 3D mode.

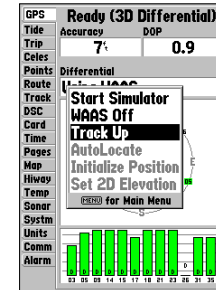
To select a menu option:

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



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 188/188C/238 Sounder to receive WAAS and DGPS corrections at the same time.

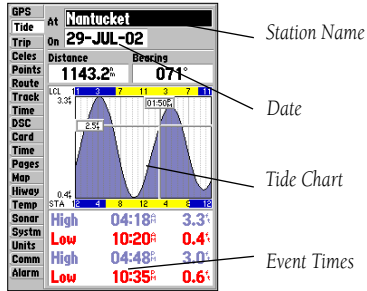
Main Menu: GPS Tab



GPS Tab Options Menu

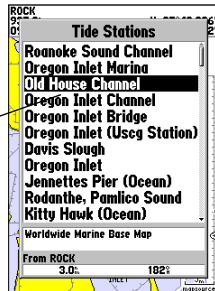
Reference

Main Menu: Tide Tab



Station Name
Date
Tide Chart
Event Times

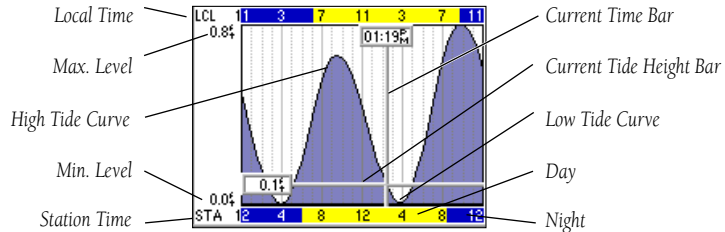
Main Menu—Tide Tab



You can select from a list of nearest stations.

Tide Tab— shows a graphical chart that 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. Daylight (light/yellow bar) and nighttime (dark/blue 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 are in 4-hour increments, and the light, dotted vertical lines are in 1-hour increments. A solid, vertical line (with the current time box at the top) will indicate 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 solid, horizontal line (with the current tide box on the left) indicates the current tide height. The figure to the left of the line will show the current tide level in feet. The Mean Lower Low Water (MLLW) appears as a solid, horizontal line near the bottom of the chart (This line will only appear 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.

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

1. From the Tide tab, highlight the 'At' field and press **ENTER**.
2. Press **MENU**, select 'Nearest to Boat' and press **ENTER**.
3. Select the desired station from the list and press **ENTER**.
4. Highlight 'Show Chart' or 'OK' and press **ENTER**.

If you are not within this range, you will see a message "None Found". Use the 'Nearest To Other' Find option and select a location closer to a tide station.

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

1. On the Map Page, press **FIND**, then select 'Tide Stations' and press **ENTER**.
2. Press **MENU**, select 'Nearest To Other' and press **ENTER**.
3. Use the **ARROW KEYPAD** and the **ZOOM IN/ZOOM OUT** keys to select a position on the map and press **ENTER**.
4. Highlight the desired station from the list and press **ENTER** to view the information page for that chart (this shows the station's distance and bearing from the selected map location, along with the station's position coordinates).
5. Highlight 'Show Chart' and press **ENTER**.

To view the tide chart for another date:

1. With a chart displayed for the desired station, 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**, highlight 'Use Current Date' and press **ENTER**.

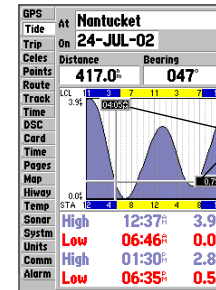
To view a chart's details for another time of day:

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

Main Menu: Tide Tab

Tide Station List Menu Options

Press **MENU** on the Tide Station list to access additional search options. The 'Nearest to Next' and 'Nearest to Destination' options are enabled when you are actively going to a destination (following a Go To or a Route, for example). You must select a location within 100 nm. of a tide station.



You may move the cursor to see tide heights at different times. Tide data will show in a black box when in cursor mode.

Reference

Main Menu: Trip Tab/ Celestial Tab

GPS	Trip Odometer	Stopped Time
Tide	34'	17:57:23
LT/RT	Moving Average	Moving Time
Celes Points	0.2'	00:01:40
Route Track	Total Average	Total Time
Time	0.0'	17:59:02
DSC Card	Maximum Speed	Odometer
Time	1.5'	34'
Pages	Reset Trip	
Map	Reset Max Speed	
Hiway	Reset Odometer	
Temp	Reset All	
Sonar		
Systm		
Units		
Comm		
Alarm		

Main Menu— Trip Tab

Position	At	Current Position	Date/Time
	On	24-JUL-02	02:47 ^h
	Points	Sunrise	Moonrise
	Route Track	05:03 ^h	07:52 ^h
Skyview Window	Time	Sunset	Moonset
	DSC Card	07:14 ^h	05:02 ^h
Sun Position	Pages	Moon Phase	
	Map	Moon Position	
	Hiway		
	Temp		
	Sonar		
	Systm		
	Units		
	Comm		
	Alarm		
Overhead (90°)	45°	20°	Horizon (0°)

Main Menu— 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. Highlight 'Reset Trip', 'Reset Max Speed', 'Reset Odometer' or 'Reset All' and press **ENTER**.

Celes (Celestial) Tab— displays celestial data for sun and moon rise/set, moon phase, and approximate skyview location of the sun and moon. The moon phase displays 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 Find item location. Also, you may select a different date and time, or use the current data.

To choose another position:

1. From the Celestial tab, highlight the 'At' field and press **ENTER**.
2. The Find menu appears. Make a selection and press **ENTER** until the information for that location is displayed on the Celestial tab. See pages 65-67 for more information on using the Find feature. List highlight any category, except Other Location, and press **ENTER**. If you wish to reference a Find item, select from the Find list, and press **ENTER**.

The location the unit is using appears in the 'At' 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 in the Time tab of the Main Menu (see page 77).

To change the time or date:

1. From the Celestial 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**.
3. To return to the current date and time, press **MENU**, use the **ARROW KEYPAD** to highlight 'Use Current Date and Time' and press **ENTER**.

To change the skyview orientation:

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

Points Tab— contains the 'User' and 'Proximity' waypoint lists. See pages 50-52.

Route Tab— contains a list of available routes. See pages 57-63.

Track Tab— lets you specify whether or not to record a track log (an electronic 'breadcrumb 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 54-56 for TracBack information. The Track submenu is divided in two tabs: 'Active' tab and the 'Saved' tab.

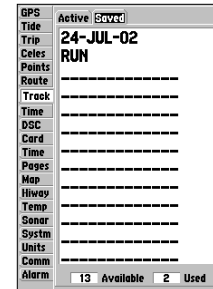
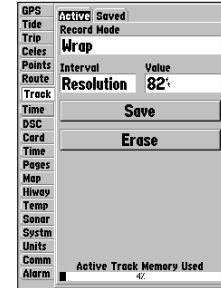
Active Tab

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).
- **Interval**— defines the frequency at which the track plot is recorded. Three interval settings are available:
 - Distance— records track based on a user-defined distance between points.
 - Time— records track plot based on a user-defined time interval.
 - Resolution— records track plot 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.

Main Menu: Track Tab

Main Menu—
Active Track Tab



Main Menu—
Saved Track Tab

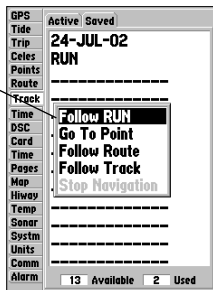
Reference

Main Menu: Track Tab



Reviewing a saved track

The track name will automatically appear when highlighted on the 'Saved' list and NAV is pressed.



- **Value**— defines the distance or time used to record the track log.
- **Save**— allows you to save the current active track log.
- **Erase**— 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, allows TracBack activation, 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.

On the 'Saved' tab, the following options are available by highlighting a track and pressing **MENU**:

- Review On Map – displays the saved track log on a Track Map page.
- Delete Track – deletes highlighted saved track log from memory.
- Delete All – deletes all saved track logs from memory.

To review and edit a track:

1. On the 'Saved' Track tab of the Main Menu, highlight the desired track and press **ENTER**. The Saved Track window appears.
2. You may rename the track, choose to show the track on the Map and Highway pages, delete the track, or view the track on a map window.
3. To exit, press **QUIT** or highlight 'Next' and press **ENTER**.

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**.

DSC Tab— allows to control and set up DSC (Digital Selective Calling) features on the unit.

What is Digital selective calling (DSC)?

Digital Selective Calling (DSC) uses marine VHF radio and Global Positioning System (GPS) technologies to transmit and receive location information. DSC is used by mariners to assist them in two major areas: Distress Calls and Position Reporting.

An emergency DSC Distress Call allows a vessel in trouble to transmit a substantial amount of information in a single transmission or “call,” without the need for voice communication. When any nearby rescuer receives the DSC signal, an alarm sounds and they immediately receive the position of the caller. The rescuer may then choose to navigate (Go To) the caller’s position to assist or forward the call on to the Coast Guard. When the Coast Guard receives the call, they can immediately access the caller’s information (such as who they are and the type of vessel) in their database while they are in transit to the caller’s position.

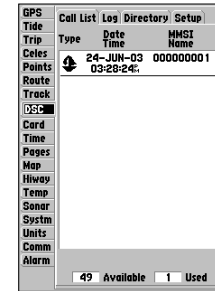
A non-emergency DSC Position Report allows mariners to exchange and display the positions of one another. Once a DSC position is received, the mariner may choose to create a waypoint or to show the received position on an electronic map.

Any time a vessel receives a DSC call, they can store that location and quickly navigate to that position using a Go To. This makes DSC a time-saver, especially in an emergency situation. In order to use DSC, users must first register their VHF radio with the FCC and receive a Maritime Mobile Service Identity (MMSI) number.

What is A Maritime mobile service identity (MMSI)?

Maritime Mobile Service Identity (MMSI) basically allows a VHF radio to act like a phone. In order to make a “call” on a phone, you first need a phone number to dial. The 9-digit MMSI number acts like a phone number when used in a Position Report and as a unique identifier to the Coast Guard when used in an emergency Distress Call. In order to to obtain a Maritime Mobile Service Identity (MMSI) number, users must register their VHF radio with the FCC (Form 605). **Garmin does not supply this number!**

Main Menu: DSC Tab



DSC Tab

HOW ARE MMSI ASSIGNMENTS OBTAINED?

Non-commercial users (e.g. recreational users who remain in domestic waters and only carry VHF, EPIRB (Emergency Position Indicating Radio Beacons), and Radar) are not required to have a FCC ship station license. The FCC and Coast Guard have authorized some second and third party vendors to assign MMSI numbers. This service is limited to registering recreational vessels only. **To receive information on how to obtain a recreational MMSI number please contact:** <http://www.uscg.mil/rescue21/links/mmsi.htm> or <http://wireless.fcc.gov/marine/>.

U.S Non-Federal User: Commercial users, or those who travel outside the U.S. or Canada, must apply for a ship station license, or an amendment to a ship station license. **To find out if you require a Ship Station license contact:** <http://wireless.fcc.gov/marine/ftsh14.html>. If your vessel requires licensing by the FCC you will obtain a MMSI during the application/licensing process when you file FCC Forms 159 and 605.

U.S. Federal User: Federal users can obtain MMSI assignments from their agency radio spectrum management office. These procedures are currently under review by the NTIA (National Telecommunications and Information Administration).

Outside the U.S.: Users can obtain an MMSI assignment from their telecommunications authority or ship registry, often by obtaining or amending their ship station license.

In Canada: Industry Canada is responsible for assigning MMSI numbers to commercial and recreational vessels. Information is available at the following web site: <http://apollo.ic.gc.ca/english/mmsi.html>.

For more information regarding MMSI's visit: <http://www.navcen.uscg.gov/marcomms/gmdss/mmsi.htm>.

HOW CAN GARMIN HELP YOU WITH DSC?

To receive *Distress Calls* or *Position Reports*, you must have a DSC-equipped chartplotter as well as a VHF radio with DSC support. During normal, non-emergency *Position Report* communication, Channel 70 (156.525 MHz) has been set aside as the VHF/DSC digital call channel. For a *Distress Call*, a mariner presses the MayDay button on their VHF radio. The call transmits on an emergency channel with the

MMSI number attached to the call (if you have DSC support). Any DSC-equipped mariner (on sea or land) within range can receive the call.

When the Garmin GPSMAP 188/188C/238 is connected to a VHF with DSC support, the GPS unit displays a Call List, Log, and a Directory available to store incoming information received from another user's DSC capable VHF/GPS combination. Basic wiring is required for the Garmin unit and VHF radio to send and receive NMEA data from each other (pg.87).

Distress Call

With a Garmin DSC capable chartplotter/sounder properly connected to a VHF radio with DSC output, you may receive any DSC Distress Call within range. A window will pop up and a message displays when a Distress Call is received. To notify you a Distress Call has been received, an alarm will sound (if enabled). The alarm only sounds on a Distress Call, and it will not sound on a Position Report. Distress Calls are broadcasted to all DSC users in radio range.

Options available from this screen are:

- Show on Map: If you immediately wants to see the caller's position they select 'Show on Map'.
- Create Waypoint: If you want to create a waypoint of that position, highlight 'Create Waypoint' and press **ENTER/MARK**.

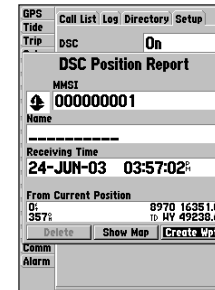
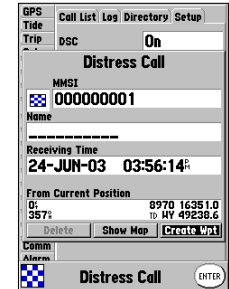
You also have the ability to input a caller's name, if it is known. (The caller's name replaces the MMSI number as a reference once it is entered.)

DSC Position Report

The Position Report operates similarly to the Distress Call. Remember this type of contact is like a phone call, but no emergency alarms are set off and the call is specific to the receiver. Position Reports are not broadcasted to all DSC users.

Main Menu: DSC Tab

Distress Call Message



Position Report Message

Reference

Main Menu: DSC Tab

GPS	Call List	Log	Directory	Setup
Tide	Type	Date	MMSI	Name
Trip				
DSC Entry Review				
MMSI				
00000001				
Name				

Receiving Time				
24-JUN-03 03:57:02				
From Current Position				
G:	38°51.338' N			
SST:	157°47.927' W			
Delete Show Map Create Wpt				
Comm Alarm				
49 Available 1 Used				

DSC Entry Review

GPS	Call List	Directory	Setup	
Tide	Type	Date	MMSI	Name
Trip				
DSC Log				
Delete Show Map Create Wpt				
96 Available 4 Used				

DSC Log

DSC Call List

The DSC Call List displays the current calls received. The GPS can manage up to 50 calls. When 'calls' are received, they are updated constantly to give the most current information, even if the unit is left unattended. Any entry from the Call List can be selected to show an Entry Review.

DSC Log

When DSC calls are received, they are automatically stored in the Log, with the latest call at the top. The unit may store up to 100 logs. Once 100 logs are received, the oldest log file is removed when a new call is received. The Log displays information of call Type, Date/Time, Position, and MMSI/Name. Pressing **MENU** from this page allows you to 'Sort By Time', 'Sort By Name', 'Sort By (Call) Type', 'Delete' (only after highlighting a particular call), and 'Delete All'.

To Review a Call:

1. From the DSC tab of the Main Menu and the **Log** or **Call List** tab highlighted, press **DOWN** Arrow Keypad until the call you want to review is highlighted.
2. Press **ENTER/MARK** to select the call.

DSC Entry Review

The DSC Entry Review operates similarly to the Distress Page and Position Report Page. This page has the additional option to 'Delete' the displayed call. From the DSC Entry Review, you can 'Delete' the entry, 'Show on map', or 'Create Waypoint' and create a name for the entry.

DSC Directory

The DSC Directory acts much like a phone book. A user can save up to 50 contacts. The directory lists by Name and MMSI number. Pressing **MENU** from this page allows you to create a 'New Item', 'Delete Item', or 'Delete All'.

There are two ways to add a new entry into the directory.

To add a new Directory entry:

1. Press Menu, then highlight 'New Item' and press **ENTER/MARK**.
2. Or, with the Directory Tab highlighted press the Arrow Keypad **DOWN**, highlight an empty field and press **ENTER/MARK** to access the New Directory Item window.

The New Directory Item window allows you to input information of a known contact.

To add the MMSI number, Name, or Comment:

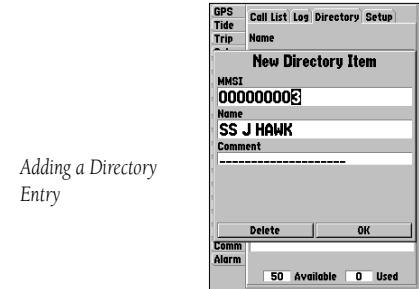
1. Press **UP/DOWN** on the Arrow Keypad to highlight the MMSI, Name, or Comment field.
2. Press **ENTER/MARK** to highlight the first digit on that field.
3. Press **UP/DOWN** on the Arrow Keypad to enter the numbers/letters.
4. Press **LEFT/RIGHT** on the Arrow Keypad to move to the next position.
5. Press **ENTER/MARK** to accept the entry.
6. Press **UP/DOWN** on the Arrow Keypad, highlight the 'Delete' button and press **ENTER/MARK** to delete the entry, or highlight the 'OK' button and press **ENTER/MARK** to accept the entry.

After creating a New Directory Item entry, the name created is attached to that particular MMSI number. If you return to the Log, the new name is displayed under the corresponding MMSI number. Another way to input a name is from the Entry Review page or the DSC Distress Call or DSC Position Report pages. The Name field is only available in the GPS. Names cannot be sent like the MMSI numbers to other DSC users.

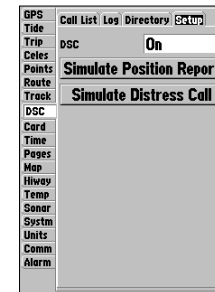
DSC Setup

Garmin chartplotters have the ability to turn DSC 'On' or 'Off'. This option is beneficial for users who have more than one GPS chartplotter. If you want only DSC to display on a particular chartplotter, turn DSC off on the remaining Garmin chartplotters that support DSC.

Main Menu: DSC Tab



Adding a Directory Entry

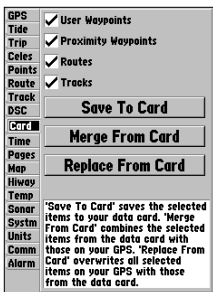


DSC Setup

"Simulate.." options only appear while in Simulator mode..

Reference

Main Menu: DSC/Card Tabs



Card Tab

A user also has the ability to simulate a Distress Call or a Position Report on this page. This is helpful for practice before connecting to the real system. The Distress Call simulator also helps to check if alarms are working properly.

To run a simulation:

1. Place the chartplotter into simulation (see pg. 7).
2. From the Main Menu, select the DSC tab, then highlight the Setup tab.
3. Highlight which simulation you wish to run and press **ENTER/MARK**.

Using the NAV Button

The receiver of a Distress Call or Position Report can quickly navigate to the caller using the NAV button. Once the call is logged, press the NAV button and select to Go To the MMSI number or the Name of the caller.

Card Tab— interface control for saving waypoints, routes and tracks to a data card. When data is saved to a data card, it may be exchanged with other compatible units and Garmin's MapSource PC program.

To transfer data to/from a data card:

1. Insert the data card. If there is already user data on the card, highlight 'User Card' and press **ENTER/MARK**. From the 'Card' tab, select the checkbox next to each type of item you want to transfer. You may also press **MENU** and choose to 'Select All' or 'Clear All'.
2. Highlight 'Save To Card' and press **ENTER/MARK** to save the selected items to the data card.
3. If transferring data from the card to the unit, highlight 'Merge From Card' and press **ENTER/MARK** to combine the selected items with those of your GPS. highlight 'Replace From Card' and press **ENTER/MARK** to overwrite all selected items on your GPS.
4. A 'Transfer Complete' message appears once the data has been transferred. Press **ENTER/MARK**.

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 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 110 for time offsets.
- Daylight Savings – choose from 'Auto', 'On', or 'Off' to adjust for daylight savings.

Pages Tab— allows you to turn any of the main pages on/off, 'Jump To' a particular page, set which page appears first when you power the unit on, and enable/disable the GPS Info on power up screen.

To select/deselect a main page:

1. Use the **ARROW KEYPAD** to highlight the box to the left of the page name. Press **ENTER** to select/deselect that page. When a page is selected a '✓' appears in the box. You must leave at least one page checked.

You may also press **MENU** and choose from one of the following and press **ENTER**:

- All Pages – selects all pages.
- Chart Plotter Only – selects Map page only.
- Navigation Tools Only – selects Compass, Numbers, Highway, and Active Route pages only.
- Basic Fishfinder – selects Sonar page only.
- Defaults – selects all pages.

To 'Jump To' a specific page:

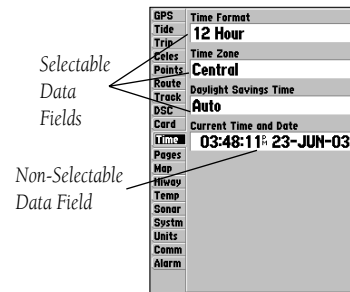
1. Use the **ARROW KEYPAD** to highlight the 'Jump To' button to the right of the desired page and press **ENTER**.

To set the first page:

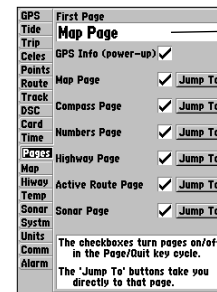
1. Use the **ARROW KEYPAD** to highlight the 'First page' option and press **ENTER**. Highlight the page you wish to appear first and press **ENTER**.

Reference

Main Menu: Time Tab/ Pages Tab



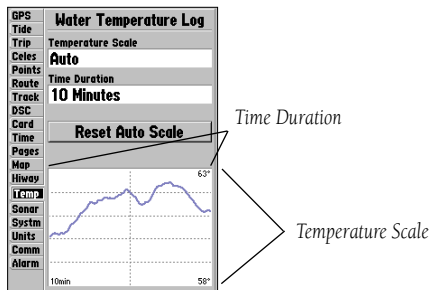
Main Menu—Time Tab



Main Menu—Pages Tab

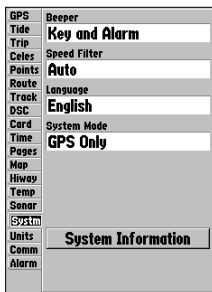
Reference

Main Menu: Temp Tab/ System Tab



Main Menu—Temp Tab

Main Menu—System Tab
(Normal Mode)



Map Tab— contains setup options for the Map Page. See pages 29-32.

Hiway Tab— contains setup options for the Highway Page. See pages 42-43.

Temp (Temperature) Tab— displays the water temperature log (if equipped with a temperature transducer/sensor). The chart reads from right to left, so that the most recent temperature measured is displayed on the far right side of the chart. The dotted lines within the chart indicate intervals in the temperature scale and the duration of time.

The following settings are available:

- Temperature Scale – sets the temperature range (in degrees) for displaying the log. Select 'Auto' to have the unit automatically determine the best range, or select a span of 2, 4, 6, 8 or 10 degrees.
- Time Duration – sets how fast or slow the temperature log scrolls; the shorter the time duration, the faster the temperature log scroll. Select a duration from 1 minute to 2.5 hours.

Sonar Tab— contains setup options for the Sonar Page. See pages 38-40.

System (System) Tab— controls system settings for beeper, speed filter, languages, system mode, simulator controls, restores factory settings, and displays software version.

The following settings and options are available:

- Beeper – controls audible beep. Select from 'Off', 'Alarms Only' (sounds for alarms/messages), or 'Key and Alarm' (sounds for key presses and alarms/messages).
- 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.
- System Mode – select from 'Normal' (Normal Navigation) or 'Simulator' (For practice ONLY), Sounder Only, or GPS Only.

Set Position* – allows to set your location while in simulator mode. See page 11, starting with step 2, for additional instructions.

Track Control* – 'Auto Track' will steer to the current navigation point. 'User Track' allows you to enter a heading in the 'Track' field.

Track* – lets you enter a heading.

Speed* – lets you enter a speed.

Transducer* – lets you simulate using a Depth Only, Temp Only, or Temp/Speed transducer.

* These fields will only appear when the unit is in Simulator Mode.

- System Information – displays the unit's software, basemap version, and electronic serial number.

Press **MENU** for the following options:

- 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.

Units Tab— defines settings for Position Format, Map Datum, Heading, Distance, Speed, Elevation, Depth, and Temperature.

The following settings are available:

- Position 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
 - India Zones • Irish Grid • Loran TD • Maidenhead
 - MGRS • New Zealand • Qatar Grid • RT90
 - Swedish Grid • Swiss Grid • Taiwan Grid • User Grid
 - W Malayan RSO

For additional information on Loran TD setup, see pages 102-103.

Main Menu: System Tab/ Units Tab

Main Menu—System Tab
(Simulator Mode)

GPS	Beeper
Tide	Key and Alarm
Trip	Speed Filter
Celes	Auto
Points	Language
Route	Track
DSC	English
Card	System Mode
Time	Simulator <input type="checkbox"/> Set Position
Pages	Track Control <input type="checkbox"/> Track
Map	Auto Track <input type="checkbox"/> 357°
Hiway	Speed <input type="checkbox"/> Transducer
Temp	0.0° Temp
Sensor	
System	
Units	System Information
Comm	
Alarm	

GPS	Position Format
Tide	hddd°mm.mmm'
Trip	Map Datum
Celes	WGS 84
Points	Headings
Route	Auto Mag Var 003°E
Track	Distance, Speed and Elevation
DSC	Nautical (nm, kt, ft)
Card	Depth
Time	Feet (ft)
Pages	Temperature
Map	Fahrenheit (°F)
Hiway	
Temp	
Sensor	
System	
Units	
Comm	
Alarm	

Main Menu—Units Tab

Reference

Main Menu: Units Tab



The Units tab settings will affect how navigation information is displayed on the GPSMAP 188/188C/238 Sounder. 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 188/188C/238 Sounder 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.



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

- 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 104-105), 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 73). '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:

1. With the Heading field set to 'User Mag Var', highlight the heading reference field (immediately to the right) and press **ENTER**.
 2. Use the **ARROW KEYPAD** to enter the magnetic variation at your current position and press **ENTER**.
- Distance, Speed and Elevation – lets you select the desired units of measure for distance, speed and elevation readouts in 'Nautical' (nm, kt, ft), 'Statute' (mi, mh, ft) or 'Metric' (km, kh, m) terms.
 - Depth – lets you select the desired units of measure for depth in Feet (ft), Fathoms (fa) or Meters (m).
 - Temperature – lets you select the desired units of measure for temperature in Fahrenheit (°F) or Celsius (°C).

Comm (Communications) Tab— lets you control the input/output format used when connecting your GPSMAP 188/188C/238 Sounder to external NMEA devices, a DGPS beacon receiver, a personal computer, another Garmin GPSMAP 188/188C/238 Sounder, etc. If a DGPS receiver is used, WAAS capability will automatically be turned to 'Off'. The unit supports two input/output ports. See page 95 for more information on wiring and NMEA information. Individual Port settings are:

Port 1:

- 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 188/188C/238 Sounder. 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.
- NMEA In/NMEA Out – supports the input/output of standard NMEA 0183 data, and sonar NMEA input support for the DPT, MTW and VHW sentences.
- None – provides no interfacing capabilities.

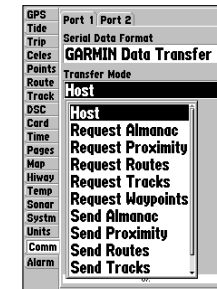
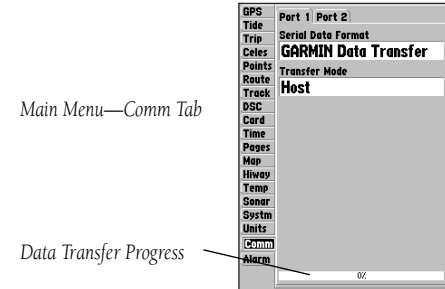
Port 2:

- Garmin DGPS – used to connect the GPSMAP 188/188C/238 Sounder with a Garmin DGPS beacon receiver.
- Other DGPS – allows DGPS input using a standard RTCM format, without any output capabilities.
- NMEA In/NMEA Out – supports the input/output of standard NMEA 0183 data, and sonar NMEA input support for the DPT, MTW and VHW sentences. You may also adjust the NMEA output.
- RTCM In/NMEA Out – allows Differential GPS (DGPS) input using a standard RTCM format and also provides NMEA 0183 output.
- None – provides no interfacing capabilities.

To select an input/output format:

- Select the desired Port tab, then highlight the 'Serial Data Format' field and press **ENTER**.
- Use the **ARROW KEYPAD** to select the desired setting and press **ENTER**.

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.

Reference

Main Menu: Comm tab

GPS	Part 1	Part 2	
Tide	Serial Data Format		
Trip	GARMIN DGPS		
Celes:	GARMIN DGPS		
Points	Baud	Status	
Route	4800	Scanning...	
Track	Beacon	Bit Rate	Frequency
Time	Scan	200	300.0
DSC	SNR	Distance	
Card	---	---	
Time	---	---	
Pages:	---	---	
Map	---	---	
Hwyway	---	---	
Temp	---	---	
Sonar	---	---	
System	---	---	
Units	---	---	
Comm	---	---	
Alarm	---	---	

Status Field

SNR and Distance will show data when signal is received.

GPS	Part 1	Part 2	
Tide	Serial Data Format		
Trip	GARMIN DGPS		
Celes:	GARMIN DGPS		
Points	Baud	Status	
Route	4800	Check Wiring	
Track	Beacon	Bit Rate	Frequency
Time	User	200	287.0
DSC	SNR	Distance	
Card	---	---	
Time	---	---	
Pages:	---	---	
Map	---	---	
Hwyway	---	---	
Temp	---	---	
Sonar	---	---	
System	---	---	
Units	---	---	
Comm	---	---	
Alarm	---	---	

You may also manually enter a frequency and bit rate.

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**.

You may also adjust the NMEA output to enable/disable certain sentences and adjust the number of Lat/Lon output precision digits. You must have one of the ports set to NMEA In/NMEA Out to use this option. Settings will affect both Port 1 and Port 2 NMEA outputs.

To restore the Serial Data Format settings 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 188/188C/238 Sounder. 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.

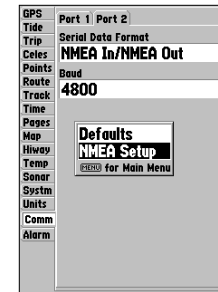
To have the unit automatically scan for a frequency:

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



Activating NMEA data

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

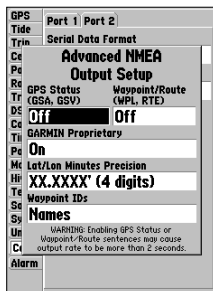
If you are going to interface the GPSMAP 188/188C/238 Sounder with another piece of equipment (such as a radio or autopilot), the unit needs to be set to output NMEA data. More information on wiring and NMEA data may be found on page 95.

To activate the NMEA data:

1. On either port of the Comm Tab, highlight the ‘Serial Data Format’ field and press **ENTER**.
2. Select ‘NMEA In/NMEA Out’ and press **ENTER**.

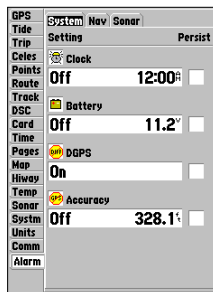
Reference

Main Menu: Comm Tab/ Alarm Tab



Advanced NMEA
Setup Page

Main Menu—Alarm Tab
(System Submenu)



Advanced NMEA Output Setup

The GPSMAP 188/188C/238 Sounder NMEA data transmission can be customized to change the precision of the Lat/Lon minutes, set up the waypoint IDs, and 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 allows you to turn on/off the GPS status (GSA, GSV), Waypoint/Route (WPL, RTE), and the Garmin Proprietary sentences. See page 95 for more information on wiring and NMEA data.

Lat/Lon Minutes Precision allows you to adjust the number of digits to the right of the decimal point for transmission of NMEA Output, either 2, 3 or 4 digits. The Waypoint ID setting lets you choose to output the waypoint identifiers as names or numbers.

To set up the Advanced NMEA page:

1. Highlight 'NMEA In/NMEA Out' in the Serial Data Format field, and press **MENU**. Select 'NMEA Setup' and press **ENTER**.
2. To change the settings, place the highlight over the desired field and press **ENTER**. Make a selection and press **ENTER** again to accept the selection.

GPSMAP 188/188C/238 Sounder 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

Alarm Tab— contains setting for the unit's alarms. The Alarm tab is divided into three submenus: System alarms, Nav alarms, and Sonar alarms.

System Tab

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.

Battery – sets an alarm to sound when the battery is reaching a critical state of discharge.

DGPS – sets an alarm to sound when the unit loses a differential fix.

Accuracy – sets an alarm to sound when the GPS position accuracy falls outside the user-set value.

Nav Tab

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.

Sonar Tab

Shallow Water/Deep Water – set alarms to sound when you enter an area of specified depth that is too shallow and/or too deep. You must be receiving sonar data for this function to work.

Water Temperature – sets an alarm to sound when the transducer reports a temperature either above, below, inside or outside the specified values.

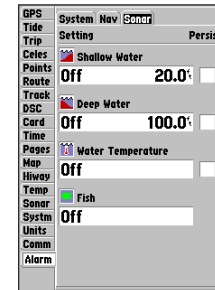
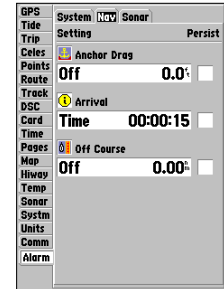
Fish – sets an alarm to sound when the unit detects a fish of the specified size symbol(s).

To set an alarm:

1. Use the **ARROW KEYPAD** to highlight desired submenu tab of the Alarm Tab.
2. Highlight the field below the alarm name you wish activate and press **ENTER**.
3. Change the mode to the desired setting and press **ENTER**.
4. Highlight the next field to the right and press **ENTER**, then enter the desired settings and press **ENTER** to finish.
5. If you want the alarm to display and beep until acknowledged, highlight the 'Persist' box and press **ENTER** to place a check mark in the box.

Main Menu: Alarm Tab

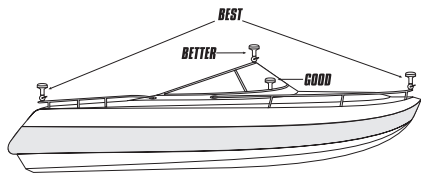
Main Menu—Alarm Tab
(Nav Submenu)



Main Menu—Alarm Tab
(Sonar Submenu)

Appendix A

Antenna Installation



Suggested locations for mounting the GA 29 antenna.



It is possible to route the coaxial cable either through or outside the antenna mount. It is possible to remove the BNC connector on the coaxial cable and shorten the coaxial cable to ease installation, however, doing so will void the antenna warranty. If the BNC connector is removed it must be replaced with a new solder-on or crimp BNC (RG 58 or 59 compatible) connector.

Installing the GPSMAP 188/188C/238 Sounder

The GPSMAP 188/188C/238 Sounder must be properly installed according to the following instructions to get the best possible performance. To complete the installation, you'll need the appropriate fasteners and a 1" x 14-thread marine antenna mount available at most marine dealers. (If you have a GPSMAP 188 with an internal antenna, skip to the next page.)

When in doubt, seek professional assistance.

Mounting the GPS Antenna

The antenna should be mounted in a location that has a clear, unobstructed view of the sky in all directions to ensure the best reception. Avoid mounting the antenna where it will be shaded by the boat's superstructure, a radome antenna, or mast. Keep the antenna away from the path of a radar's beam. Sailboat users should avoid mounting the antenna high on the mast to prevent inaccurate speed readings caused by excessive heeling. Most marine VHF and LORAN antennas do not seriously degrade the GPS antenna's reception. Never paint the antenna or clean it with harsh solvents.

The Garmin antenna screws directly onto any standard 1" x 14-thread antenna mount. If you need to raise the antenna to avoid shading, try using a 1" x 14-thread extension mast available at most marine dealers.

To install the GPS antenna:

1. Screw the antenna directly onto the 1" x 14-thread mount.
2. Route the cable to the mounting location of the display unit. Use appropriate tie-wraps, fasteners, and sealant to secure the cable along the route and through any bulkhead or deck.
3. Once the GPSMAP 188/188C/238 Sounder unit has been installed, connect the cable to the antenna connector on the back of the display unit. Make sure that you turn the antenna cable connector 1/4 turn clockwise to lock the cable into place.

Mounting the GPSMAP 188/188C/238 Sounder Unit

The GPSMAP 188/188C/238 Sounder's compact, waterproof case is suitable for mounting in exposed locations or at the nav station. The unit comes with a gimbal bracket that can be used for surface or overhead mounting. When choosing a location for the display unit, make sure you consider the following conditions:

- There should be at least a 3" (5 cm) clearance behind the case to allow connection of the antenna (external antenna only), power/data cables.
- The mounting surface should be heavy enough to support the unit and protect it from excessive vibration and shock.
- For GPSMAP 188 with a built-in internal bail mount antenna, it should be mounted in a location that has the clearest, most unobstructed view of the sky in all directions to ensure the best reception. Avoid mounting the unit where it will be blocked by the boat's superstructure, a radar arch, or mast.

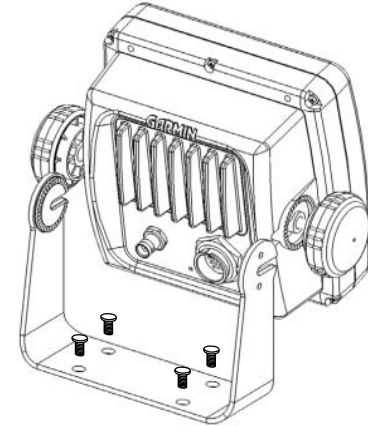
NOTE: *The temperature range for the GPSMAP 188/188C/238 Sounder is 5°F to 158°F (-15°C to 70°C). Extended exposure to temperatures exceeding this range (in storage or operating conditions) may cause failure of the LCD screen. This type of failure and related consequences are NOT covered by the manufacturer's limited warranty.*



To install the GPSMAP 188/188C/238 Sounder unit:

1. Place the mounting bracket in the desired location.
2. Mark and drill the four mounting holes for the fastener you are using.
3. Fasten the bracket to the surface using the appropriate fastener.
4. Insert the GPSMAP 188/188C/238 Sounder into the mounting bracket. The bracket is designed for a tight fit to provide additional support when swiveling the unit.
5. Screw the two mounting knobs through the bracket and into the display case.
6. Connect the power/data and antenna cables (external antenna only) to the back of the unit, making sure the locking rings are fully tightened on both connectors.

Unit Installation



The Mounting Bracket is designed to be secured using a flat head screw. If you use a screw with a countersunk head, you risk damaging the Mounting Bracket.

Appendix A

Unit Installation

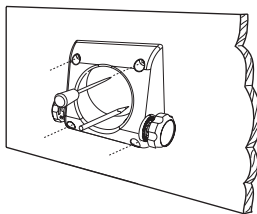


Figure 1

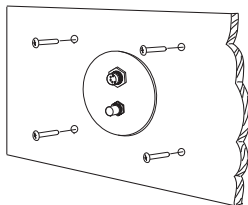


Figure 2

The GPSMAP 188/188C/238 Sounder can be flush mounted on a flat panel. When flush mounting the GPSMAP 188/188C/238 Sounder, be sure to choose an appropriately sized location for the unit and leave 1.25" (32mm) clearance below the data card slot for inserting/removing data cards.

For flush mounting the GPSMAP 188C unit, refer to the instructions on the Flush Mount Template (190-00264-00).

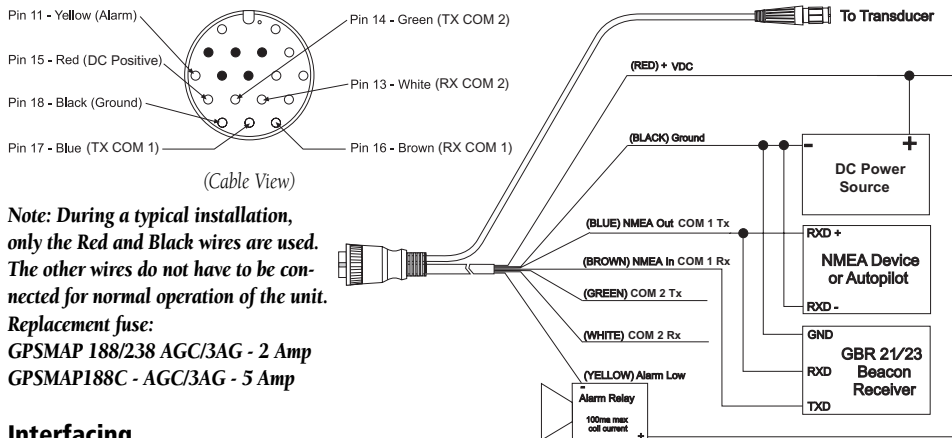
The GPSMAP 188/238, with external antenna, may also be flush mounted on a flat panel using its existing mounting bracket.

To flush mount the GPSMAP 188/238 unit:

1. Remove the four M5 screws from the back of the unit and remove the mounting bracket.
2. Using the mounting bracket as a template, outline the center relief area and mark the location of the four screw holes centers on your bulkhead or other surface (figure 1).
3. Cut the relief hole from the panel and drill the four 0.20" (5.08 mm) screw holes. You may want to cut slightly inside the indicated line and then sand or file the panel as needed to obtain the best fit.
4. Place the GPSMAP 188/238 into the relief hole until it rests flush against the mounting surface.
5. Secure the unit to the mounting surface using the M5 screws. Do not try to force the screws deeper into the holes than the holes will allow. For thick mounting surfaces, insert the M5 screws directly thru the drilled holes (figure 2). For thin panels, place the mounting bracket on the back side of the panel for more support. Connect the power/data and antenna cables.

Connecting the Power/Data Cable

The power/data cable connects the GPSMAP 188/238 Sounder to a 8-35 (GPSMAP 188C 10-35) volt DC system and provides interface capabilities for connecting external devices. The color code in the diagram below indicates the appropriate harness connections.



Note: During a typical installation, only the Red and Black wires are used. The other wires do not have to be connected for normal operation of the unit.

Replacement fuse:

GPSMAP 188/238 AGC/3AG - 2 Amp

GPSMAP188C - AGC/3AG - 5 Amp

Interfacing

The following formats are supported for connection of external devices: Garmin proprietary Differential GPS (DGPS), NMEA 0183 version 2.3*, RTCM SC-104 input (version 2.0).

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

Approved sentences— GPBWC, GPRMC, GPGGA, GPGSA, GPGSV, GPGLL, GPBOD, GPRMB, GPRTE, GPVTG, GPWPL and GPXTE. Proprietary sentences— PGRME, PGRMZ, and PSLIB.

The GPSMAP 188/188C/238 Sounder also includes NMEA input with support for the WPL sentence and sonar NMEA input with support for the DPT (Depth), MTW (Water Temp) and VHW (Water Speed & Heading) sentences. If connecting to COM2 for sonar NMEA input, the unit interface must be set to NMEA In/NMEA Out (see page 89-90). If connecting to COM1, the unit must be set to NMEA In/NMEA Out.

*GPSMAP 188C with software version 5.20 and GPSMAP 188/238 with software version 4.20 or higher will use NMEA 0183, version 3.01. No additional NMEA sentences have been added or removed in 3.01.

Appendix A

Wiring and Interfacing

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

Complete information concerning NMEA & RTCM formats and sentences is available for purchase from NMEA at:

NMEA

Seven Riggs Avenue
Sewer Park, MD 21146

U.S.A.

410-975-9425

410-975-9450 FAX

www.nmea.org

Radio Technical Commission For

Maritime Services (RTCM)

1800 Diagonal Road, Suite 600

Alexandria, VA 22314-2480

U.S.A.

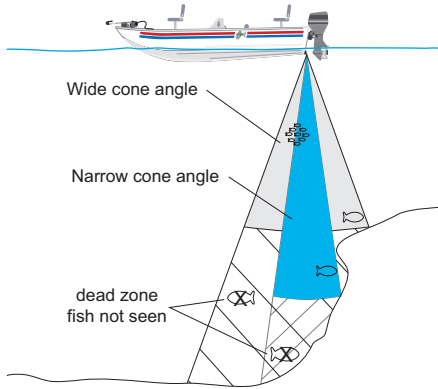
703-684-4481 (Info Only)

703-836-4229 FAX

www.rtcmm.org

Appendix A

Selecting a Transducer



Transducers

The transducer acts as the eyes and ears of your new sonar. Proper transducer selection and installation are critical to the operation of your unit. The transducer transmits sound waves toward the bottom in a cone shape. The larger the cone angle, the larger the coverage area at a given depth.

A wide cone angle transducer works best in shallow water. The wide cone angle provides a large coverage area, but at a decreased bottom resolution. In deeper water this can result in a large dead zone where fish cannot be seen. A narrow cone angle transducer is better suited to deep-water installations. The narrow cone angle provides a smaller viewing area (compared to a wide cone angle transducer at the same depth) with improved bottom resolution and a smaller dead zone. Dual frequency transducers give you the best of both wide and narrow cone angles.

Included in the GPSMAP 188/188C/238 Sounder (with transducer) package is a 200/50 kHz dual frequency 10/40° cone angle, temperature sensing, transom mount transducer. This transducer provides good all-around performance. Since many mounting locations vary, listed below are a variety of optional transducers and accessories which are available from your local dealer or Garmin:

- 200/50 kHz, 15/45°, bronze, thru-hull, depth, temp, speed
- 200/50 kHz, 15/45°, bronze, thru-hull/long stem, depth, temp, speed
- 200/50 kHz, 15/45°, bronze, thru-hull mount, depth only
- 200/50 kHz, 15/45°, plastic, transom mount, depth, temp, speed
- 200/50 kHz, 15/45°, bronze, thru-hull mount, depth only
- 200/50 kHz, 15/45°, plastic, transom mount, depth, temp
- 200/50 kHz, 15/45°, plastic, in-hull adjustable mount, depth, only
- Speed Sensor
- Temperature Probe
- Thru-hull fairing block
- 10 ft. Extension cable for transducers
- 20 ft. Extension cable for transducers

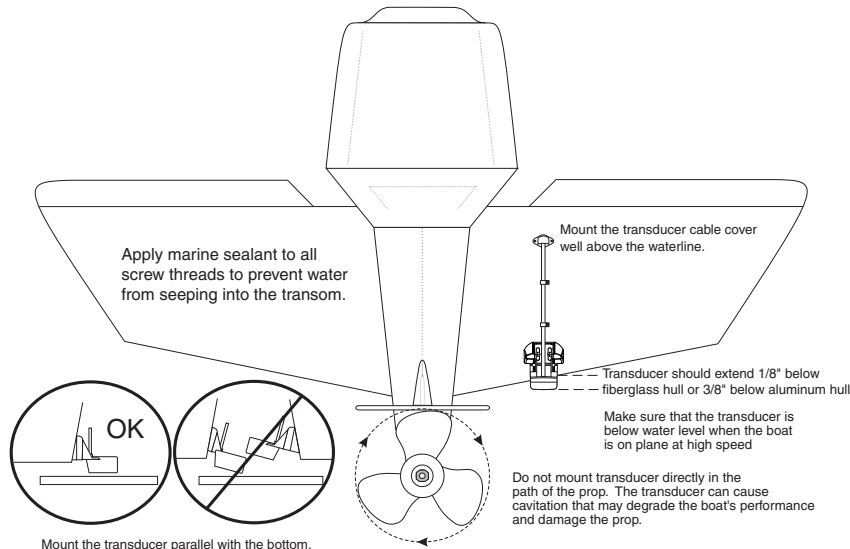
Mounting the Transducer

Proper transducer installation is key to getting the best performance from your new unit. If the transducer lead is too short, extension cables are available from your Garmin dealer. **DO NOT** cut the transducer lead or any part of the transducer cable, as this will void your warranty. The cable cannot be spliced and connected to any existing (Garmin or non-Garmin) transducer cables.

Following are some tips and basic installation instructions for some popular transducers. Detailed installation instructions are provided in the transducer kits. Some transducers may need to be installed by a professional marine installer.

Transom Mount Installation

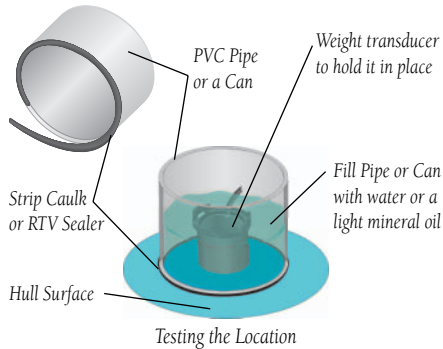
Transom Mount Transducer (depth/temp)



DO NOT mount the transducer behind strakes, struts, fittings, water intake or discharge ports, or anything that creates air bubbles or causes the water to become turbulent. It is important that the transducer be in clean (non-turbulent) water for optimal performance.

Appendix A

Mounting the Transducer



To avoid drilling a hole to mount a thru-hull transducer, a transom mount transducer may be used with epoxy inside a boat (“shoot-thru-hull” installation). For a transducer to be mounted inside the hull (shoot-thru, not thru-hull), the boat must be fiberglass, no core (contact your boat manufacturer if you are unsure). Test by placing a small amount of water inside the hull, placing the transducer on top of the water, then verifying the accuracy of the locators versus the current water depth. If they are the same, use slow-curing epoxy (non-silicone based) to affix the transducer to the inside of the hull.

Shoot-Thru-Hull Installation

The transducer is designed to be mounted inside a fiberglass hull. The standard plastic transom mount transducer can also be mounted in this fashion using this method. If using a temperature sensing transducer, the temperature displayed will reflect the hull temperature.

Selecting a location:

1. The location has to be solid fiberglass, devoid of any air bubbles, laminates, fillers or dead air space. The location needs to be in an area of clean water at all speeds. Do not place the transducer over any strakes or behind any obstruction on the hull that would create turbulence at speed.



NOTE: Many modern hulls have a prelocated pocket for shoot-thru-hull transducer installation. If you are unsure if your hull is equipped with a pre-located pocket, contact your hull manufacturer.

Testing the location:

1. Place the transducer in the water, pointed directly at the bottom and set unit for optimum performance. Place the transducer in the test device as show on the side bar. If the sonar performance is significantly degraded, another location will need to be tested.

Installing the transducer:

1. Lightly sand the surface of the hull and face of the transducer with 400 grit wet or dry sandpaper.
2. Build a dam using strip caulk about 1/4” tall. Pour about 1/8” of two part, slow cure epoxy in the dam. Place the transducer in the epoxy, turning the transducer to work out any air bubbles.
3. Weight the transducer in place and allow to cure for 24 hours.

Testing the Installation

While it is possible to perform some checks with the boat trailered, the boat should be in the water to properly test the sonar portion of the installation.

Press the **POWER** button and the GPSMAP 188/188C/238 Sounder should power on. If the unit fails to power on, verify that the wiring adapter is seated properly in the back of the unit, the Red and Black wires are connected to the correct polarity, and that the fuse is installed and not blown. If the unit is connected to a power supply that exceeds 35 VDC, a “Battery Voltage High” warning will be displayed and the unit will turn off.

Since water is necessary to carry the sounder’s sonar signal, the transducer must be in the water to work properly. It is not possible to get a depth/distance reading when out of the water. As the unit powers on, it should immediately start showing the bottom. Verify that the unit is not in the simulator mode. If the unit is in the simulator mode, make sure that the transducer is connected to the wiring harness.

To test the transducer installation, gradually increase the boat speed while checking the unit operation. If the unit displays intermittently or fails to display, verify that the transducer is aligned parallel with the bottom and if necessary, adjust the transducer height until the unit operates correctly. It may be necessary to make several adjustments to ensure proper operation throughout the speed range.

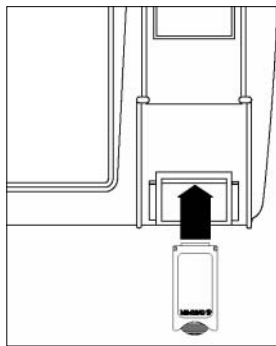


NOTE: *When adjusting the depth of the transducer, make the adjustments in small increments. Placing the transducer too deep can adversely affect the boat’s performance and put the transducer at greater risk of striking underwater objects.*

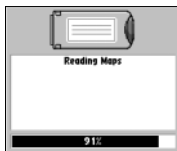
Testing the Installation

Appendix B

Installing and Removing Data Cards



The first time you insert a data card, the unit will take a few seconds to read the card.



Once the data card has been read, a summary screen appears. Press **ENTER** to acknowledge.



Installing and Removing Data Cards

The GPSMAP 188/188C/238 Sounder uses optional Garmin marine BlueChart and MapSource data cards to display digital charts and maps on-screen. You may also transfer user data to data cards (pg 82) Data cards are installed in the card slot located at the bottom right of the unit. Data cards may be installed or removed at any time, whether the unit is on or off.

To install a data card:

1. Open the card door by pressing together on the two handles at the bottom of the door and lifting it up and open.
2. Insert the card into the slot, with the label facing front and the handle bottom.
3. Firmly push the card into the unit. It is not necessary to force the card and about 1/2" will still be exposed when it is properly inserted. If the unit is on, a confirmation tone sounds and a message displays on the screen noting the card details when the card has been properly installed and accepted.
4. Close the cover.

If you insert a data card and get a 'card format not recognized' message, try removing the card and reinserting it. If the card is still not recognized, contact the Garmin or your Garmin dealer for assistance. Data cards are not waterproof, should not be exposed to moisture or excessive static charges, and should be stored in the case supplied with the card.

To remove a data card:

1. Open the card door by pressing together on the two handles at the bottom of the door and lifting it up and open.
2. Grasp the card handle at the bottom and pull down firmly.
3. If the unit is on, a confirmation tone will sound when the data card has been removed.

Cleaning

The GPSMAP 188/188C/238 Sounder 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 188C Sounder lens is coated with a special anti-reflective coating which is very sensitive to skin oils, waxes, and abrasive cleaners. CLEANERS CONTAINING AMMONIA, ALCOHOL, ABRASIVES, OR ANTI-GREASE DETERGENTS 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

Do not store the GPSMAP 188/188C/238 Sounder 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) or save to a data card (pg 82).

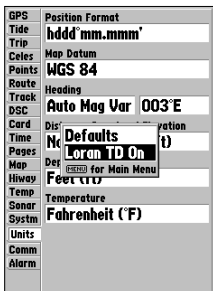
Water Immersion

The GPSMAP 188/188C/238 Sounder 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 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.

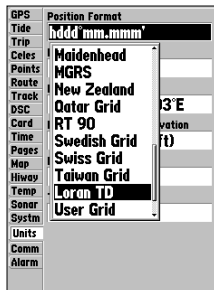
Appendix D

Loran TD



On the Units Tab of the Main Menu, press **MENU**, then highlight 'Loran TD On' and press **ENTER** to select Loran TD.

Or, highlight the Position Format field, highlight 'Loran TD' and press **ENTER** to select Loran TD.



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. You must have the correct chain number as well as the secondary station identifiers to use this option correctly. These values will vary per coordinate set or geographical location. Failure to enter correct information could result in inaccuracies for the desired destination. 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 unit 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.

To select the Loran TD position format:

1. On the Units tab of the Main Menu, press **MENU**, highlight 'Loran TD On' and press **ENTER**.
OR:
1. On the Units tab of the Main Menu, highlight the Position Format field and press **ENTER**.
2. Highlight 'Loran TD' and press **ENTER**.

The 'LORAN TD Setup' window contains the fields to select the Loran GRI-Chain Number, Primary and Secondary Stations, and TD Offsets.

To setup Loran TD from the Main Menu:

1. Highlight the Setup button (next to 'Loran TD' in the Position Format field) and press **ENTER**.
2. To change the settings of any of the five fields, highlight the field, press **ENTER**, select/enter the desired setting and press **ENTER**.
3. Press **QUIT** to return to the Main Menu.

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 (in the background) 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.

For more information on Loran TDs, you may download Garmin's "Loran TD Position Format Handbook" from the Garmin web site at <http://www.garmin.com/support/userManual.html>.

Loran TD

GPS	Position Format
Title	Loran TD <input type="button" value="Setup"/>
Trip	
Celex	Map Datum
Points	WGS 84
Route	
Tra	Loran TD Setup
DScr	Loran Chain Number
Car	GRI-3970
Tim	
Prog	TD Station 1 TD Offset 1
Map	0.0
Hwy	TD Station 2 TD Offset 2
Ten	0.0
Sen	
System	Loran TD
Units	Meters
Comm	
Alarm	

Loran TD Setup Window

Appendix E

Map Datum



The GPSMAP's built-in world-wide database includes coverage down to 20 n.m. (30 km). Note that the GPSMAP 188/188C/238 Sounder basemap is valid to 75° north and 60° south of latitude.



The 'User' datum is based on a WGS-84 Local datum and is an advanced feature for unlisted or custom datums. To learn more, check your local library or on the world wide web for educational materials on datums and coordinate systems.

Adindan	Adindan- Ethiopia, Mali, Senegal, Sudan	Chua Astro	Chua Astro- Paraguay
Afgooye	Afgooye- Somalia	Corrego Alegre	Corrego Alegre- Brazil
AIN EL ABD '70	AIN EL ANBD 1970- Bahrain Island, Saudi Arabia	Djakarta	Djakarta (Batavia)- Sumatra Island (Indonesia)
Anna 1 Ast '65	Anna 1 Astro '65- Cocos I.	Dos 1968	Dos 1968- Gizo Island (New Georgia Islands)
ARC 1950	ARC 1950- Botswana, Lesotho, Malawi, Swaziland, Zaire, Zambia, Zimbabwe	Dutch	Dutch
ARC 1960	Kenya, Tanzania	Easter Isl'd 67	Easter Island 1967
Ascnsn Isl'd '58	Ascension Island '58- Ascension Island	European 1950	European 1950- Austria, Belgium, Denmark, Finland, France, Germany, Gibraltar, Greece, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland
Astro B4 Sorol	Sorol Atoll- Tern Island	European 1979	European 1979- Austria, Finland, Netherlands, Norway, Spain, Sweden, Switzerland
Astro Bcn "E"	Astro Beacon "E"- Iwo Jima	Finland Hayfrd	Finland Hayford- Finland
Astro Dos 71/4	Astro Dos 71/4- St. Helena	Gandajika Base	Gandajika Base- Republic of Maldives
Astr Stn '52	Astronomic Stn '52- Marcus Island	GDA	Geocentric Datum of Australia
Aus Geod '66	Australian Geod '66- Australia, Tasmania Island	Geod Datm '49	Geodetic Datum '49-New Zealand
Aus Geod '84	Australian Geod '84- Australia, Tasmania Island	Guam 1963	Guam 1963- Guam Island
Austria	Austria	Gux 1 Astro	Guadalcanal Island
Bellevue (IGN)	Efate and Erromango Islands	Hjorsey 1955	Hjorsey 1955- Iceland
Bermuda 1957	Bermuda 1957- Bermuda Islands	Hong Kong '63	Hong Kong
Bogata Observ	Bogata Observatry- Colombia	Hu-Tzu-Shan	Taiwan
Campo Inchspe	Campo Inchauspe- Argentina	Indian Bngldsh	Indian- Bangladesh, India, Nepal
Canton Ast '66	Canton Astro 1966- Phoenix Islands	Indian Thailand	Indian- Thailand, Vietnam
Cape	Cape- South Africa	Indonesia 74	Indonesia 1974-Indonesia
Cape Canavrl	Cape Canaveral- Florida, Bahama Islands	Ireland 1965	Ireland 1965- Ireland
Carthage	Carthage- Tunisia	ISTS 073 ASTRO	ISTS 073 ASTRO '69- Diego Garcia
CH-1903	CH 1903- Switzerland	Johnston Island	Johnston Island
Chatham 1971	Chatham 1971- Chatham Island (New Zealand)		

Kandawala	Kandawala- Sri Lanka	NAD27 Mexico	N. American 1927- Mexico
Kerguelen Islnd	Kerguelen Island	NAD27 San Sal	North American 1927- San Salvador Island
Kertau 1948	West Malaysia, Singapore		
L. C. 5 Astro	Cayman Brac Island	NAD83	North American 1983- Alaska, Canada, Central America, CONUS, Mexico
Liberia 1964	Liberia 1964- Liberia		
Luzon Mindanao	Luzon- Mindanao Island	Nhrwn Masirah	Nahrwn- Masirah Island (Oman)
Luzon Philippine	Luzon- Philippines (excluding Mindanao Isl.)	Nhrwn Saudi A	Nahrwn- Saudi Arabia
		Nhrwn United A	Nahrwn- United Arab Emirates
Mahe 1971	Mahe 1971- Mahe Island	Naparima BWI	Naparima BWI- Trinidad and Tobago
Marco Astro	Marco Astro- Salvage Isl.	Obsrvtorio '66	Observatorio 1966- Corvo and Flores Islands (Azores)
Massawa	Massawa- Eritrea (Ethiopia)		
Merchich	Merchich- Morocco	Old Egyptian	Old Egyptian- Egypt
Midway Ast '61	Midway Astro '61- Midway	Old Hawaiian	Old Hawaiian- Mean Value
Minna	Minna- Nigeria	Oman	Oman- Oman
NAD27 Alaska	North American 1927- Alaska	Ord Srvy GB	Old Survey Grt Britn- England, Isle of Man, Scotland, Shetland Isl., Wales
NAD27 Bahamas	North American 1927- Bahamas (excluding San Salvador Island)	Pico De Las Nv	Canary Islands
NAD27 Canada	North American 1927- Canada and Newfoundland	Potsdam	Potsdam-Germany
		Pitcairn Ast '67	Pitcairn Astro '67- Pitcairn
NAD27 Canal Zone	North Am. 1927- Canal Zone	Prov S Am '56	Prov So Amrcn '56- Bolivia, Ecuador, Guyana, Peru, Venezuela
NAD27 Caribbn	North American 1927- Caribbean (Barbados, Caicos Islands, Cuba, Dom. Rep., Grd. Cayman, Jamaica, Leeward and Turks Islands)	Prov S Chln '63	So Chilean '63- S. Chile
		Puerto Rico	Puerto Rico & Virgin Isl.
NAD27 Central	North American 1927-Central America (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua)	Qatar	Qatar National- Qatar
		Qornoq	Qornoq- South Greenland
NAD27 CONUS	North Am. 1927- Mean Value (CONUS)	Reunion	Reunion- Mascarene Island
NAD27 Cuba	North American 1927- Cuba	Rome 1940	Rome 1940- Sardinia Isl.
NAD27 Grnland	North American 1927- Greenland (Hayes Peninsula)	RT 90	Sweden
		Santo (Dos)	Santo (Dos)- Espirito Santo

Appendix E

Map Datum

Sao Braz	Sao Braz- Sao Miguel, Santa Maria Islands
Sapper Hill '43	Sapper Hill 1943- East Falkland Island
Schwarzeck	Schwarzeck- Namibia
Sth Amrcn '69	S. American '69- Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Venezuela, Trin/Tobago
South Asia	South Asia- Singapore
SE Base	Southeast Base- Porto Santo and Madiera Islands
SW Base	Southwest Base- Faial, Graciosa, Pico, Sao Jorge and Terceira Islands
Taiwan	Modified 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
User	User-defined custom datum
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

Appendix F

Messages

The GPSMAP 188/188C/238 Sounder uses an on-screen pop-up message system to alert you to unit operating characteristics. Press the **ENTER** key to acknowledge and return to the page you were viewing.

Alarm Clock— The alarm clock has sounded.

Alarm Voltage Set Too High— Voltage range must be between 8.0 and 35.0 volts for the GPSMAP 188/238 (GPSMAP 188C 10.0 to 35.0 volts).

Alarm Voltage Set Too Low — Voltage range must be between 8.0 and 35.0 volts for the GPSMAP 188/238 (GPSMAP 188C 10.0 to 35.0 volts).

Anchor Drag Alarm— You have drifted out of the specified distance range.

Antenna Input Shorted To Ground— Check antenna wiring/connections or antenna replacement.

Approaching Waypoint— You are a specified alarm distance from a destination waypoint.

Arrival At Waypoint— You have arrived at the destination waypoint.

Basemap Failed Unit Needs Repair— Internal problem with the unit. Contact your dealer or Garmin Customer Service (pg. iv) to have the unit serviced.

Battery Alarm— Specified amount of input voltage has been detected.

Battery Voltage High Please Check Connection— Input DC voltage is too high for unit.

Battery Voltage Low Please Check Connection— Input DC voltage is too low for unit.

Boat is Not Moving Fast Enough to Calibrate— Speed wheel is not turning. Check for debris or boat speed is too slow.

Database Error— Internal problem with the unit. Contact your dealer or Garmin Customer Service (pg. iv) to have the unit serviced.

Deep Water Alarm— Specified deep water alarm depth has been detected below transducer.

Lost Satellite Reception— The unit has lost satellite signals. Check antenna connections or try moving to a location with a clear view of the sky.

Memory (RAM) Failed Unit Needs Repair— Internal problem with the unit. Contact your dealer or Garmin Customer Service (pg. iv) to have the unit serviced.

Memory (ROM) Failed Unit Needs Repair— Internal problem with the unit. Contact your dealer or Garmin Customer Service (pg. iv) to have the unit serviced.

No DGPS Position— No differential correction data is available or not enough data is available to compute a DGPS position.

No Tide Stations For That Area— There are no tide stations within 100 miles of the specified point. Try another area.

Off Course Alarm— You have exceeded the specified off-course distance.

Processor Failed Unit Needs Repair— Internal problem with the unit. Contact your dealer or Garmin Customer Service (pg. iv) to have the unit serviced.

Messages

Proximity Alarm List is Full— You have used all ten proximity waypoints.

Proximity Alarm Waypoint— You have entered the alarm radius for the proximity waypoint indicated.

Proximity Overlaps Another Proximity Waypoint—The alarm radius specified overlaps the area specified for another proximity waypoint. Adjust the distance.

Route Already Exists: <route name>— You have entered a route name that already exists in memory. Modify the route name or delete the previous route name.

Route Does Not Exist: <route name>— Route has been renamed or removed from memory and cannot be used.

Route Is Full— You have attempted to add more than 254 points to a route. Reduce the number of points or create a second route.

Route Memory Is Full Can't Create Route— Maximum amount of 50 routes is already in the unit's memory and no additional routes can be added until existing ones are removed.

Route Truncated— An uploaded route from another device has more than 254 points. Reduce the number of points.

Running Simulator— The unit is in simulator (practice) mode.

Shallow Water Alarm— Specified shallow water alarm depth has been detected below transducer.

Sonar Failed Unit Needs Repair— Internal problem with the unit. Contact your dealer or Garmin Customer Service (page. iv) to have the unit serviced.

Track Already Exists: <track name>— You have entered a saved track name that already exists in memory. Modify the track name or delete the previous track name.

Track Memory Is Full Can't Create Track— Track log memory is full. No additional track log data can be stored without deleting old data to create memory space.

Track Truncated— A complete uploaded track will not fit into memory. The oldest track log points were deleted to make space for the most recent data.

Transducer Disconnected Sonar Turned Off— No transducer attached or bad cable/transducer.

Transfer Complete— The unit has finished uploading/downloading information to the connected device.

Water Speed Sensor is Not Working— Speed sensor is not detected. Check connections.

Waypoint Already Exists: <waypoint name>— You have entered a waypoint name that already exists in memory. Modify the waypoint name or delete the previous waypoint name.

Waypoint Memory Is Full Can't Create Waypoint— You have used all 3000 waypoints available. Delete unwanted waypoints to make space for new entries.

Appendix G

Navigation Terms

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

Bearing (BRG)— The compass direction from your present position to a destination waypoint.

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

Distance (Dist)— The 'great circle' distance from present position to a destination waypoint.

Distance to Destination— The 'great circle' distance from present position to a Go To destination, or the final waypoint in a route.

Distance to Next— The 'great circle' distance from present position to a Go To destination, or the next waypoint in a route.

Elevation— Height above mean sea level (MSL).

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

ETA at Destination— The estimated time you will reach a Go To destination, or the final waypoint in a route.

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

Fuel— The fuel required to travel from present position 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.

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

Odometer— A running tally of distance travelled, 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 Go To destination, or the next waypoint in a route. Also referred to as ‘estimated time en route’.

Time to Destination— The estimated time required to reach a Go To destination, or the final waypoint in a route.

Time to Next— The estimated time required to reach a Go To 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.

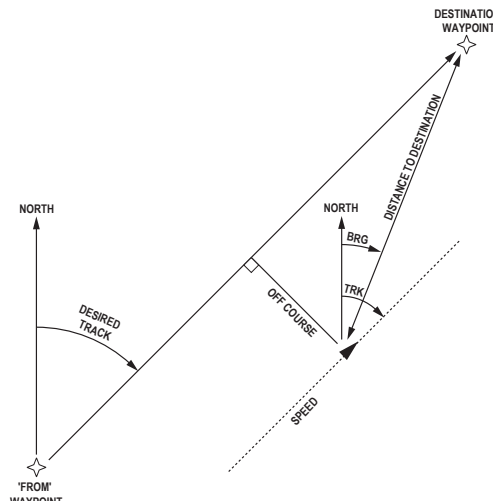
Total Trip Timer— Total time the unit has been in operation since last reset of the trip timers.

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.

Appendix G

Navigation Terms



Appendix H

Time Offsets



A simple way to determine your local time offset is how many hours you are behind or ahead of UTC (also called 'Greenwich' or 'zulu' time).

Example: EST (Eastern Standard Time) is 5 hours behind UTC, so your offset would be -5. Adding one hour for daylight savings would make EDT (Eastern Daylight Time) - 4. Subtract an hour for each time zone as you travel west.

Offsets for Continental U.S. would be:

EST	-5	EDT	-4
CST	-6	CDT	-5
MST	-7	MDT	-6
PST	-8	PDT	-7

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.

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		

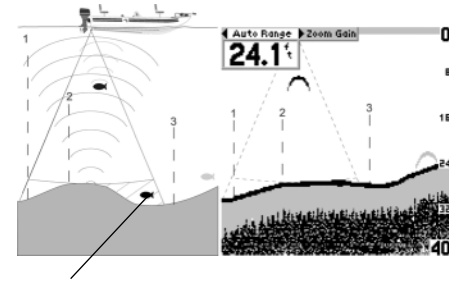
Understanding Sonar

If you are unfamiliar with basic sonar, or need help determining what is displayed on the graph, this section may be for you. This section is intended to help the novice user gain some understanding of how the GPSMAP 188/188C/238 Sounder operates and how it can help improve their fishing productivity.

To understand what the unit is displaying, it is important to have a general knowledge of how the unit works and how it determines what to display. Briefly described, the unit operates by transmitting sound waves toward the bottom of a lake, stream or seabed in a cone shaped pattern. When a transmitted soundwave strikes an underwater object such as the bottom, a piece of structure, or a fish, sound is reflected back to the transducer. The transducer collects the reflected sound waves and sends the data to the unit to be processed and displayed on the chart. The underwater data is displayed on the chart in the order that it is returned: first returned—first on the chart. The diagram in the sidebar demonstrates this showing an underwater scene as it would be displayed on the chart. Generally speaking, if the only thing between the transducer and the bottom is water, the first strong return will come from the bottom directly below the transducer. The first strong return sets the bottom level. Weaker secondary returns provide the detailed data. Stronger returns displays in darker colors, black being the strongest return. In Example 3 (page 113) you can see that the branches and the fish where the strongest secondary returns are indicated in black on the display.

That is brief description of how your GPSMAP 188/188C/238 Sounder operates. Let's take a look at how this data can help you to improve your fishing.

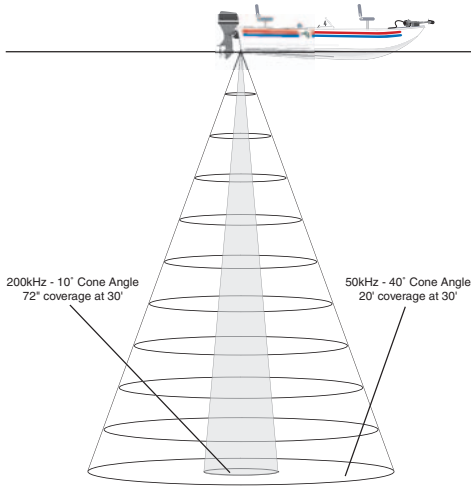
Understanding Sonar



This fish is currently in a dead zone and is not detected by the sonar. The fish is in the coverage area of the transducer, but remember— the first strong return sets the bottom level. The fish will eventually be detected when the first strong return sets the bottom level below the fish.

Appendix I

Transducer Coverage



Transducer Coverage

The area covered by the transmitted sound waves is determined by the cone angle of the transducer and the water depth. Cone angles may vary between different types of transducers. For example, a 50kHz frequency may provide a “wide” 40° cone angle, with a coverage width that is approximately 2/3 of the water depth. As shown in the sidebar, the 40° cone angle (50kHz frequency) approximately covers the area of a 20 foot diameter circle at a 30 foot depth. A 200kHz frequency may provide a “narrow” 10° cone angle, with a coverage width that is approximately 2/10 of the water depth. As shown, the 10° cone angle (200kHz frequency) approximately covers the area of a 6 foot diameter circle at a 30 foot depth.

When using the GPSMAP 188/188C/238 in ‘Dual’ frequency mode, the unit transmits both 50kHz and 200kHz signals at the same time. The ‘Dual’ frequency capability of the GPSMAP 188/188C/238 allows you to have a large coverage area and still retain good bottom resolution. When in ‘Dual’ frequency mode the unit uses the narrow cone angle (200kHz) to display detailed bottom information, keeping “Dead Zones” to a minimum, and the wide cone angle (50kHz) for the large coverage area.

Fish returns from the wide and narrow beams appears differently on the display. The wide beam tends to show longer fish returns than the narrow beam.

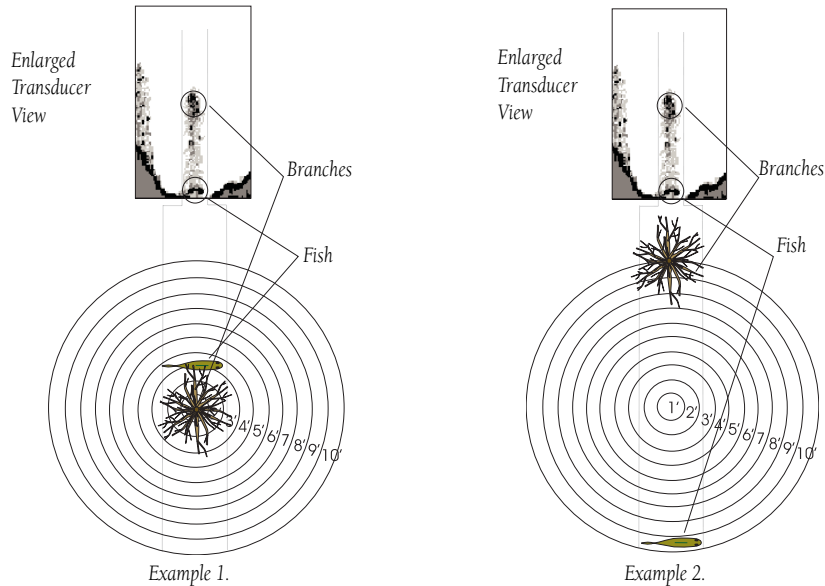


Understanding the Chart

Understanding the Graph

It is important to understand that the unit does not display a 3-D representation of the underwater environment. The unit can display multiple things at the same time, but cannot determine where the return originated – only when it was received.

Examples 1 and 2 provide a look at the underwater world from a top view, and illustrate how these views would be displayed on the graph. On both graphs it appears the fish and tree are side by side as shown in Example 1. However, when we look at Example 2, we see that the fish can be several feet from the tree. It is important to remember that the sonar cannot determine where in the coverage area the tree or fish are, only that the returns were received at the indicated depths in the same time frame.



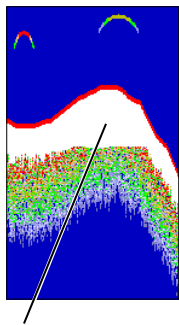
Remember that the sonar displays a 2-D picture of the underwater environment. The fish and tree could be located anywhere in the coverage area at that time.

Appendix I

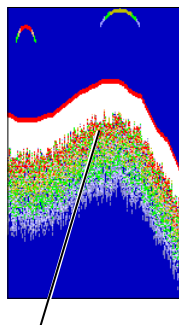
Understanding the Chart



Whiteline can also help you to determine the type of bottom structure that is displayed on the chart. By determining the hardness of the structure, you can make a better informed decision on the type of structure.



Structure is hard—
probably a rock or stump

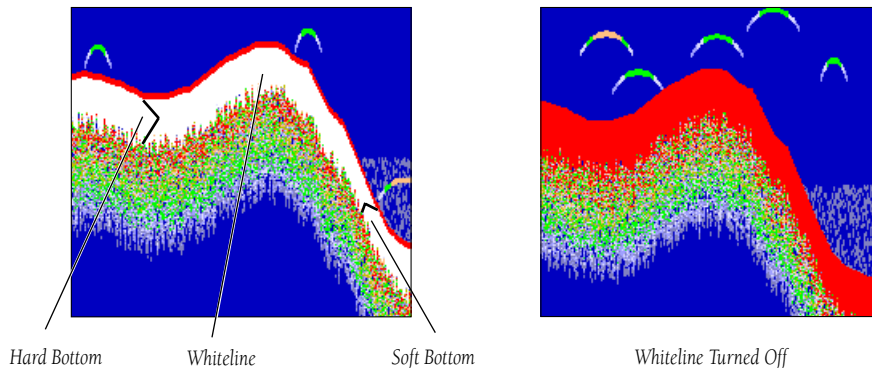


Structure is soft—
probably a mud pile

Whiteline

The GPSMAP 188/188C/238 can help you to determine if the bottom is hard or soft. When the sonar soundwaves are reflected back by the bottom, a hard bottom will return a stronger signal than a soft bottom. A thin whiteline indicates a softer bottom while a thick whiteline indicates a harder bottom. Normally, a red/dark line is used to show the point where water meets the bottom. This line will follow the bottom contour, along with any significant objects lying on the bottom. The unit uses the whiteline function to make this bottom layer information easier to distinguish.

With the GPSMAP 188/188C/238, active whiteline helps accentuate where strong signals are located, which make bottom type determination easier. The example to the right shows the bottom return with and without the whiteline activated.



Hard Bottom

Whiteline

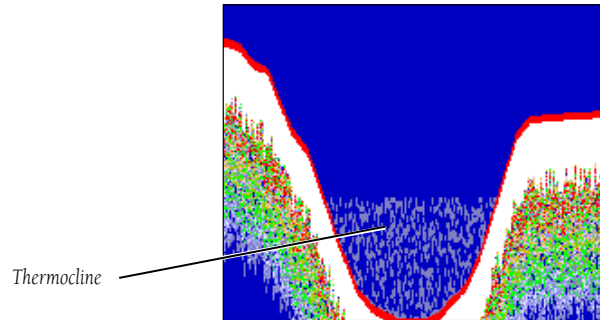
Soft Bottom

Whiteline Turned Off

Understanding the Chart

Thermoclines

One of the unique features offered by Garmin is See-Thru technology. See-Thru technology allows the GPSMAP 188/188C/238 to “see” through thermoclines and helps locate fish where they live; and fish love thermoclines! A rough definition of a thermocline is a break in water where the water temperature changes faster than the water above it. Thermoclines are shown as the weakest colors (see pg. 14)



Appendix J

Specifications

Physical Specifications

Size:	188: 6.2" H x 6.3" W x 2.6" D (15.8cm x 16.0cm x 6.6cm) 188C: 6.2" H x 6.3" W x 3.7" D (15.8 cm x 16.0 cm x 9.4 cm) 238: 7.5" H x 7.7" W x 2.6" D (19.1 x 19.6 x 6.6 cm)
Weight:	188: 1.7 lbs. (.77Kg); 188C: 2.6 lbs. (1.18 kg); 238: 2 lbs. (.91Kg)
Display:	188: 5.5" diagonal (14.0cm) 238: 7.1" diagonal (18.00cm) high-contrast, 10-level grayscale FSTN LCD with adjustable backlighting (360 x 240 pixels) 188C: 5.0" diagonal (12.7 cm) high-contrast, 16-color TFT display with adjustable backlighting (234 x 320 pixels)
Case:	Fully gasketed, high-impact plastic alloy, waterproof to IEC 529 IPX7 standards
Temp. Range:	5°F to 158°F (-15°C to 70°C)

Performance

Receiver: Differential-ready 12 parallel channel WAAS capable receiver

Acquisition Times*

Warm: Approx. 15 seconds

Cold: Approx. 45 seconds

AutoLocate: Approx. 2 minutes

Update Rate: 1/second, continuous

GPS Accuracy

Position**: <15 meters (49 feet), 95% typical*

Velocity: 0.05 meters/sec steady state

DGPS (USCG) Accuracy

Position: 3-5 meters (10-16 feet) with optional Garmin DGPS receiver, 95% typical*

Velocity: 0.05 meters/sec steady state (contd.)

Specifications

DGPS (WAAS) Accuracy

Position: 3 meters (10 feet), 95% typical*

Velocity: 0.05 meters/sec steady state

Dynamics: 6g's

* Warm = all data known; Cold = position, time and almanac known; AutoLocate = almanac known, position and time unknown; Skysearch = no data known.

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

Power

Source: GPSMAP 188/238: 8-35v DC

GPSMAP 188C: 10-35v DC

Usage: 188/238: 8 watts max. at 13.8v DC; 188C: 14 watts max. at 13.8v DC

Fuse: GPSMAP 188/238: AGC/3AG - 2.0 Amp

GPSMAP 188C: AGC/3AG - 5.0 Amp

Sonar

Sounder Power: 500 watts (RMS)

4000 watts (peak to peak)

Frequency: 50/200 kHz (45°/15°)

Depth: 1500 foot max depth*

* Depth capacity is dependent on water salinity, bottom type and other water conditions.

Appendix K

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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 9DL, U.K.

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

www.garmin.com

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