



eTrex Mariner™

personal navigator®

owner's
manual
and
reference
guide



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About This Manual

Thank you for choosing the GARMIN eTrex Mariner. To get the most from your new eTrex Mariner, take time to read through this owner's manual in order to understand all of the operating features. This manual is organized into four sections.

The **Introduction** section provides FCC and safety information and the Table of Contents.

The **Getting Started** section introduces you to the eTrex Mariner features, main operating pages and basic navigation methods.

The **Reference** section provides details about using the features of the eTrex Mariner according to topic. The explanations for each feature are divided into: (1) An overview that discusses the feature and (2) A detailed Step-by-Step instruction for using the feature.

Reading the overview may be all that you require to operate features. However, the Step-by-Step instructions are available, if needed.

The **Appendices** contain information on items such as Accessories, Specifications, a Troubleshooting Guide, and an Index by Subject.

Standard Package Contents:

- 1 eTrex Mariner Unit
- 1 Carry Lanyard
- 1 Owner's Manual
- 1 Quick Start Guide
- 1 PC Interface Cable

FCC Compliance Statement

NOTE: This device complies with Part 15 of the FCC interference limits for Class B digital devices FOR HOME OR OFFICE USE (“home or office” interference requirements 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.

The eTrex Mariner 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 Precautions

CAUTION: The Global Positioning System (GPS) is operated by the government of the United States, 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 eTrex Mariner is a precision electronic NAVigation AID (NAVAID), any NAVAID can be misused or misinterpreted and, therefore, become unsafe.

CAUTION: IT IS THE USER'S RESPONSIBILITY TO USE THIS PRODUCT PRUDENTLY. THIS PRODUCT IS INTENDED TO BE USED ONLY AS A TRAVEL AID AND MUST NOT BE USED FOR ANY PURPOSE REQUIRING PRECISE MEASUREMENT OF DIRECTION, DISTANCE, LOCATION, OR TOPOGRAPHY. THIS PRODUCT SHOULD NOT BE USED AS AN AID TO DETERMINE GROUND PROXIMITY FOR AIRCRAFT NAVIGATION.

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.

WARNING: For use in vehicles, it is the sole responsibility of the owner/operator of the eTrex Mariner to secure the GPS unit so that it will not interfere with the vehicle's operating controls, obstruct the driver's view of driving conditions, or cause damage or personal injury in the event of an accident. Do not mount the eTrex Mariner over air bag panels or in the field of air bag deployment. Air bags expand with a rapid force that can propel objects in their path toward the driver or passengers causing possible injury. Refer to air bag safety precautions contained in the vehicle owner's manual. Do not mount the eTrex Mariner in a place where the driver or passengers are likely to impact it in an accident or collision. The mounting hardware provided by GARMIN is not warranted against collision damage or the consequences thereof.

WARNING: When used in vehicles, it is the sole responsibility of the driver of the vehicle to operate the vehicle in a safe manner, maintain full surveillance of all driving conditions at all times, and not become distracted by the eTrex Mariner to the exclusion of safe driving practices. It is unsafe to operate the controls of the eTrex Mariner while you are driving. Failure by the driver of a vehicle equipped with an eTrex to pay full attention to operation of the vehicle and road conditions while the vehicle is in motion could result in an accident or collision with property damage and personal injury.

Warnings and Precautions

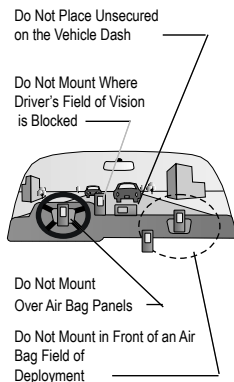


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Before you begin to explore the eTrex Mariner's operating features, you will want to follow these "Getting Started" instructions to prepare it for operation by installing batteries, adjusting the screen contrast, loading optional GARMIN "Points of Interest" data, and setting the correct time for your current location.

The operating features of the unit are structured to be accessed and activated by pressing buttons on the unit which is explained on the following page.

The five Main Pages are your primary access to operating the eTrex Mariner. Each page provides either a basic navigation function or access to features which enhance navigation or customize the unit's operation to meet your requirements.

This "Getting Started" section will introduce you to the Main Pages and how they are structured. You will also be shown how to perform basic navigation techniques to help you start using your eTrex Mariner immediately.

Detailed instructions on using the eTrex Mariner's features and their options are contained in the "Reference" section.

Features include:

Storage for 500 Waypoints with name and graphic symbol.

An automatic Track Log with storage capability for 10 Tracks with 250 points each.

Route building capability, with storage for 20 Routes with 50 Waypoints each.

A Trip Computer for displaying a variety of navigation data such as speed, ETA, ETE, heading, odometer, etc.

A Find Feature for locating Waypoints, Cities, and Points of Interest*.

Point of Interest data storage, allowing transfer from a GARMIN MapSource CD-ROM.

Pre-loaded MapSource Major Cities and Maritime Navigation Aids mapping data.

Wide Area Augmentation System (WAAS) capability.**

Setup, Features, and Basic Navigation

** Points of Interest data (other than navigation aids) must be transferred to the unit using a GARMIN MapSource "Points of Interest" CD-ROM. See pages 4 and 55 for more information.*

**** About WAAS**

Because the Wide Area Augmentation System (WAAS) is currently under development and is not fully supported by geo-stationary satellites, effective use of the WAAS feature may be limited by your geographic location in relation to those satellites now in service.

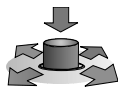
There are two WAAS satellites in service in geo-stationary orbit above the Equator, one over the Atlantic Ocean and one over the Pacific Ocean.

Currently, 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. In fact, you may not be able to receive or easily maintain a WAAS satellite signal until full satellite support for this program is complete.

Not enabling WAAS when you cannot receive a signal will speed unit map drawing and conserve battery power.

See page 49 for enabling WAAS and its satellite reception techniques.

Features and Button Function



The **CLICK STICK™** (Five Position Switch)

- Press In and Release to enter highlighted options and to confirm messages
- Press In and Hold to mark your current location as a waypoint
- Move Up/Down or Right/Left to move through lists, highlight fields, on-screen buttons, icons, enter data or move the map panning arrow

Internal Antenna



The **PAGE** button:

- Press and Release to cycle through main pages

The **POWER** button:

- Press and Hold to turn the unit On/Off
- Press and Release to toggle display backlighting On/Off

LCD Display

External Power and Data Connector

Power/Data Connector Cover



The **ZOOM IN/OUT** buttons:

- Press and Hold to Zoom in and out on the Map Page
- Press and Hold when on the Satellite Page to adjust the screen contrast

The **FIND** button:

- Press and Release to access the Find Menu

Slot for Carry Lanyard Installation

Battery Compartment Cover



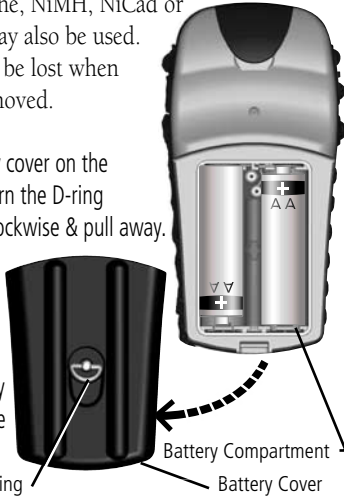
NOTE: The eTrex Mariner is designed to be held and operated in the left hand, but it can be held and operated using the right hand as well to suit your preference.

Installing the Batteries

The eTrex Mariner operates on two “AA” batteries (not included), which are placed in the back of the unit. Rechargeable Alkaline, NiMH, NiCad or Lithium batteries may also be used. Stored data will not be lost when the batteries are removed.

To install batteries:

1. Remove the battery cover on the back of the unit. Turn the D-ring 1/4 turn counter-clockwise & pull away.
2. Insert the batteries observing proper polarity as shown at the right.
3. Reinstall the battery cover by turning the D-ring 1/4 turn clockwise.
4. Battery capacity is displayed on the Status Bar at the bottom of the Main Menu. (see Pages 9 and 26)



Battery Installation

Important Note:

When replacing batteries, use only new or fully recharged batteries.

Do not mix Alkaline, NiMH, NiCad or Lithium batteries.

Rechargeable batteries may typically display less capacity than disposable Alkaline batteries.

Remove the batteries from the unit if you don't plan to use it for several months.

Follow the battery manufacturer's instructions for proper care and disposal of batteries.

Extensive use of backlighting will reduce battery life. When using 'Battery Saver' or 'Use With GPS Off' mode when not navigating, Alkaline batteries can last up to 20 hours.

Starting Up Your eTrex Mariner

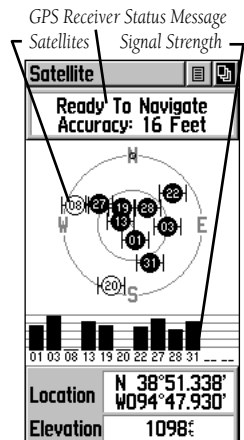
To start up the eTrex Mariner, take the unit outside and find an open area where the built-in antenna has a clear view of the sky. Hold the unit at a comfortable height with the antenna pointing up. Press and hold the **POWER** button to turn the unit on. You will see the Welcome Page. Press the **PAGE** button to acknowledge the copyright and warning messages and move to the Satellite Page.



NOTE: When you use the unit for the first time, it may take up to five minutes to find your location. After that, it will take about 15 to 45 seconds to locate your position.

When a sufficient number of satellites have been located the window at the top of the page will display a “Ready to Navigate” message. If you experience difficulty in tracking satellites, refer to page 13 for information about satellite reception and remedies.

Starting Up



Satellite Page

Backlighting and Contrast



Map Data Setup

Display Backlighting and Contrast Set Up

If lighting conditions make it hard for you to see the display screen, you can adjust the contrast or turn on the backlight.

To turn on the backlighting:

1. Press and release the **POWER** button to turn on the backlight feature from any page on the unit. The backlight will remain on until the set timeout period is completed or the **POWER** button is pressed again. The unit is factory set to timeout 15 seconds after the last button press. (To reset the backlight timeout, see page 47.)

To adjust the screen contrast:

1. Use the **ZOOM IN or OUT** buttons to adjust the contrast with the Satellite Page displayed.

Transferring MapSource "Points of Interest" Data

If you have purchased a GARMIN MapSource™ "Points of Interest" CD-ROM, you may want to load data for restaurants, lodging, attractions, entertainment, landmarks, transportation, etc. before beginning use. The eTrex Mariner will currently accept only the "Points of Interest" CD-ROM.

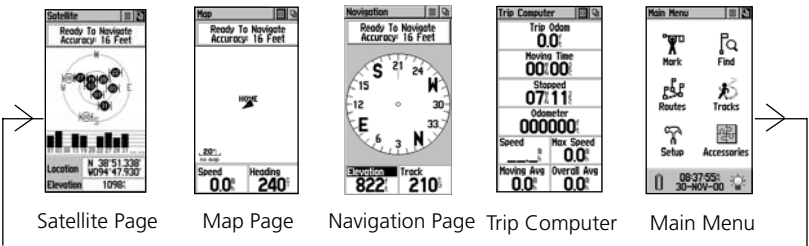
Data transfer requires the use of a PC, a GARMIN MapSource "Points of Interest" CD-ROM, and the PC Interface Cable with RS232 serial port connector supplied with this unit. Follow detailed instructions for data transfer in the MapSource User's Manual.

For detailed information concerning GARMIN MapSource CD-ROM products contact your GARMIN Dealer or use the GARMIN website (www.garmin.com).

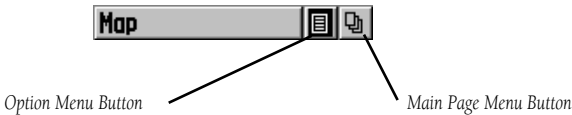
Moving from main page to main page

Page Basics: The Main Pages

All of the information you need to operate the eTrex Mariner can be found on five main pages (or display screens). You can simply press and release the **PAGE** button to cycle through the Satellite Page, Map Page, Navigation Page, Trip Computer and Main Menu Page.



While these five pages provide you with different types of navigation information, they all share common features like Option Menus and a Main Page Menu, both of which are accessed by on-screen buttons. To display these menus, simply highlight the on-screen button and press in on the **CLICK STICK**.



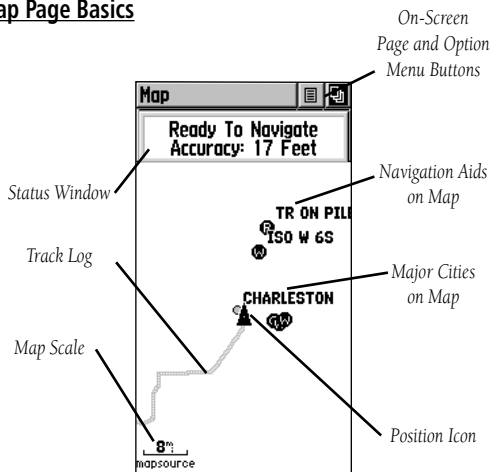
An Option Menu
These menus allow you to access options that provide additional features or customize the unit to your preferences. To exit these and other pop-up type menus, move the **CLICK STICK** to the left or right.



Main Page Menu
Use to go directly to a Main Page and as an alternate to cycling through the Main Pages. Double click on the on-screen button to toggle between two pages.

Page Basics: The Main Pages

Map Page Basics



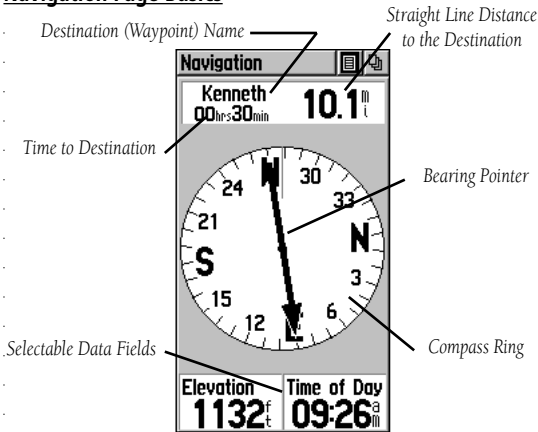
The Map Page displays your present position and direction of movement using a triangular 'Position Icon' that is centered on the map. As you travel, the map display leaves a "trail" (track log) of your movements.

The map also displays geographic details such as major cities. Navigation aids (Points of Interest) are also displayed. The map can display even more map item details when GARMIN MapSource "Points of Interest" data has been downloaded to the unit using a CD-ROM program.

To allow you to view the map from different perspectives, the scale can be changed from 20 feet to 500 miles. The **ZOOM IN** and **OUT** buttons on the side of the unit allow you to zoom In or Out on the map. Pressing and holding these buttons causes the scale to change rapidly instead of changing in increments. The **IN** button will show you less area, but more map details while the **OUT** button displays a larger area with less map details.

A Status Window at the top of the page provides you with current satellite tracking and position accuracy information.

Navigation Page Basics



The Navigation Page displays directional information to guide you to a destination. The Status Window at the top of the page shows you the name of your destination, the distance, and the time to go. A Bearing Pointer and Compass Ring are displayed to provide you with navigational guidance. Two Data Fields are provided, and can be programmed to display a variety of navigation data.

To navigate to a destination, simply follow the Bearing Pointer. The Bearing Pointer will always point directly to the destination, no matter what your current location might be.

When you are not on an active Goto, Track or Route (in other words: not traveling to a recorded destination), the window at the top of the page will display the status of the GPS Receiver and the approximate accuracy of your current position. The Compass Ring will be displayed, indicating your heading while you are moving, but the data fields at the bottom of the page will not display any destination related data, such as Estimated Time of Arrival, etc.

Page Basics: The Main Pages

Important Note:

Because the eTrex Mariner is designed for both marine and land based navigation, the illustrations shown throughout this manual depict examples of either application.

For example: the Track shown in the getting started section is based on foot travel when learning to use the unit, while the Route shown in the reference section depicts a route consisting of seaports and maritime navigation aids. Yet, these features are not restricted to just these applications, they work for both land and maritime navigation.

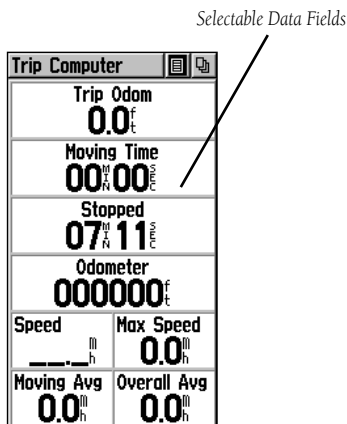
Elevation (Altitude) is determined by the GPS satellite's measurement of a mathematical model of the earth, and because satellite signals can be distorted by the atmosphere, there will be some error. Altitude accuracy is generally less accurate than the Horizontal accuracy.

The Horizontal accuracy is displayed in the Status Window on the Map and Navigation Pages.

Example: If you are at (Mean) sea level and the elevation reading is greater or less than 0, it may be the result of the margin error.

Page Basics: The Main Pages

Trip Computer Page Basics



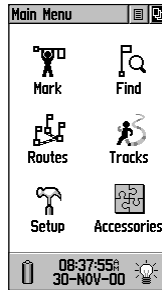
The Trip Computer Page displays up to eight different types of navigation data. Each data field is selectable and can contain one of many data information options.

By selecting the information options that you prefer and arranging them in a desired order on the page, you can customize the Trip Computer Page to meet your navigation needs.

The Page Options Menu allows you to reset the Trip Computer data when you are ready to start a new trip.

Main Menu Page Basics

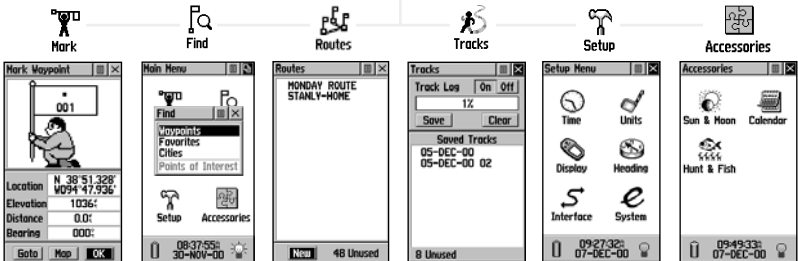
The Main Menu Page with
Feature Icons
&
Battery Capacity, Time/Date,
and Backlighting Status Bar.



Page Basics: The Main Pages

The Main Menu provides you with a directory of the eTrex Mariner's advanced features. From the Main Menu page you can mark and create new waypoints, find map items such as cities, points of interest, etc., create routes, save track logs, setup system operating features, access and use unit accessories.

Main Menu Pages



Mark Waypoint Page - Allows you to mark and record your current location.

Find Menu - Allows you to Find and Goto a map item location or a waypoint.

Routes Page - Allows you to create a route to a destination, with waypoints along the way.

Tracks Page - Allows you to save a Track Log and navigate a previous path of travel.

Setup Pages - Allow you to set the time, select units of measure, set display backlighting and contrast, select from heading options, select interfaces to compatible external devices, and select system operating modes.

Accessories Page - Provides Sun & Moon position data, a Calendar with date and note capability, and best times for Hunting and Fishing.

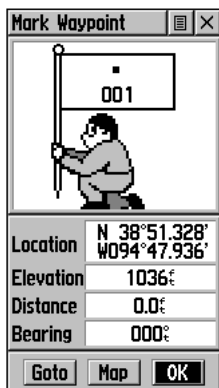


To exit these pages, highlight the on-screen 'X' button and press in on the CLICK STICK.

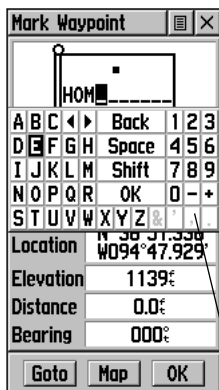
Setting the Correct Time

If the time displayed in the field at the bottom of the Main Menu does not match the time for your current location (time zone), you may need to set the time. Use the Main Menu to access the Setup Pages, select the Time Icon and then follow instructions for setting the time on page 45.

Basic Navigation



The Mark Waypoint Page displays your Marked Waypoint, along with the latitude and longitude and approx. elevation. On-screen buttons can create a Direct path (Goto) to the waypoint, show it on the map (Map), and confirm your selection as a waypoint (OK).



The Data Entry Keyboard

To begin learning how to use your eTrex Mariner, begin by using some basic navigation techniques such as marking your current location as a waypoint, then travel a short distance and allow yourself to be guided back to where you started.

Marking your Current Location as a Waypoint

The first step in most navigation exercises is to mark your current location as a waypoint so you can return to it later.



NOTE: The eTrex Mariner must be "READY TO NAVIGATE" before you can Mark a waypoint.

To Mark a Waypoint:

1. Press in and hold the **CLICK STICK** until the 'Mark Waypoint' Page is displayed. Whenever you hold in on the **CLICK STICK**, your current location will be marked as a new waypoint with a three-digit number assigned.

Before saving it, you can personalize the newly marked waypoint by changing the numeric designation to a more meaningful name. You can also give it a map symbol to make it more recognizable when viewed on the map.

To change the waypoint name:

1. Use the **CLICK STICK** to highlight the waypoint name field (001) and then press it in to display the data entry keyboard.
2. Use the **CLICK STICK** to highlight the desired characters for your new name and then press it in to place a character in the data field. The field will automatically move to the next character position.
3. Repeat the process until you have completed the new name or have reached the character limit for the field. Then highlight 'OK' on the keyboard and then press in on the **CLICK STICK** to complete the name entry and close the keyboard.

To change the waypoint symbol:

1. Use the **CLICK STICK** to highlight the waypoint symbol field on the Mark Waypoint Page and then press it in to display the list of symbols.
2. Use the **CLICK STICK** to move up and down the list to highlight the desired symbol and then press it in to place the symbol in the field on the page.
3. Use the **CLICK STICK** to highlight the on-screen 'OK' button at the bottom of the page and then press it in to save your new waypoint. The waypoint can be retrieved later using the Find Menu.

Now that you've marked your location, you can begin to practice some basic navigation techniques.

There are two main pages that help you navigate; the Map Page and the Navigation Page.

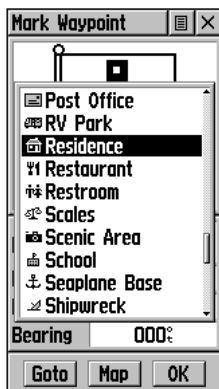
Press the **PAGE** button repeatedly until the Map Page is displayed. You will see the new waypoint in the center of the map. If you renamed it, it will display the new name and a map symbol.

Adjust the map scale to 300 feet by pressing the **ZOOM IN** or **OUT** button on the side of the unit until the scale in the lower left corner of the map reads 300 ft.

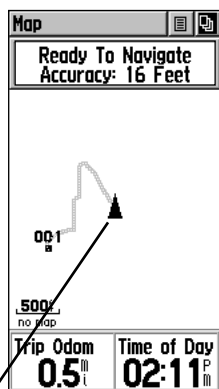
To Use the Map Page:

1. Observe that the new waypoint is displayed in the center of the map.
2. Begin walking or driving around for a few minutes and then stop. (If in a car, make certain the unit has a clear view of the sky through the windshield in order to receive satellite signals.)
3. Observe that your location and movement are shown by the 'Pointer Icon' and that your path of travel (a Track) is shown by a dotted line.
4. You can follow the Track back to the waypoint, but instead we'll save time and take a direct route to it using another navigation tool, called a Goto, as explained on the following page.

Basic Navigation

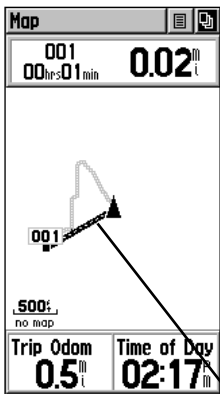


The Mark Waypoint Page with the list of Map Symbols displayed

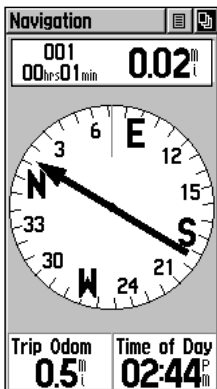


The Map Page displaying your Marked Waypoint and a Track defining your path of travel.

Basic Navigation



The Map Page with a Goto line connecting your location to your original Marked Waypoint



The Navigation Page with the Bearing Pointer showing you the direction to go. The Compass Ring provides you with orientation information.



The 'Stop Navigation' Option.

Navigating Back to Your Starting Point

Now we will navigate back to the waypoint you marked at the beginning of this exercise using the Goto function.

Going To (Goto) the Marked Waypoint:

1. Press and release the **FIND** key to display the Find Menu.
2. Use the **CLICK STICK** to highlight and select 'Waypoints' from the list of categories.
3. You will be prompted to select find 'Nearest' or find 'By Name'. Select 'Nearest' and press in on the **CLICK STICK** to display the Nearest List.
4. The waypoint you had previously marked and saved will be on the list. Use the **CLICK STICK** to highlight the waypoint and then press in to display the Information Page for the waypoint.
5. Use the **CLICK STICK** to highlight the 'Goto' on-screen button and then press it in to activate a Goto.

Press the **PAGE** button until the Navigation Page is displayed.

Walk in the direction of the bearing pointer until it points to the top of the compass ring. If it points to the right, you need to move to the right, if it points left, you need to move to the left. When it points straight up, you are on course to your destination. The Goto will provide you with a direct route back to the waypoint and will not necessarily follow the track you created.

The destination name, distance to the destination, and time to reach it are displayed in the window at the top of the screen. Two additional data fields are provided at the bottom of the page and can be programmed to display a variety of navigation data such as speed, heading, etc. When you begin to approach the waypoint, an "Arriving At Destination" message will appear. You can view your progress by toggling between the Map and Navigation Page.

To stop navigation, select 'Stop Navigation' from either the Map or Navigation page's options menus.

You have now completed a basic exercise in GPS navigation. As you learn more about the unit's operation, you will be able to apply more features to your navigation skills.

Satellite Page - Overview

Because the eTrex Mariner relies on satellite signals to provide you with navigational guidance, the unit's view of the sky will determine how fast you achieve navigational status. GPS signals do not travel through rocks, buildings, people, metal, or heavy tree cover...so keep the unit in clear view of the sky for best results.

The Satellite Page provides a picture of satellite signal tracking and tells you when the unit is ready for navigation. At least three satellite signals are needed to find your location.

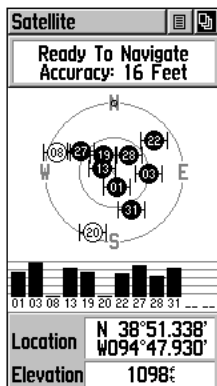
The Skyview graphic represents a view looking up at the sky from your current location showing satellites and their assigned number. The outer ring represents the horizon around you and the inner circle an overhead view of the sky at a 45° angle from vertical. Signal Strength Bars for each satellite are shown just below the Skyview. Satellites and their signals appear as hollow shapes until a signal is received and then they appear darkened in. The stronger the signal, the taller the signal bar.

If the unit cannot initially (when first turned on) determine its location, it will display a "Poor Satellite Reception" message with four options. Each offers a brief explanation when highlighted to guide your decision.

Select the 'Use With GPS Off' option from the Satellite Page Option Menu when indoors or where a clear view of the sky is obstructed, or you want to save battery power. You can enter data, create routes, etc., but cannot navigate in this mode. You can orient the satellite skyview by selecting optional 'Track Up' (your direction of travel) or 'North Up' with the satellite skyview oriented to the north. You can manually enter a new, more accurate elevation, if known, to increase position accuracy. If you have moved more than 600 miles since you last used the unit you may require use of the 'New Location' option which helps the unit to find itself and speeds acquisition.

Once satellite tracking has been achieved, your location coordinates and the elevation are shown at the bottom of the Satellite Page.

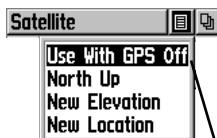
The Satellite Page



Satellite Page
with 8 Satellites Being Tracked

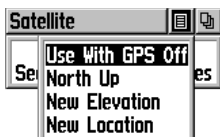


There are four initialization options for the "Poor Satellite Reception" message.

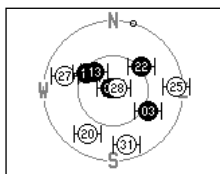


Satellite Page Options Menu
Highlight the on-screen button at the top of the page & press in on the CLICK STICK.

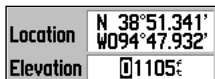
The Satellite Page



The Satellite Page
Options Menu

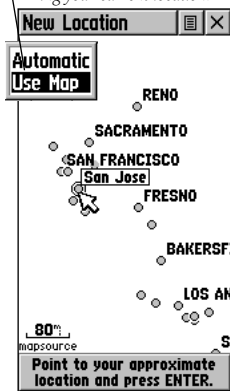


'North Up' Skyview Orientation



Enter new elevation data

'Use Map' option for determining your current location.



Step-by-Step Instructions

How to select the 'Use With GPS Off' option:

1. Use the **CLICK STICK** to highlight the Option Menu button at the top of the page and then press it in to display the Options Menu.
2. Use the **CLICK STICK** to highlight the 'Use With GPS Off' option and then press it in to activate.
3. Observe that the Satellite Page title block now states "GPS Off".
4. The eTrex Mariner will now stop tracking satellites and should not be used for navigation. Whenever the unit is turned On it returns to Normal GPS operation.

How to select 'Track Up' or 'North Up':

1. Follow procedures for displaying the Options Menu.
2. Highlight either the 'Track Up' or 'North Up' option (depending on which is currently in use), and press in on the **CLICK STICK** to activate.

How to enter a new elevation:

1. Use the **CLICK STICK** to display the Options Menu.
2. Highlight 'New Elevation' and then press in on the **CLICK STICK**. Observe the highlighted first character in the elevation field and the numerical keyboard at the bottom of the Satellite Page.
3. Enter the desired elevation by using the **CLICK STICK** to highlight the desired numerals and then pressing it in. Highlight 'OK' and press in to complete entry.

How to enter a new location:

1. Follow procedures for displaying the Options Menu.
2. Highlight 'New Location' and press in on the **CLICK STICK** to display choices of 'Auto' or 'Use Map'.
3. If you choose 'Auto' the eTrex Mariner will determine your new location automatically.
4. If you choose 'Use Map' a map page will appear with instructions stating, "Point to your approximate location and press ENTER". Use the **CLICK STICK** to move the map pointer to your location on the map and press it in. This option reduces the time required to search for location.

Navigation Methods- Overview

Active Navigation is supported by three of the five Main Pages:

The Map Page graphically shows you map details, your current location, your elevation, marks your route to a destination with a route line, and leaves a trail (track log) of where you've been.

The Navigation Page tells you what direction to go and the direction you are traveling.

The Trip Computer Page records and displays travel data, like your speed, the distance you have traveled, or the distance to travel, and the time of day or the time remaining before reaching a destination and more.

Methods of Navigating using the eTrex Mariner

There are four methods of navigating when using the eTrex Mariner and each is graphically displayed on the Map Page.

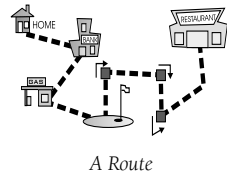
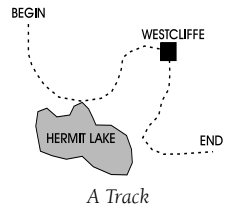
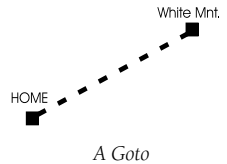
Goto - A direct path to a map location (waypoint, city, navigation aid, etc.).

Track - A previous path of travel that has been stored (logged) in the eTrex Mariner. A Track allows you to repeat a path or to return to your starting point on the same path using the GARMIN TrackBack feature.

Route - A path to a destination consisting of landmarks along the way (waypoints, cities, highway exits, points of interest, etc.).

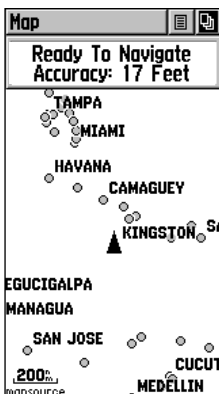
Travel when not on a Goto, Track or Route - This is best described as travel without entering a destination in the eTrex Mariner. The Map Page displays your real-time movement as you travel with the unit turned on and receiving satellites.

Navigation Methods

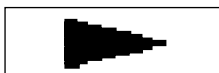


Travel when not on a Goto, Track, or Route as indicated by the 'Pointer Icon' and a dotted line indicating your path of travel.

The Map Page



The Map Page



Position Icon



Map Features



Map Scale



Accuracy Circle



Panning Arrow
(Map Pointer)

The Map Page - Overview

The Map Page shows your present position and direction of movement, as a triangular 'Position Icon', in the center of the map. As you travel, the map display leaves a "trail" (track log) of where you've been. The map display also shows the map scale and geographic details such as major cities.

Use the **ZOOM IN** and **OUT** buttons to change the map scale in order to show more map area with less detail or less map area with more detail. Press and hold to **ZOOM** the map scale rapidly.

In many instances the map will display an 'Accuracy Circle' surrounding the 'Position Icon'. The eTrex Mariner uses both map resolution and GPS accuracy in defining your location to a point within the circle. The smaller the circle, the more accurate your location. For the most accurate location information, refer to the Satellite Page.

When using the 'Pan Map' feature, a small outline arrow (Map Pointer) can be moved about the page to highlight and identify map items or to scroll the map to view areas not shown on the display screen.

A Status Field at the top of the page provides satellite tracking and location accuracy information.

Two optional Data fields at the bottom of the page can be programmed to provide a variety of travel and navigation information.

More detailed map features as well as information about those features can be downloaded to the unit from a GARMIN MapSource "Points of Interest" CD-ROM. Because you are using pre-loaded MapSource data, the word 'mapsource' will appear below the map scale.

The Map Page Options Menu allows you change the arrangement of page features, stop active navigation, pan the map, and customize the map itself to display features in a manner that meets your personal preferences.

Map Page Options - Overview

Map Page options allow a variety of operating and custom features for your eTrex Mariner.

Not all of the Map Page options are available at the same time. Many are replaced by an opposite option when they are selected, such as Hide Data Fields/Show Data Fields. The Map Page options are:

Pan Map - Allows you to move the Panning Arrow (Map Pointer) about on the map.

Stop Navigation - Stops navigating to a destination.

Hide Nav Status/Show Nav Status - Removes the navigation status window to expand the map area or inserts the navigation status window.

Hide Data Fields/Show Data Fields - Removes or inserts two programmable data fields at the bottom of the page and expands or reduces the map area.

Setup Map - Displays the Setup Map Pages, which allows you to tailor the map to your requirements such as changing text size, map orientation, and map detail.

Restore Defaults - Returns the Map Page to the original factory settings (defaults).

Map Page Options - Step-by Step Instructions

To select a map page option:

1. Highlight the Option Menu on-screen button at the top of the display screen and then press in on the **CLICK STICK** to open the menu.
2. Highlight the desired option on the menu and then press in on the **CLICK STICK** to activate the option.
3. To close without making a selection, move the **CLICK STICK** to the right.

Map Page Options Menu

On-screen Map Page Options Menu button



Map Page Options Menu with 'Pan Map' selected.

When no active navigation is being used 'Stop Navigation' will appear gray.

If 'Show Data Fields' is selected, it will be replaced by the 'Hide Data Fields' option.

Map Page Options

Using the Panning Arrow - Overview

The Map Page pan function allows you to display an arrow used to point at and identify items on the map, and to move the map in order to view areas beyond the current viewing area on the display.

The map panning function is activated from the options menu on the Map Page. The **CLICK STICK** moves the panning arrow (also referred to as the map pointer) in the desired direction on the map page. If the arrow moves to the edge of the map display, the map will also move to reveal more map area. When this occurs, the unit will take some time to redraw the new area of the map.

Whenever the panning arrow is placed on a map item, the name of that item will be highlighted. This feature applies to waypoints, cities, points of interest ... everything that is displayed.

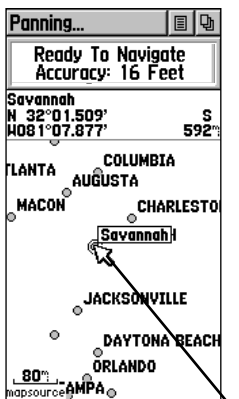
Pressing and releasing the **CLICK STICK**, marks the arrow location or the map item information page. An option menu allows you to: add it to the Favorites list, add it to a route, project a waypoint from it, save it as a waypoint, or view the sun and moon phase from it. On-screen buttons at the bottom of the page allow you to Goto the map item, display it on the map or to select 'OK' and return to the Map Page.

When using the panning arrow, pressing the **FIND** button will display items with the panning arrow (map pointer) location used as a reference point for nearest items instead of your current location. Press the **PAGE** button to return to the Main Map Page.

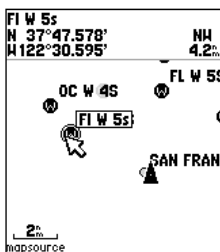
Step-by-Step Instructions

To find details about or Goto a map item:

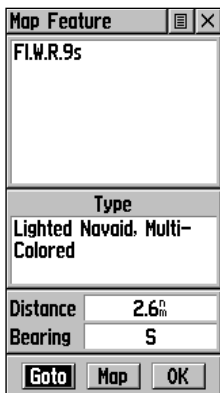
1. Use the **CLICK STICK** to move the panning arrow to the map item that you want to learn more about.
2. When the item's name is highlighted, press in and release the **CLICK STICK** to display the Information Page for that item.
3. Use the **CLICK STICK** to highlight and press the 'Goto' button on the page to navigate to the item.



Map Page Panning Arrow



Highlighted Map Item



Map Item Information

Stop Navigation

The 'Stop Navigation' option allows you to quit navigation of a Goto, Route or Track in progress.

To stop navigation:

1. Select 'Stop Navigation' and then press in on the **CLICK STICK**.

When there is no active navigation, the 'Stop Navigation' option will appear "grayed out" and is non-functional.

Hide Navigation Status/Show Navigation Status

The 'Hide Nav Status/Show Nav Status' option allows you to view GPS navigation data in a window at the top of the page that lists the status of satellite tracking and accuracy of GPS positioning. When hidden, more map area is displayed.

To hide or show Nav Status:

1. Select 'Hide' or 'Show' from the option list and then press in on the **CLICK STICK**.

Hide Data Fields/Show Data Fields

The 'Hide Data Fields/Show Data Fields' option allows you to view two programmable data fields. When hidden, more map area is displayed.

To hide or show Data Fields:

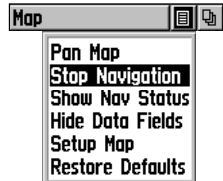
1. Select 'Hide' or 'Show' from the option list and then press in on the **CLICK STICK**.

Data Field Step-by-Step Instructions

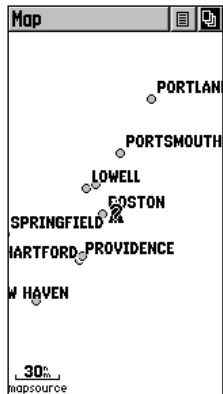
To program a data field:

1. Use the **CLICK STICK** to highlight the data field and then press it in to display the options menu.
2. Highlight the desired option and then press in on the **CLICK STICK** to place it in the data field.

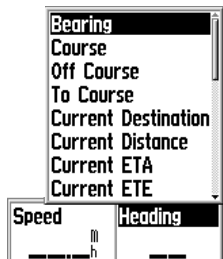
Map Page Options



'Stop Navigation' Option



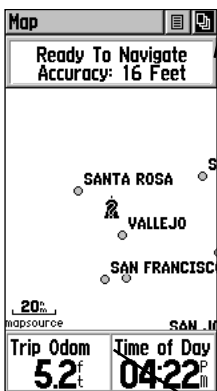
Map Page with Nav Status and Data Fields Hidden.



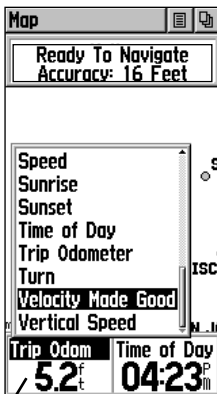
Map Data Fields with Options Menu

Data Fields

Status Field, shows satellite tracking and accuracy.
(Non-programmable)



Two programmable data fields.



Programmable Data Field with list of options.

Data Fields - Overview

Two optional data fields support the Map Page and can be programmed to display the following options:

Bearing - The direction from your current location to a destination.

Course - The direction from your starting location to a destination.

Off Course - The distance left or right you are from the original course (path of travel).

To Course - The compass direction you must go in order to get back to the original course.

Current Destination - The next waypoint on your route.

Current Distance - The remaining distance to your next waypoint.

Current ETA - The estimated time of day you will arrive at your next waypoint.

Current ETE - The estimated time needed to arrive at the next waypoint on your route.

Elevation - The altitude above sea level.

Final Destination - The last waypoint on your route.

Final Distance - The remaining distance to your final destination.

Final ETA - The estimated time of day you will reach your final destination.

Final ETE - The estimated time needed to reach your final destination.

Heading - Your moving direction.

Pointer - Indicates the direction to the next destination.

Speed - Your rate of travel can be displayed in miles per hour, kilometers per hour, or nautical miles per hour.

Sunrise - The time at which the sun rises on this day.

Sunset - The time at which the sun sets on this day.

Time of Day - The time for the selected time zone.

Trip Odometer - The accumulated distance traveled.

Turn - The angle difference (in degrees) between the bearing to your destination and your current line of travel. 'L' means turn Left. 'R' means turn Right.

Velocity Made Good - The speed at which you are closing on a destination along a desired course.

Vertical Speed - Your rate of altitude gain/loss over time.

Setup Map - Overview

The 'Setup Map' option displays the Map Setup Pages. These pages determine how map features are displayed allowing you to tailor the map to your needs.

The Map Page Setup Options

The Map Setup Page consists of five sub-pages, each accessed by an on-screen button. Each page provides a list of options for the features listed.

Scale options are 'Off', 'Auto', or 20 feet through 500 feet (5m through 800km). When 'Auto' is selected, the maximum scale will be determined by the 'Detail' setting "Auto Zoom" scales the map to show your location and the next point you are navigating to.

Page - Orientation: 'Track Up' or 'North Up'.
 Auto Zoom: *On or Off.*
 Detail: *Most, More, Normal, Less, or Least.*
 Latitude and Longitude Grid: *On or Off.*

Tracks - Saved Tracks: *Scale options.*
 Track Log: *Scale options.*
 Goto Line: *Bearing or Course.*

Map Features - Points of Interest (*Controls display of navigation aids.*)
 Waypoints: *Scale options.*

Text - Points of Interest: *Sizes from None, Small, Medium, or Large.*
 Waypoints: *Sizes from None, Small, Medium, or Large.*

Map Data - Controls the display of optional map data.

The Latitude/Longitude Grid option allows you view latitude and longitude grids lines on the Map Page and is useful when using the map when zoomed In and panning the map. Scale options indicate the map scale at which Tracks, Tracks Logs, Map Features (i.e., Navigation Aids), or Text Boxes for Map Features will appear, allowing you to remove map clutter and define map features as desired.

Map Page Setup Options

Map Setup	
<div style="display: flex; justify-content: space-between; align-items: center;"> ☰ ↶ P T </div>	
Orientation	North Up
Auto Zoom	Off
Detail	Normal
Lat/Lon Grid	Off

Page Setup

Map Setup	
<div style="display: flex; justify-content: space-between; align-items: center;"> ☰ ↶ P T </div>	
Max Zoom	
Saved Tracks	AUTO
Track Log	AUTO
Goto Line	Bearing

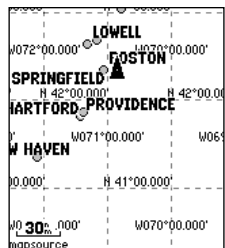
Tracks Setup

Map Setup	
<div style="display: flex; justify-content: space-between; align-items: center;"> ☰ ↶ P T </div>	
Max Zoom	
Pts Of Interest	200%
Waypoints	AUTO

Map Features Setup

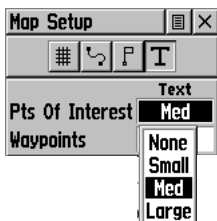
Map Setup	
<div style="display: flex; justify-content: space-between; align-items: center;"> ☰ ↶ P T </div>	
Text Size	
Pts Of Interest	Med
Waypoints	Med

Text Setup



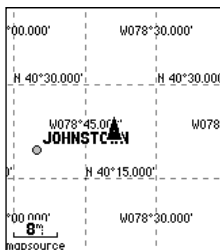
Optional Lat/Lon Grid Lines

Map Page Setup Options

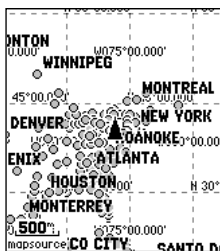


Map Page Setup
Feature Options

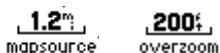
Zooming In and Out on the Map



Zoom In



Zoom Out



Map Scales
and Descriptions

Step-by-Step Instructions

To use Setup Map options:

1. Select 'Setup Map' from the Options Menu and then press in on the **CLICK STICK** to display the Map Setup Page.
2. Highlight the desired sub-page button to display the features list for that sub-page.
3. Highlight a feature on the list and press in on the **CLICK STICK** to display the options list for that feature.
4. Use the **CLICK STICK** to highlight the desired option and then press it in to activate.
5. Press the **PAGE** button or the on-screen 'X' button to return to the Map Page.

Zooming In and Out - Overview

Use the **ZOOM IN** and **OUT** buttons to adjust the map scale, which is displayed at the bottom of the map.

The map scale is shown in the lower left hand side of the map display area. The scale is shown in the unit of measure selected from the 'Units' field of the Unit Setup Page (not to be confused with the Map Setup Page).

It is possible to zoom in so far that the resolution of the map data is exceeded and the appearance of the map will no longer be accurate. When this occurs, the word, "overzoom" will appear just below the map scale.

You can control the display of map details at specific map scales by using the Map Setup. Using the Setup options allow you to create clearer, "less cluttered", maps as you desire. Selecting 'Autozoom' adjusts the scale to show both your current location and next point you're navigating to.

Step-by-Step Instructions

To change the map scale:

1. Press the **IN** Zoom button to select a scale that shows more detail and a smaller map area.
2. Press the **OUT** Zoom button to select a scale that displays a larger map area, but with less detail.

Navigation Page - Overview

The Navigation Page provides active guidance with a rotating compass ring that shows your course over ground (track) while you're moving and a bearing pointer to indicate the current direction to your destination (bearing) relative to the course over ground.

The Compass Ring and Bearing Pointer work independently to show the direction of your movement and the direction to your destination. For example: if the arrow is pointing straight up, you are going directly to your destination. If it points any direction other than up, turn toward the arrow until it points up and then continue in that direction. If you are using the 'Course Pointer' option instead and you drift away from the line of travel to your destination the Course Deviation Indicator (CDI), provides graphic indication of drift (right or left) and displays the distance off course. The compass ring is accurate only when you are moving.

The Navigation Page also displays a 'Waypoint' field above the compass or highway with the name of the next waypoint on your route or of your final destination. The map coordinates for that item are shown just below the name.

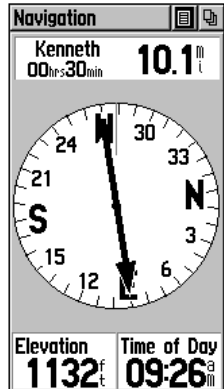
An on-screen button at the top of the page displays the Options Menu for this page. Options include: 'Stop Navigation', 'Bearing Pointer', 'Course Pointer', 'Big Numbers', and 'Restore Defaults'. 'Big Numbers' converts information in the data fields to display in a large text format while reducing the size of the compass ring.

At the bottom of the page are two data fields that are user programmable with a choice of different data options:

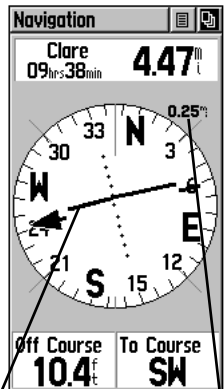
Bearing	Final ETA
Course	Final ETE
Off Course	Heading
To Course	Speed
Current Destination	Sunrise
Current Distance	Sunset
Current ETA	Time of Day
Current ETE	Trip Odometer
Elevation	Turn
Final Destination	Velocity Made Good
Final Distance	Vertical Speed

(Definitions on page 20)

The Navigation Page

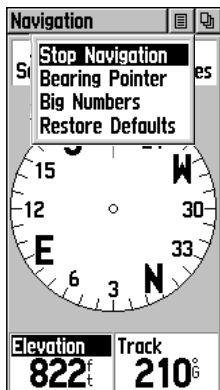


Navigation Page
with Bearing Pointer
Active



Navigation Page with
Course Pointer and
Course Deviation Indicator
(CDI) Scale active.
Use the ZOOM buttons to
adjust the CDI scale
setting.

The Navigation Page

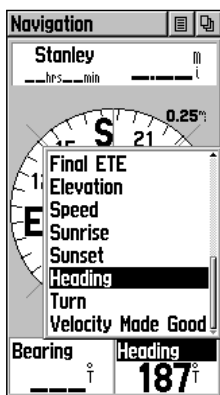


Navigation Page
Options Menu

Step-by-Step Instructions

Using options to Setup the Navigation Page:

1. With the Navigation Page displayed, use the **CLICK STICK** to highlight the Options Menu button at the top of the page. Then press it in to display the menu.
2. Observe the Options Menu: If you are currently navigating on a Goto, Track, or Route, the 'Stop Navigation' option will be active, otherwise it will be "grayed out". The next option on the list will be 'Bearing Pointer', which is displayed on the compass ring. The next option on the list will be 'Big Numbers', which displays information in two data fields in large sized numbers above and below the compass while displaying the compass in a smaller scale. The last option on the list is 'Restore Defaults'.
3. Use the **CLICK STICK** to highlight your selection and then press in to activate.



Navigation Page
Data Fields
Options Menu

To change data fields:

1. Use the **CLICK STICK** to highlight the desired data field and then press it in to display the list of data options.
2. Select the desired option from the list and press in on the **CLICK STICK**.
3. You can reset the data fields at any time to change the type of data viewed while navigating.

(The slider at the side of the menu indicates a multi-page list of options.)

Trip Computer Page - Overview

The Trip Computer provides a variety of data fields with read-outs of current information as you travel. Eight fields display navigation information and are user programmable. The default settings for these fields are shown in the illustration to the right.

Here is the list of data field options:

Current Destination	Speed
Current Distance	Maximum Speed
Current ETA	Moving Avg. Speed
Current ETE	Overall Avg. Speed
Elevation	Odometer
Final Destination	Trip Odometer
Final Distance	Trip Time - Moving
Final ETA	Trip Time - Stopped
Final ETE	Trip Time - Total
Heading	Time of Day
Pointer	<i>(Definitions on page 20.)</i>

The Option Menu for the page provides the following options: **Reset**, **Big Numbers**, and **Restore Defaults**.

Step-by-Step Instructions

To program a data field:

1. Use the **CLICK STICK** to highlight the desired data field and then press it in to open the data field options menu.
2. Use the **CLICK STICK** to move Up or Down the menu to highlight a desired data option.
3. Press In on the **CLICK STICK** to select the option and place it in the data field.

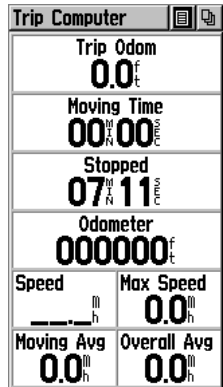
To access the page Options Menu:

1. Use the **CLICK STICK** to highlight the Options Menu on-screen button and press it in to display the options menu.
2. Highlight the desired option and then press in on the **CLICK STICK** to activate.
3. To activate individual 'Reset' options, highlight the item on the list and then press in on the **CLICK STICK** to place or remove the check mark.

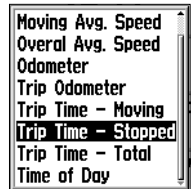


NOTE: Use care when choosing the 'Delete' options, as all saved Tracks, Waypoints, and Routes stored in the unit can be deleted using these options.

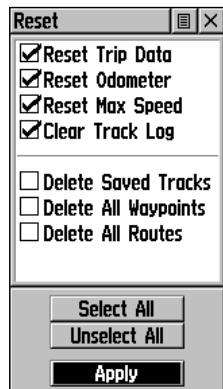
Trip Computer Page



Trip Computer Page

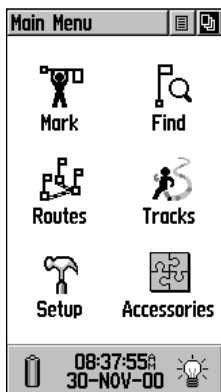


Data Field Options Menu



Reset Options Menu
Useful when starting a new trip to clear old data.

The Main Menu



*Main Menu with
Feature Icons
and Power, Date/Time,
and
Backlight Status Window*

Using the Main Menu

The Main Menu provides access to additional eTrex Mariner feature pages. The pages listed below provide enhancements to eTrex Mariner operation.

Press the **PAGE** button repeatedly to cycle to the Main Menu... or select it from the page list at the top of each main page.

Mark Waypoint Page - Allows you to mark and store a waypoint for your current location or a map pointer location.

Find Menu - Allows you to locate, Goto, or use as part of a Route: Waypoints, Favorites (Favorite Locations), Major Cities, and Points of Interest.

Route Page - Allows you to create and store routes for repeated use.

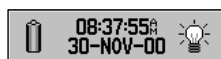
Tracks Page - Provides access to the track log and saved tracks.

Setup Page - Allows tailoring of items such as time format, units of measure, display backlighting timeout and contrast adjustment, interface Setups, heading selection and system software information.

Accessories Page - Allows you to access Sun and Moon data, a Calendar, and Hunting and Fishing data.

Information about the status of backlighting, time and date, and unit power are displayed in the window at the bottom of the Main Menu Page.

The battery icon will display the approximate amount of reserve power available. When the unit is powered by a cigarette lighter adapter, a power plug icon will replace the battery icon. The date and time are displayed in the center of the window and when backlighting is active the light bulb to the right will appear illuminated.



*Power, Date/Time, and
Backlight Status Window*

The Mark Waypoint Page - Overview

The Mark Waypoint Page allows you to mark and record your current location as a waypoint and appears with a graphic name block (man with a flag) that displays the assigned number for that waypoint and a waypoint symbol.

Step-by-Step Instructions

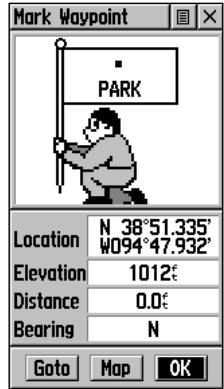
To mark your current location as a waypoint:

1. Press in and hold the **CLICK STICK** until the Mark Waypoint Page appears. You can also access this page by highlighting the Mark Icon on the Main Menu Page and then pressing in on the **CLICK STICK**. It will automatically be assigned a 3-digit number.
2. To change the name of the waypoint, use the **CLICK STICK** to highlight the waypoint name field.
3. To assign an identifying symbol to a waypoint, use the **CLICK STICK** to highlight the symbol block just above the waypoint name.
4. To save the waypoint, highlight 'OK' and press in on the **CLICK STICK**.
5. If you do not want to save it as a new waypoint, press the **PAGE** button before pressing any other to cancel.

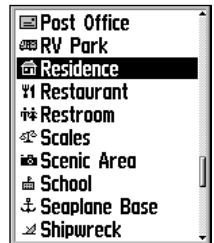
To create a waypoint using the map panning arrow:

1. With the Pan Map feature active, move the panning arrow (map pointer) to the map item you want and highlight it.
2. Press in and release the **CLICK STICK** to display the item information page.
3. With the Information Page displayed highlight the options menu button at the top of the page and then press the **CLICK STICK** in to open the menu.
4. Highlight the 'Save As Waypoint' option and press the **CLICK STICK** in to save the map item as a waypoint.

Marking Your Location

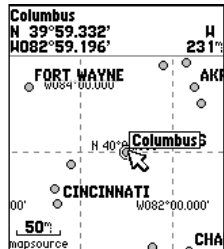


Mark Waypoint Page



Map Symbol List

Creating a Waypoint

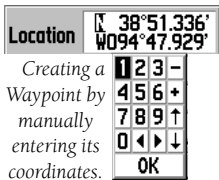


Marking a Waypoint with the Panning Arrow

Creating a Waypoint

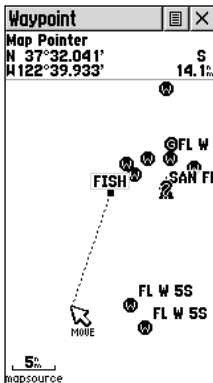


Marking a Waypoint on the map without highlighting a map item.



Creating a Waypoint by manually entering its coordinates.

Moving a Waypoint



28 Moving a Waypoint

To create a waypoint using the panning arrow when a map item is not highlighted:

1. With the Pan Map feature active, move the panning arrow (map pointer) on the map to the location you want to mark and then, press the **CLICK STICK** in and release.
2. The Mark Waypoint Page will appear, automatically assigning a number to the waypoint.

Be certain to press and release the **CLICK STICK** for this operation. Pressing In and holding the **CLICK STICK** will mark a waypoint for your current location. See “Marking Your Location” on page 27.

To create a waypoint by manually entering its coordinates (lat/lon):

1. Press in and hold the **CLICK STICK** to access the Mark Waypoint Page.
2. Highlight the Location Field on the Mark Waypoint Page and enter the new coordinates using the numerical keyboard. Highlight and press ‘OK’ when finished.
3. You may also change the waypoint name and/or symbol.

To move a waypoint by dragging it on the map:

1. Use the Find Menu to display the Waypoint Page for the waypoint you want to move. Refer to page 30 for more information on using the Find Menu.
2. Highlight and press the ‘Map’ on-screen button to display the map for the waypoint.
3. With the waypoint highlighted by the panning arrow, press in and release the **CLICK STICK**. The word “Move” will appear beneath the panning arrow.
4. Use the panning arrow to drag the waypoint to the new location and then press in on the **CLICK STICK** to place it.
5. Press the **PAGE** button before pressing the **CLICK STICK** to cancel moving of the waypoint and return to the Main Pages.

Projecting a Waypoint

Projecting a waypoint from any map item (another waypoint, etc.) allows you to establish a new waypoint on a bearing and distance projected from that map item.

To project a waypoint:

1. Select a map item from the Find Menu. (See page 30)
2. Highlight the Option Menu on-screen button at the top of the Information Page and press in on the **CLICK STICK** to display the Project Waypoint Page.
3. Press in on the **CLICK STICK** to display the numerical keyboard for entering the distance. Move from character to character, pressing in on the **CLICK STICK**.
4. Enter the desired distance and bearing to the projected waypoint in the appropriate fields and then select 'OK' and press in on the **CLICK STICK** to complete.

Editing a Waypoint

A waypoint can be edited to change the map symbol, name, coordinates, or elevation. It can also be deleted.

To edit a waypoint:

1. Use the Find Menu to display the desired waypoint.
2. Make changes as desired to the waypoint map symbol, name, location coordinates, and elevation fields. Highlight the desired field and press in on the **CLICK STICK** to display the keyboard. Highlight the desired characters on the keyboard to enter new data and then select 'OK' and press In to close the keyboard.
3. Highlight the 'OK' button the press in on the **CLICK STICK** to save the changes.

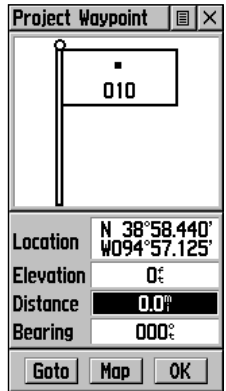
To delete a waypoint:

1. Use the Find feature to display the desired waypoint.
2. Highlight the 'Delete' button and then press in on the **CLICK STICK**.

To save any Map Item or Find Menu Item as a waypoint:

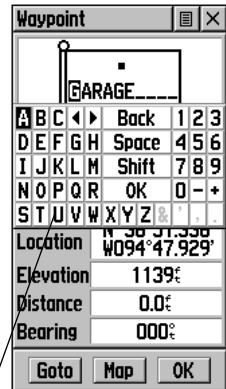
1. Access the Information Page for the desired item (highlighted from the map or selected from the Find Menu).
2. Open the Options Menu at the top of the page, select 'Save As Waypoint' and press in on the **CLICK STICK** to save the item to the Waypoints List.

Projecting a Waypoint



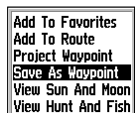
Enter Distance and Bearing to project

Editing Waypoints



Use the keyboard to edit the name

Saving as a Waypoint



The Find Menu



Find Page using your current location as a point of reference

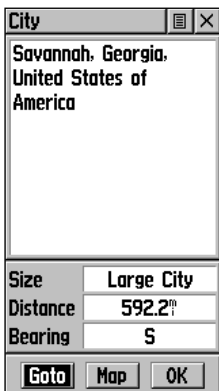


'Nearest' or 'By Name' Prompt



'Near Map Pointer' or 'By Name' Prompt.

Displayed when using the Map Pointer.



Item Information Page

The Find Menu - Overview

The Find Menu allows you to find stored locations: waypoints and cities. They can be found by name or by those nearest to your current location (Position Icon) or the panning arrow (Map Pointer). If you are using the MapSource "Points of Interest" CD-ROM, the list of find locations will be expanded to include categories for Points of Interest.

Press and release the **FIND** button to access the Find Menu.

The Find Menu allows you to locate and travel to:

Waypoints - Marked and saved locations on the map used as a destination or a point on the way (waypoints) to a destination. Refer to page 27 to mark or create a waypoint.

Favorites - A list of familiar and often used waypoints.

Cities - A list of major cities in the basemap.

Points of Interest - A list of restaurants, museums, hospitals, landmarks, etc.

For some categories, there are two methods of listing. The "By Name" list contains every item in the map database for the selected category, while the "Nearest" list contains only those items that are near to your Current Location or the Map Pointer. Categories listed by either method will display a choose prompt.

These pages are structured with a set of sub-menus and location information pages that guide you through the process of finding locations. Use them to construct a Route, establish a direct line of travel (Goto), or when gathering information.

Finding a Waypoint - Overview

Waypoints that you have created and stored in the eTrex Mariner can be found by selecting the “Waypoint” option from the Find Menu. You can find a waypoint from the list of waypoints using the ‘By Name’ or ‘Nearest’ options explained on the previous page. When selected from the list the waypoint will be displayed on the Waypoint Information Page.

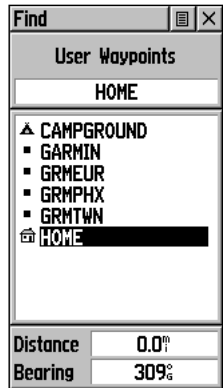
The Waypoint Information Page displays the waypoint name or number, a map symbol, the location in lat/lon, elevation, distance, bearing, and three on-screen buttons for ‘Goto’, ‘Map’, and ‘OK’ functions.

Step-by-Step Instructions

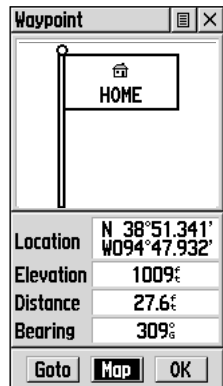
To find a waypoint:

1. Use the **CLICK STICK** to select the Waypoint option from the Find List and then press it in to display a prompt to select ‘By Name’ or ‘Nearest’. Select and press in on the **CLICK STICK** to display the Waypoints List.
2. Use the **CLICK STICK** to select the desired waypoint from the list and then press it in to display the Information Page for that waypoint.
3. With the Information Page displayed, you can select ‘Goto’ to create a direct line of travel to the waypoint. Select ‘Map’ to view the waypoint location on the map or select ‘OK’ to close the page.
4. Use the page option menu to add the waypoints to the ‘Favorites’ list, add it to an existing route, project a new waypoint from this location, view sun and moon, and best fishing and hunting time information for this waypoint.

The Find Menu

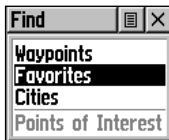


Waypoint Find List

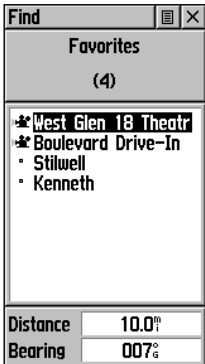


Waypoint Information Page

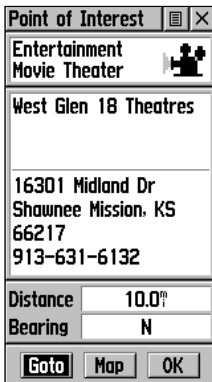
The Find Menu



Favorites Category



Favorites List



Favorites Information Page

Finding a Favorite - Overview

Favorites are map items and waypoints you would like to give a special status, as they are frequently used or have other special significance. Placing a waypoint in the 'Favorites' makes it easy to access, as this list has a maximum of 50 entries. The process for finding favorite waypoints from the 'Favorites' list is the same as finding a regular waypoint with the exception that there is no 'Nearest' or 'By Name' option.

Step-by-Step Instructions

To find a 'Favorite':

1. Use the **CLICK STICK** to select the 'Favorites' option from the Find List and then press it in to display the list.
2. Use the **CLICK STICK** to select the desired Favorite from the list and then press it in to display the Information Page for that item.
3. With the Information Page displayed, you can select 'Goto' to create a direct line of travel to the item. Select 'Map' to view the waypoint location or select 'OK'.
4. Use the page option menu to add the item to an existing route, project a new waypoint from this location, or view sun and moon position data for this time and date.

Finding a City - Overview

Major cities can be found by selecting the 'Cities' option of the Find Menu, selecting the city from the list using find 'Nearest' or find 'By Name' options, and then displaying the City Information Page.

The City Information Page for the selected city displays the city name, the size by population, and distance from your location. You can view it on the map or create a Goto direct route to the city from your current location, or from a location defined by the Panning Arrow (Map Pointer). You can also save it as a waypoint, or add it to an existing route.

Step-by-Step Instructions

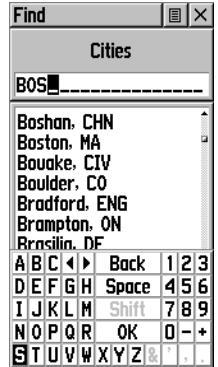
To find a city:

1. Use the **CLICK STICK** to select the 'Cities' option, then press it in to display the find 'By Name' or find 'Nearest' prompt. Selecting 'By Name', displays the keyboard to help eliminate scrolling through the list of cities.
2. If you are using find 'By Name', begin spelling the name of the city by using the keyboard. When you have entered enough characters to define the name, a match list will be displayed. Use the **CLICK STICK** to select the desired City from the list and then press it in to display the Information Page for that city.
3. If you selected the find 'Nearest' option, use the **CLICK STICK** to scroll through the list of names and then press it in to display the Information Page for the city.
4. With the Information Page displayed, you can select 'Goto', 'Map', 'OK' using the on-screen buttons, or 'Save As' from the options menu.

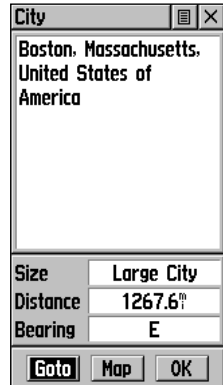
The Find Menu



Find Cities Option



Find City 'By Name' List



City Information
Page

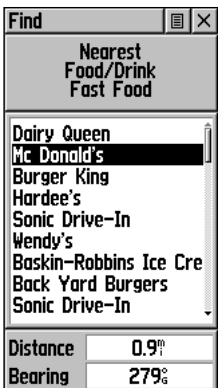
The Find Menu



Points of Interest List



Food & Drink Categories



Nearest Fast Food List

Finding a Point of Interest - Overview

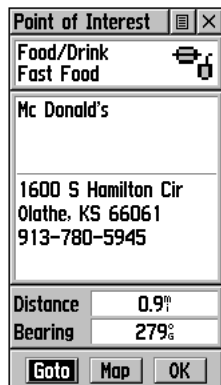
You can use the Find Point of Interest option to locate a nearby restaurant, lodging, landmark, public building, park, etc. However, you must have first transferred MapSource "Points of Interest" data to the unit database, otherwise this option will appear gray and will not be functional.

Here is a list of Point of Interest categories:

- | | |
|-------------------------|------------------------------|
| Food & Drink | Services |
| Lodging | Transportation |
| Attractions | Emergency & Govt. |
| Entertainment | Manmade Places |
| Shopping | |

In many instances, these categories are sub-divided into types, such as in the instance of Food & Drink. When you select Food and Drink from the list of categories you are then presented with a list of types which includes 'All Types' and cuisine options like American, Asian, Barbecue, Chinese and many more. When you select a restaurant that is part of a national chain (for example: McDonalds) the name will appear only once. However, when you highlight it and press in on the **CLICK STICK**, a list of 'Nearest' locations for that name will appear.

Once you have selected an item, press in on the **CLICK STICK** to display the Information Page for that item. You can then use, the on-screen buttons to 'Goto' or view the location on the 'Map' or use the option menu to add to a list, route, or save as a waypoint.



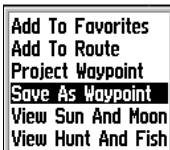
Point of Interest Info Page for Nearest Fast Food

Step-by-Step Instructions

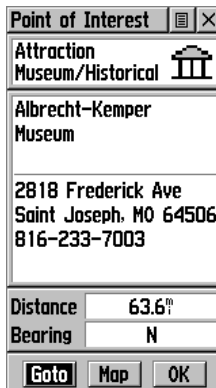
To find a point of interest:

1. Press the **FIND** button to display the Find Menu.
2. Use the **CLICK STICK** to highlight 'Points of Interest' and then press it in to display the Points of Interest Categories List.
3. Use the **CLICK STICK** to select the desired category and then press it in to display the Types List. You will then be prompted to select find by 'Nearest' or find 'By Name'.
4. Use the **CLICK STICK** to select the desired find method then press it in to display the find list. The find list will display several sub-categories and an 'All Types' option.
5. Use the **CLICK STICK** to highlight your selection and then press it down to display the sub-category list.
6. If you selected 'By Name', a keyboard will display, allowing you to enter the characters of the name you want. When enough characters are entered, the list changes to display possible matches.
7. Use the **CLICK STICK** to highlight your selection from the list and then press it in to display the Information Page for that item.
8. Use the on-screen buttons to 'Goto' (project a direct route to the item with navigation support from the Navigation and Map Pages) or view on the 'Map'. Use the page options menu to add the item to a list, save it as a waypoint or add the item to an existing route.

*Point of Interest Info Page
for an Attraction*



*Information Page Options
Menu*



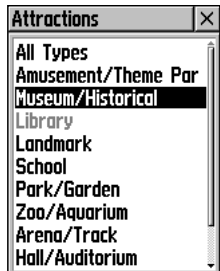
The Find Menu



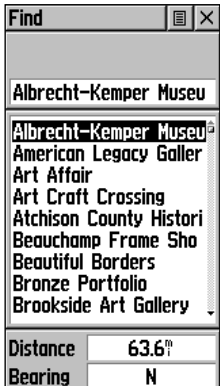
Point of Interest Option



Point of Interest Categories

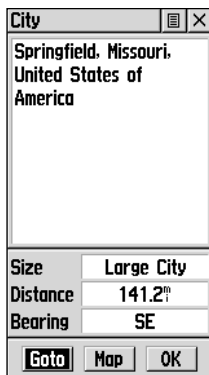


Sub-Categories Topics

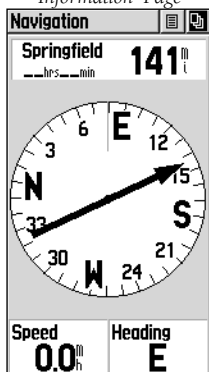


*Sub-Category
List of Items*

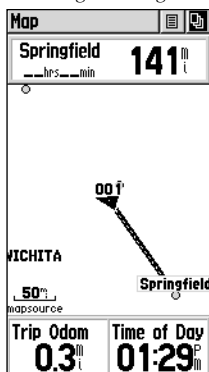
Using a Goto



Information Page



Navigation Page



Using a Goto to Navigate to a Destination

The Goto function allows you to create a direct route to a destination, (waypoint, city, or point of interest). Once you have accessed the Information Page for an item, use the Goto button at the bottom of the page to initiate travel to a map item using the Map and Navigation Pages for guidance.

To activate a Goto:

1. Use the Find Menu to access the Information Page for any desired destination and use the **CLICK STICK** to highlight the Goto button.
2. Press in on the **CLICK STICK** to start navigation.
3. Observe the Navigation Page, it will display the name of your destination, the distance from your current location, and a Bearing Pointer indicating the direction you should travel. The time require to reach your destination will display when you begin to travel and establish a predicted rate of movement. The Data Fields at the bottom of the page will display information relative to your travel as appropriate for the type of data selected to appear in those fields.
4. Use the **PAGE** button or Main Page Menu to access the Map Page and observe your movements and a dark line indicating the direct path from your current location to your destination.
5. Use the Bearing Pointer on the Navigation Page to maintain travel in the right direction and observe distance and time information to monitor your progress.
6. When you are close to your destination, an "Arriving at Destination" message will appear. If you move past the destination the Bearing Pointer will reverse and the distance display will begin to increase.
7. To stop navigating, highlight the on-screen Options Menu button at the top of the Navigation or Map Page and press in on the **CLICK STICK**. Select 'Stop Navigation', then press in on the **CLICK STICK**.

Creating and Using a Route - Overview

Route navigation allows you to create a sequence of intermediate waypoints which lead you to your final destination. The eTrex Mariner will store 20 routes, each with up to 50 waypoints. A route can be created and modified from the Route Page, and waypoints can be added to a route from the Find Menu. More complex routes can be created using a PC and MapSource mapping programs and then transferred to the unit memory. You can add a waypoint or map item to an existing route at any time.

Step-by-Step Instructions

To create a route:

1. Access the 'Routes' page from the Main Menu. The page has a 'New' button, a list of routes, and the number of unused routes.
2. Use the **CLICK STICK** to highlight the 'New' button and press it in to display the Route Setup Page.
3. With an empty row (dashed) in the route list highlighted, press in on the **CLICK STICK** to display the Find Menu.
4. Use the Find Menu to select a route waypoint from one of the Find Menu categories and display the Information Page for selected waypoint, city, exit, point of interest, etc. Highlight the on-screen 'OK' button and press in on the **CLICK STICK** to place it on the Routes List.
5. To add more waypoints to the route, repeat the process in Steps 3 and 4. The route will be named for the first and last waypoints on the route.

You can add waypoints to the end of an existing route at any time by using the Find Menu.

To add a Find Menu item to a route:

1. Select an item from the Find Menu and display its Information Page.
2. Display the page Options Menu and select the 'Add To Route' option to display the Routes List.
3. Highlight and select the route desired and then press in on the **CLICK STICK**. A 'Waypoint Added Successfully' message will appear.

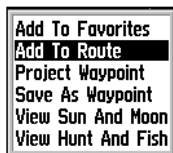
Routes



The Routes Page with a list of Routes and the number of Unused Routes.

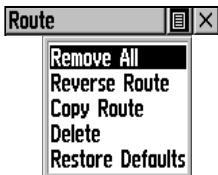


A Route with list of waypoints.

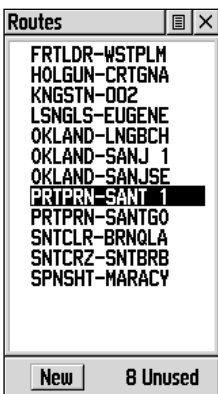


'Add To Route' option from the Find Menu Information Pages

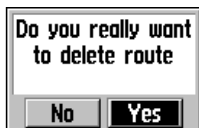
Routes



A Route Options Menu



Routes List With Two Copied Routes
Copied Routes have a '1' Suffix



Delete Route Prompt

Editing a Route

To remove all waypoints:

1. Select the on-screen page options button from the Route Page and press the **CLICK STICK** in to access the options menu.
2. Highlight the 'Remove All' option and then press in on the **CLICK STICK** to remove all waypoints from the list. You will be prompted, "Do you really want to remove all waypoints from the route?", select "Yes".

To reverse the route:

1. Select the on-screen page options button from the Route Page and press the **CLICK STICK** in to access the options menu.
2. Highlight the 'Reverse Route' option and then press in on the **CLICK STICK** to reverse the order of waypoints in the list. To change the route back to the original order, repeat this process.

To copy the route:

1. Select the on-screen page options button from the Route Page and press the **CLICK STICK** In to access the options menu.
2. Highlight the 'Copy Route' option and then press in on the **CLICK STICK** to copy. The copied route will appear on the Routes Page and will be named the same, but followed by a numeral 1. You may then rename and/or modify the copied route.

To delete the route:

1. Select the on-screen page options button from the Route Page and press the **CLICK STICK** In to access the options menu.
2. Select 'Delete' and then press in on the **CLICK STICK**. You will be prompted, "Do you really want to delete route?". Select "Yes".

To restore default settings for the route:

1. Select the on-screen page options button from the Route Page and press the **CLICK STICK** in to access the options menu.
2. Select 'Restore Defaults' and then press in on the **CLICK STICK** to restore factory settings.

Editing a Route *(Continued)***To review a waypoint:**

1. Select the waypoint from the Route Waypoints List and press the **CLICK STICK** in to access the options menu for the waypoint.
2. Highlight 'Review' and then press in on the **CLICK STICK** to display the Information Page for the waypoint.
3. Highlight the on-screen 'OK' button and then press in on the **CLICK STICK** to return to the Route List.

To insert a new waypoint on the route list:

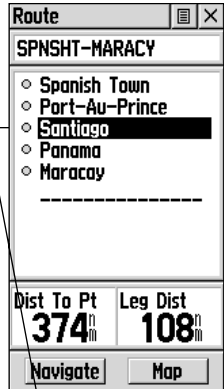
1. Select the row that you want the new waypoint inserted. Press the **CLICK STICK** in to access the options menu.
2. Highlight 'Insert' and press in on the **CLICK STICK** to display the Find Menu and select a new waypoint, city, exit, point of interest, etc.
3. With the new waypoint highlighted, press in on the **CLICK STICK** to display the Information Page for the new waypoint and then select the on-screen 'OK' button to add it the route.

To remove a waypoint from the route list:

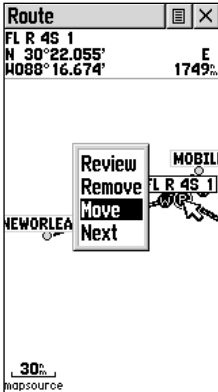
1. Select the waypoint that you want to remove from the Route Waypoints List and press in on the **CLICK STICK** to display the options menu for the waypoint.
2. Highlight 'Remove' and press in on the **CLICK STICK** to remove the waypoint from the list.

To change a route waypoint:

1. Select the waypoint that you want to change from the Route Waypoints List and press in on the **CLICK STICK** to display the options menu for the waypoint.
2. Highlight 'Change' and press in on the **CLICK STICK** to display the Find Menu or create a new waypoint and add it to the Waypoints list.
3. Select a new waypoint, access its Information Page and press the on-screen 'OK' button to replace the old route waypoint.

Routes*Route Page with
Waypoint List**Route Waypoint
Options Menu**Using the Find Menu to
change a Route Waypoint*

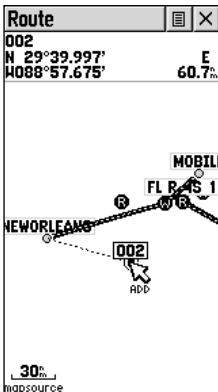
Routes



Moving a Route Waypoint
by clicking and dragging.



Map Page Route Options



Adding a Route Waypoint
to an end point on the
Route Map Page

To move a route waypoint:

1. Select the waypoint from the Route Waypoints List and press the **CLICK STICK** in to access the options menu for the waypoint.
2. Highlight the 'Move' option and press in on the **CLICK STICK** to display the waypoint on the map.
3. Use the **CLICK STICK** to move the panning arrow to the waypoint and then press it in to activate the 'Move' feature (a 'Move' note will appear by the waypoint).
4. Use the **CLICK STICK** to drag the waypoint to the new location, then press it in to place it.

Adding or Editing a waypoint from the Route Map Page

You can use the panning arrow with the Route Map Page displayed to add or edit route waypoints.

To add a route waypoint at either end of a route:

1. Select the Route from the Routes List and press the **CLICK STICK** in to display the Route Page.
2. Highlight the on-screen 'Map' button at the bottom of the page and press in on the **CLICK STICK** to display the Route Map Page.
3. Use the **CLICK STICK** to move the panning arrow to either end of the displayed route until the end waypoint is highlighted. Then press it in to display the map options menu and select 'Add Turns'. This option appears only when highlighting the end point of a route.
4. Move the panning arrow to a map item or location where you would like to extend the route and press in on the **CLICK STICK** to display the Information Page for the new waypoint. Press the on-screen 'OK' button to return to the map page and then press it in again to place the new waypoint.

To add a route waypoint within a route:

1. Follow steps 1 and 2 in the previous instruction.
2. Use the **CLICK STICK** to move the panning arrow to a route line. When the arrow touches the line, the line will become thin. Press in on the **CLICK STICK** to display the word 'ADD' next to the line.

- Next drag the line to a map item or other location where you want to establish a new waypoint and then press in on the **CLICK STICK** to place the new waypoint. A waypoint information page will display. Press the on-screen 'OK' button to save the new waypoint, then press it again after returning to the Route Map.

To review or remove a route waypoint:

- Select the Route from the Routes List and press the **CLICK STICK** in to display the Route Page.
- Use the **CLICK STICK** to highlight the desired route and press in to display the Route Page for that route.
- Use the **CLICK STICK** to move the map panning arrow to the waypoint you want to review and press in to pop-up the options menu. Select 'Review' or 'Remove' and press in again to either display the Information Page for that waypoint or remove it from the route.

To view the next waypoint in the route:

- Follow Steps 1 and 2 above.
- Place the map panning arrow on the waypoint you are currently viewing and press in to display the options menu. Select 'Next' and press in again to view the next waypoint which will be centered on the page.

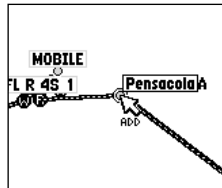
Navigating a Route

A Route can be navigated using the Map Page or the Navigation Page. The Map Page displays your movement, the route line, and waypoints on the route. The Navigation Page provides compass direction and a bearing pointer.

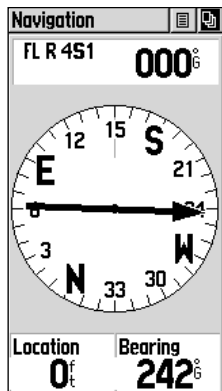
To navigate a route:

- Select a route from the Routes List and then press in on the **CLICK STICK** to display the Route Page.
- Highlight the on-screen 'Navigate' button at the bottom of the page and then press in on the **CLICK STICK** to begin navigating the route.
- Observe that you have moved to the Navigation Page.
- Move to the Map Page and observe the route displayed on the map and the position icon indicating your current location.
- Begin moving and observe directional information on the Navigation Page and your progress on the Map Page.
- To stop navigation use the 'Stop Navigation' option on either page or the 'Stop' button on the Route Page.

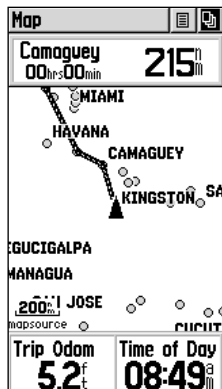
Routes



Adding a new waypoint within a Route

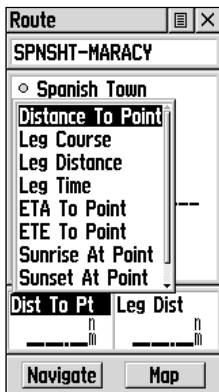


Navigation Page with Bearing Pointer

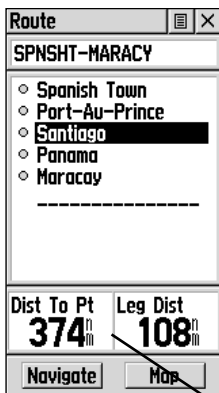


Navigating a Route on the Map Page

Routes



Data Field Options Menu



Distance to Point vs Leg Distance. To view Leg information, highlight the end waypoint on a leg.

Data Fields for the Route Page

When navigating a Route, the data displayed in the data fields on Route Page may be customized to provide useful navigation information that is specifically related to route navigation. These data options appear only on the Route Page.

Options for this type of navigation are:

Distance to Point - The distance from your current location to a route waypoint.

Leg Course - The line of travel between two route waypoints.

Leg Distance - The distance between two route waypoints.

Leg Time - The time required to travel from a route waypoint to the next.

ETA To Point - Estimated Time of Arrival at a route waypoint (in sequence).

ETE To Point - Estimated Time Enroute to a route waypoint.

Sunrise At Point - Time of sunrise at a route waypoint.

Sunset At Point - Time of sunset at a route waypoint.

Pointer - Direction pointer to a route waypoint.

To select data field options:

1. Use the **CLICK STICK** to highlight a data field on the Route Page and then press in to display the Data Field Options Menu.
2. Use the **CLICK STICK** to highlight the desired option and then press in to enter the option in the data field.

Using Track Logs - Overview

The eTrex Mariner draws an electronic breadcrumb trail on the Map Page as you travel along. This breadcrumb trail is called a 'Track Log'. The Track Log contains information about points along its path, including time and position. The eTrex Mariner uses this information to allow you to navigate using the saved track.

The 'TracBack' feature allows you to return along a traveled path without marking any waypoints. When you are ready to return to where you started, the eTrex Mariner will take you back by following the 'Track Log' that you left behind. You can save a total of ten tracks in the unit memory. The Track Log starts recording as soon as the unit gets a satellite location fix and the Track Log feature is turned on.

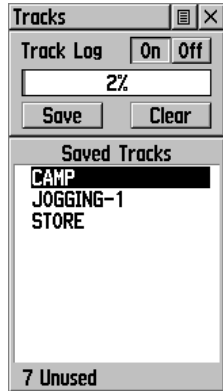
If you want to keep a record of a certain track log or use the 'TracBack' feature, it is recommended that you clear the Track Log before you start traveling. The percentage of memory used by the current track log is displayed in a window at the top of the page. After the Track Log is 'Cleared', it will show zero percent. When the display shows 99%, the most recent track points will start overwriting the least recent. To avoid losing track points you want, save the Track Log before it reaches the 99% mark.

The Saved Track Page displays the track and it can also be displayed on the Main Map Page as you navigate.

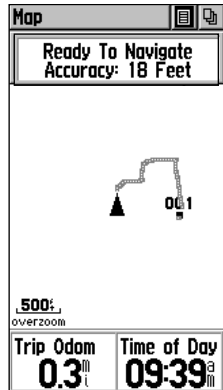
The 'TracBack' feature allows you to retrace your track in both directions. Tracks are marked BEGIN and END.

You can set the track recording interval to Distance, Time, or Automatic. You can set the Track display resolution to High, Medium, Low, and Lowest. You can also use the options menu to delete all saved tracks.

Tracks Page



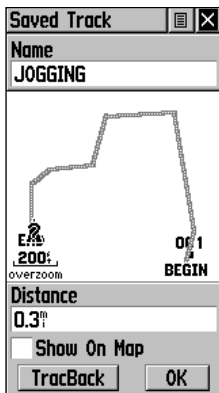
Tracks Page



Track on Main Map Page

For effective use of the "TracBack" feature, clear the Track Log before starting a new trip or after saving the Track Log. Rename saved Track Logs to help identify them later.

Tracks Page



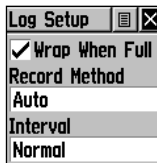
Saved Track Page



Save Track Options



TracBack Options



Track Log Setup Menu



Record
Method
Options

If you choose Auto-record, you can set the recording interval from More to Least Often. You can set recording intervals for Time or Distance as desired.

Step-by-Step Instructions

To save and use a Track Log:

1. Access the 'Tracks' page from the Main Menu. The page has On/Off buttons, a list of tracks, and the number of unused tracks.
2. You can press in on the on-screen 'Off' button to pause track logging. When track logging is active the 'On' button will appear to be recessed.
3. Highlight the 'Save' on-screen button and then press in on the **CLICK STICK** to display the track log 'Save Back Through' list.
4. Use the **CLICK STICK** to select the time and date that you would like to save the track through.
5. Press in on the **CLICK STICK** to save the track log and display the Track Page.
6. The Track Page shows the track name (which can be renamed using the keyboard for data entry), the total distance of the track, the number of points along the track, a 'Show on Map' option with check box, and on-screen buttons for 'Map', 'OK', and 'Tracback'.
7. To enable the Tracback feature, highlight the 'Tracback' button and then press in on the **CLICK STICK**. This will display the Tracback Menu with two options, 'To Beginning' and 'To End'. Highlight the desired option and then press in on the **CLICK STICK** to enable. Access the Map Page or the Navigation Page to navigate the Track.

To use Track Log Setup options:

1. Highlight the Tracks Page Options Menu button at the top of the page and press in on the **CLICK STICK** to display the menu.
2. Highlight the 'Tracks Log Setup' option and then press in on the **CLICK STICK** to display the Setup Page. You can check the 'Wrap When Full' option by highlighting and then pressing in on the **CLICK STICK**. You can highlight the 'Record Method' and 'Interval' fields and press in on the **CLICK STICK** to display their options. 'Interval' options will change to accommodate the 'Record Method' choices.

The Setup Pages - Overview

The Setup Pages allow you to customize your eTrex Mariner to your personal preferences. You can choose time settings, units of measure, display backlighting and contrast settings, heading measurement, interface options and system operating mode.

By highlighting the icons on the Setup Menu and then pressing in on the **CLICK STICK**, you can display the Setup Page for each of the menu items.

Time Page - Overview

You can set the time to match your location or for a projected location anywhere in the world.

Time Format - Allows you to choose from 12 or 24 hour time format. When you select the 12 hour time format, the clock will read like a standard clock with 12 hour AM and PM cycles. The 24 hour option sets the clock to display a 24 hour cycle (Military Time).

Time Zone - Can be set to one of the eight US Time Zones, or 24 International Time Zones (nearest city or geographical region) When selecting 'Other' you can enter the UTC Time Offset for any other time zone. Refer to the instructions for setting the UTC Time Offset on page 54 of the Appendices.

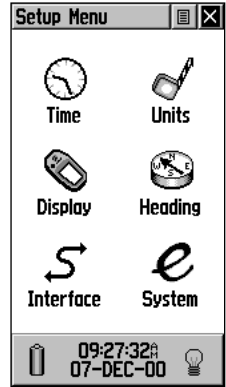
Daylight Savings Time - Can be turned On or Off or set to Automatic.

Step-by-Step Instructions

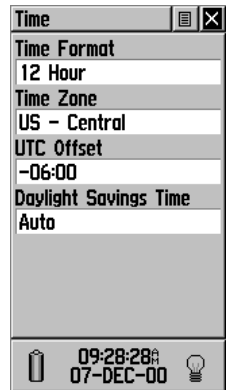
To set the time:

1. Use the **PAGE** button to access the Main Menu.
2. Use the **CLICK STICK** to highlight the Setup Icon and then press it in to display the Setup Menu.
3. Use the **CLICK STICK** to highlight the Time Icon and then press it in to display the Time Page.
4. Use the **CLICK STICK** to highlight the 'Time Zone' field then press it in to display the list of time zone options.
5. Highlight a time zone from the list of 8 U.S. time zones or 24 international time zones (defined by nearest city or geographically) and then press in on the **CLICK STICK**.
6. Observe the correct time displayed at the bottom of the page.

Setup Pages



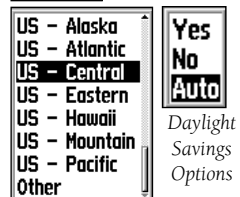
Setup Menu



Time Setup Page

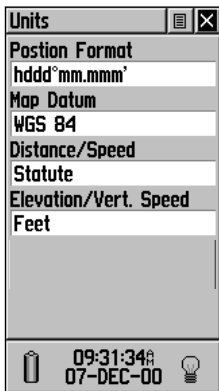


Time Format Options



Time Zone Options

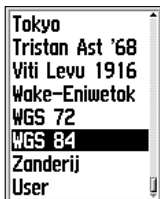
Setup Pages



Units Page



Position Format
Options Menu



Map Datum
Options Menu



Distance/
Speed
Options



Elevation/
Vertical
Speed
Options

Units Page - Overview

Some Units features are best used by individuals with a working knowledge of map grids and datums. To learn more about these subjects, visit the National Imagery and Mapping Agency at <http://www.nima.mil> or inquire at your library.

Position Format - Allows you to choose from different grid formats. The default position format, 'hddd°mm.mmm' displays the latitude and longitude in degrees and minutes and is most commonly used.

Map Datum - Offers a selection of nearly all map datums in common use. Every map is based on a map datum (a reference model of the earth's shape) and is usually listed in the title block of the map. If you are comparing GPS coordinates to a paper map, chart, or other reference, the map datum in this field must match the horizontal map datum used to generate the map or other reference. The default datum is WGS 84 (World Geodetic Survey 1984) and should only be changed when using maps or charts specifying a different datum. If a map does specify a datum, use the options list to find datums applicable to the region of the map, selecting the one that provides the best positioning at a known point. You may also choose the 'User' datum for custom designed grids.

Distance/Speed - You can choose from three units of measure to display your rate of travel.

Elevation/Vertical Speed - You can choose from two units of measure to record your elevation and rate of ascent.

Step-by-Step Instructions

To select Units Page options:

1. For all fields on this page, highlight the field and then press in on the **CLICK STICK** to display the options menu for the field.
2. Highlight the desired option on the menu and then press in on the **CLICK STICK** to place it in the field.

Display Page - Overview

You can adjust the amount of time that the backlighting feature stays on before timing out and adjust the screen contrast for best viewing.

Backlighting Timeout - Allows you to choose from Stays On, to delays of 15 seconds, 30 seconds, one, or two minutes before timing out.

Contrast Adjustment - Can be adjusted from light to dark using the slider adjacent to the contrast bar.

Step-by-Step Instructions

To set the backlighting timeout:

1. Highlight the Backlight Timeout field and then press in on the **CLICK STICK** to display options.
2. Highlight the desired option and then press in on the **CLICK STICK** to activate it.

To adjust the contrast:

1. Highlight the contrast slider and then press in on the **CLICK STICK** to activate.
2. Move the **CLICK STICK** Up or Down to move the contrast slider until the desired contrast has been set.

Heading Page - Overview

You can select from three types of heading displays, and four types of North References and enter the magnetic variation when selecting a 'User' reference.

Display - Allows you to choose from Cardinal Letters, Degrees or Mils.

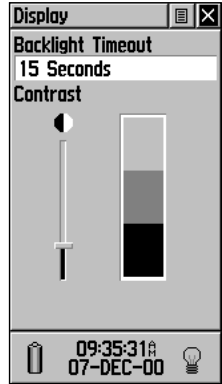
North Reference - You can choose from True, Magnetic, Grid or User options. If 'User' is chosen, you must enter the Magnetic Variation using data entry techniques.

Step-by-Step Instructions

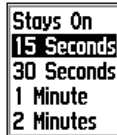
To select Display and North Reference options:

1. Highlight the field and then press in on the **CLICK STICK** to display the options.
2. Highlight the option and press in on the **CLICK STICK** to activate.

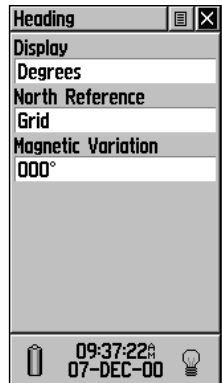
Setup Pages



Display Page



Backlight
Timeout
Options

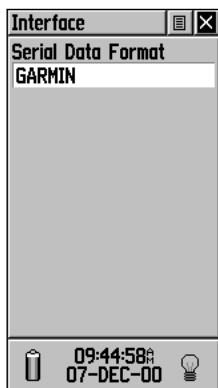


Heading Page

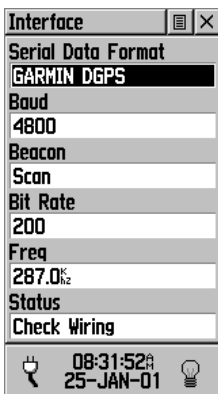


North Reference
Options

Setup Pages



*GARMIN Mode
with No Options*



*GARMIN Differential
GPS Mode
with Data and Options
Fields*

Interface Page - Overview

The Interface Settings Page allows you to choose from seven different input/output serial data formats, or none at all. This feature is used when connecting your eTrex Mariner to external NMEA devices, a DGPS beacon receiver, a personal computer, etc. For effective use of this feature it is necessary to have a working knowledge of these applications. Following is a description of each format:

GARMIN - The proprietary format used to exchange waypoint, track, and map data with a PC.

GARMIN DGPS - Allows DGPS input using a GARMIN beacon receiver and a standard RTCM SC-104 and DGPS tuning.

NMEA Out - Supports the output of standard NMEA 0183 version 2.3 data.

Text Out - Allows simple ASCII text output of location and velocity information, without any input capabilities.

RTCM In - Allows DGPS input using a standard RTCM SC-104 format without any output capabilities.

RTCM In/NMEA Out - Allows DGPS input using a standard RTCM SC-104 format and supports the output of standard NMEA 0183 version 2.3 data.

RTCM In/Text Out - Allows DGPS input using a standard RTCM SC-104 format and simple ASCII text output of location and velocity information.

None - Provides no interfacing capabilities.

If 'GARMIN DGPS' or 'RTCM in/NMEA Out' format is selected, additional fields are provided to control a GARMIN differential beacon receiver (e.g. GBR 21 & GBR 23) directly from your unit. Tuning is automatic with 'Scan' or you can enter the beacon frequency and bit rate when you select 'User' from the Beacon list to manually tune the receiver. Refer to the beacon receiver instructions.

Step-by-Step Instructions

To select a serial data format:

1. Highlight the Serial Data Format field and then press in on the **CLICK STICK** to display options.
2. Highlight the desired option and then press in on the **CLICK STICK** to activate it.
3. If you selected a format that displays additional fields, highlight those with options and make your selection using the **CLICK STICK**.

System Page - Overview

The System Setup Page allows you to select from four modes of operation 'Normal', 'Battery Saver', 'Use With GPS Off', and 'Demo Mode'.

Of these, the 'Battery Saver', 'Use With GPS Off', and 'Demo Mode' options significantly save battery power. The 'Battery Saver' mode reduces the rate of satellite position updating and the 'Use With GPS Off' option stops satellite signal reception. The 'Demo Mode' simulates navigation.

This Page Option Menu also displays the current version of unit operating software and the Internal Unit i.d. Number. The path for downloading software updates from the GARMIN website is (www.garmin.com). Downloading requires use of the GARMIN PC Interface Cable. Instructions for downloading are posted at the website.

You can use the Wide Area Augmentation System (WAAS) capability of the eTrex Mariner to produce a more accurate position fix (3 meters nominal). When enabled (the GPS mode must be set to 'Normal' and the interface set to other than RTCM mode), this feature searches for a WAAS satellite near your location and then receives data for correcting differentials in the GPS satellite signals. When WAAS has been enabled, you will see WAAS satellite numbers, beginning at No. 33 or above, displayed on the Satellite Page. When differential correction data has been received for GPS satellites (numbers 32 or below), a 'D' will appear in the signal bar beneath the skyview. It is helpful to orient the unit antenna toward the WAAS satellite shown in the skyview. To learn more about the WAAS System, its satellite positions and current state of development, access the Federal Aviation Administration website (<http://gps.faa.gov/>). Refer to the Troubleshooting Guide on page 57 if WAAS access and differentials are not obtained.

You can select from a list to change the display language.

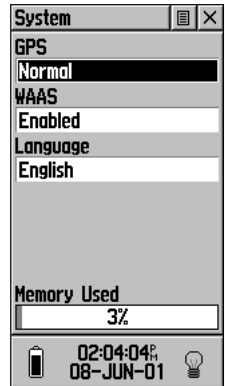
At the bottom of this page, shows the Amount of Memory Used, Power Status, Date and Time and Backlighting Status.

Step-by Step Instructions

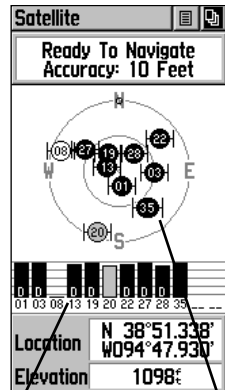
To select GPS mode or WAAS options:

1. Highlight the field and then press in on the **CLICK STICK** to display the options. Then use the **CLICK STICK** to select.

Setup Pages



System Setup Page in Normal Mode and with WAAS Enabled

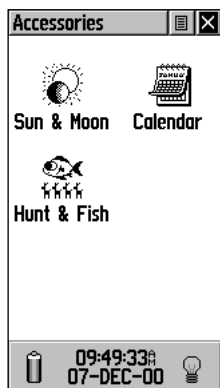


WAAS Enabled.
WAAS Satellite is No. 35 and 'D' in Signal Bars for GPS Satellites

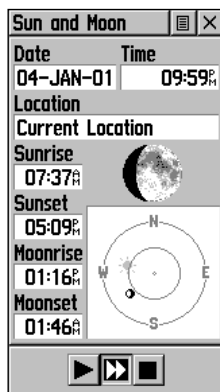


System Page Options Menu with Operating Software Information Access

Accessory Pages



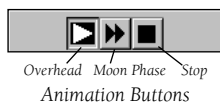
Accessory Menu



Sun & Moon Page



Location Options List



Overhead Moon Phase Stop
Animation Buttons

Accessories Menu

There are three accessory pages (features which enhance the unit operation, but are not essential), sun and moon position relative to a location, a calendar displayed by month, and a hunting and fishing best times record. Highlight the appropriate icon and then press in on the **CLICK STICK** to display the desired page.

Sun and Moon - Overview

This feature provides you with a graphic display of both sun and moon positioning for a certain date, time and location with times for sunrise, sunset, moonrise, and moonset.

On-screen buttons at the bottom of this page allow you to animate the movement of the sun and moon and stop it at a given date. The first button on the left animates the overhead display of the sun and moon and you can view positions for any given date by observing the date field and stopping movement when the desired date is displayed. You can also display the different phases of the moon by pressing the center button and then the far right 'stop button' when the desired date appears.

Step-by-Step Instructions

To set the date and time:

1. For the Date and Current Time, highlight each field and then press in on the **CLICK STICK** to begin data entry of individual characters.
2. To display the current date and time, highlight the page Options Menu and press in on the **CLICK STICK** to display the 'Use Current Time' option and then press in on the **CLICK STICK** to activate.

To set the location:

1. Highlight the Location field and then press in on the **CLICK STICK** to display the 'New Location' options list.
2. Highlight the option desired and then press in on the **CLICK STICK** to activate. If you choose 'Current Location' the field values displayed on the page will reflect the view from your current location. If you choose 'Use Map', a map page will display. Use the map pointer to identify the desired location and then press in on the **CLICK STICK**. If you choose 'Use Find Menu' follow instructions for using the Find Menu on page 30.

Calendar - Overview

This feature provides you with a monthly calendar with programmable reference notes dates. You can display one monthly calendar of days at a time and mark days on each with reference notes using the data entry keypad. You can create reference notes for multiple months and for months in years yet to come. You can record 100 notes with up to 18 characters each.

Step-by-Step Instructions

To set the month and year:

1. For the month, highlight the month field and then press in on the **CLICK STICK** to begin to enter a new month using the data entry keyboard.
2. For the year, highlight the year and then press in on the **CLICK STICK** to begin entering the year using the data entry keyboard.
Or...
3. Choose 'Set To Current Date' from the Options Menu.

To create a reference note:

1. Use the **CLICK STICK** to highlight the day of the month and then press in to display the options menu for the date.
2. Highlight and select 'New Note' to begin entering text from the keyboard.
3. Observe the message as it is created in the message block below the keyboard.
4. To edit or delete a note previously created, highlight the date and press in on the **CLICK STICK**. You will be presented with 'Edit Note', 'Delete Note', 'View Sun and Moon', or 'View Hunt and Fish' options.

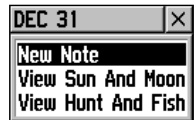
Accessory Pages



Calendar Page



Calendar Page Options



Calendar Date Options



Calendar Page Keyboard and Message Block

Accessory Pages

Hunt & Fish	
Date	07-MAR-01
Location	Current Location
Prediction	Good Day
Best Times	09:29 ^{AM} — 11:29 ^{AM} 09:50 ^{AM} — 11:50 ^{AM}
Good Times	03:18 ^{AM} — 04:18 ^{AM} 03:40 ^{AM} — 04:40 ^{AM}

Hunt & Fish Page

New Location	
Current Location	Use Map
Use Find Menu	

'New Location' Options

Hunt and Fish - Overview

This feature provides you with a listing of best times for hunting and fishing for a chosen location and date.

Step-by-Step Instructions**To set the date:**

1. Highlight the date field and then press in on the **CLICK STICK** to begin data entry of individual characters. To display the current date, highlight the page Options Menu and press in on the **CLICK STICK** to display the 'Use Current Date' option and then press in on the **CLICK STICK** to activate.

To set the location:

1. Highlight the Location field and then press in on the **CLICK STICK** to display the 'New Location' options list.
2. Highlight the option desired and then press in on the **CLICK STICK** to activate. If you choose 'Current Location' the field values displayed on the page will reflect the times at your current location.
3. If you choose 'Use Map', a map page will display. Use the map pointer to identify the desired location and then press in on the **CLICK STICK**.
4. If you choose 'Use Find Menu' follow instructions for using the Find Menu on page 30.



NOTE: The times displayed are the recognized best and good times for hunting and fishing. But, be certain that they are not in conflict with state and local game laws which may vary from location to location. It is your responsibility to know and abide by these laws.

Appendix A
Specifications**Physical**

Case:	Fully-gasketed, high-impact plastic alloy, waterproof to IPX7 standards (waterproof to one meter for 30 minutes)
Size:	4.4" H x 2" W x 1.2" D
Weight:	Approx. 5.3 ounces (150g) w/batteries
Temperature Range:	5° to 158°F (-15° to 70°C) (operating)

Performance

Receiver:	Differential-ready, 12 parallel channel
Acquisition time:	Approx. 15 seconds (warm start) Approx. 45 seconds (EZinit/cold start) Approx. 5 minutes (First Time/AutoLocate™)
Update Rate:	1/second, continuous
GPS Accuracy:	<15 meters (49 ft) RMS, 95% typical ²
DGPS (USCG) Accuracy:	3-5 meters (10-16 ft), 95% typical with DGPS corrections ¹
DGPS (WAAS) Accuracy:	<3 meters (10 ft.) 95% typical with DGPS corrections ¹
Velocity Accuracy:	0.05 meter/sec steady state
Dynamics:	Performs to specifications to 6 g's
Interfaces:	NMEA 0183, RTCM 104 (for DGPS corrections) and RS-232 for PC interface
Antenna:	Built-In patch

Power

Input:	Two 1.5-volt AA batteries ³
Power Consumption:	0.5 watts max.
Battery Life:	Up to 20 hours of typical use in 'Battery Saver' mode ⁴

Specifications subject to change without notice.

¹With optional GARMIN Differential Beacon Receiver Input (such as GARMIN GBR 21 or 23).

²Subject to accuracy degradation to 100m 2DRMS under the U.S. DoD-imposed Selective Availability program.

³The temperature rating for the eTrex Mariner may exceed the usable range of some batteries. Alkaline batteries can rupture at high temperatures. External power can only be applied using the GARMIN Auto Power Adapter or PC Interface Cable with Auto Power Adapter. These cables contain a 12 VDC to 3VDC voltage regulator. Modifications or other applications will void the product warranty.

⁴Alkaline batteries lose a significant amount of their capacity as temperature decreases. Use lithium batteries when operating the eTrex Mariner in below-freezing conditions. Extensive use of screen backlighting will significantly reduce battery life. Different battery brands vary in useful life.

Appendix B Time Offset Chart

The table below gives approximate UTC time offset for various longitudinal zones. If you are in a time zone with daylight savings, add one hour to the offset.

Longitudinal Zone	Offset	Longitudinal Zone	Offset
W180.0° to W172.5°	-12.00	E007.5° to E022.5°	+01.00
W172.5° to W157.5°	-11.00	E022.5° to E037.5°	+02.00
W157.5° to W142.5°	-10.00	E052.5° to E067.5°	+03.00
W142.5° to W127.5°	-09.00	E067.5° to E082.5°	+04.00
W127.5° to W112.5°	-08.00	E082.5° to E097.5°	+05.00
W112.5° to W097.5°	-07.00	E097.5° to E112.5°	+06.00
W097.5° to W082.5°	-06.00	E112.5° to E122.5°	+07.00
W082.5° to W067.5°	-05.00	E122.5° to E127.5°	+08.00
W067.5° to W052.5°	-04.00	E127.5° to E142.5°	+09.00
W052.5° to W037.5°	-03.00	E142.5° to E157.5°	+10.00
W037.5° to W022.5°	-02.00	E157.5° to E172.5°	+11.00
W022.5° to W007.5°	-01.00	E172.5° to E180.5°	+12.00
W007.5° to E007.5°	-00.00		

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

Standard Accessories

Carry Lanyard

Provides convenient method for carrying the eTrex Mariner. Attaches to a slot on the bottom of the unit. *(Not shown)*

PC Interface Cable00

Allows for transfer of data from a PC to an eTrex Mariner. (RS232 serial port connector) *(Not shown)*

Owner's Manual

Quick Start Guide

Optional Accessories

Automotive Mounting Bracket

Can be temporarily or permanently mounted on the dash.

Handlebar Mounting Bracket

Allows the eTrex Mariner to be mounted on bicycle handle bars.

Carrying Case

Protects the eTrex Mariner and permits use while in the case. *(Not shown)*

Carrying Holster

Allows easy access to the eTrex Mariner when clipped on a belt. *(Not shown)*

Cigarette Lighter Adapter

Provides eTrex Mariner power from an automobile cigarette lighter.

Data Cable

Wiring harness. Bare wire connections for data input/output. *(Not shown)*

PC Interface Cable/Cigarette Lighter Power Adapter

Allows transfer of waypoints and routes from a PC to the eTrex Mariner and provides unit power from an automobile cigarette lighter.

MapSource™ “Points of Interest” CD-ROM

An excellent tool for finding locations and creating routes on your eTrex Mariner. See your GARMIN dealer or the GARMIN website (www.garmin.com) for product details and availability.

Replacement Battery Cover

Replacement for lost or damaged battery compartment cover. *(Not shown)*

Appendix C Accessories



Automotive Mounting Bracket



Handlebar Mounting Bracket



Cigarette Lighter Power Adapter-Converts 12VDC output from the lighter to 3VDC input to the eTrex Mariner. Not interchangeable with power adapters for GARMIN VHF 720, 725, and 725e, or GPS 170, 175, 190, and 195.



PC Interface with Cigarette Lighter Power Adapter. Also non-interchangeable with the GARMIN power adapters mentioned above.

Appendix D Wiring Diagram

Interface formats are selected from the Setup 'Interface Page' on page 48 of this manual. The input/output lines on your eTrex Mariner unit are RS-232 compatible, allowing easy interface to a wide range of external devices, including PCs, differential beacon receivers, marine autopilots and /or a second GPS receiver.

The NMEA 0183 version 2.3 interface format is supported by the eTrex Mariner and enables the unit to drive up to three NMEA devices.

NMEA 0183 Version 2.3 Approved Sentences:

GPGGA, GPGLL, GPGSA, GPGSV, GPRMB, GPRMC, GPRTE, GPWPL, GPBOD

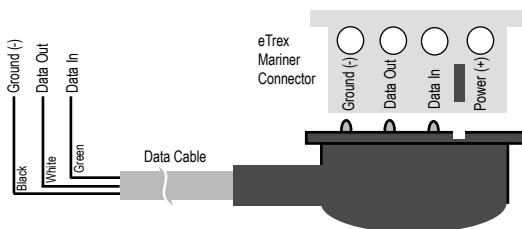
GARMIN Proprietary Sentences:

PGRME (estimated error), PGRMZ (altitude), PSLIB (beacon receiver control)

DGPS (Differential GPS) corrections are accepted in RTCM SC-104 version 2.0 format through the 'Data In' line. The GARMIN GBR 21 is the recommended beacon receiver for use with the eTrex Mariner. Other beacon receivers with the correct RTCM format may be used, but may not correctly display status or allow tuning control from the GPS unit.

The eTrex Mariner may be hard-wired to a serial connector using the Data Cable (see Appendix C for ordering information). Refer to the wiring diagram and the eTrex Mariner unit data connection illustrated below.

The PC Interface Cable provided with this unit allows you to connect your eTrex Mariner to a PC-compatible computer's serial port.



To resolve problems that cannot be remedied using this guide: Contact GARMIN Customer Service at 913-397-8200 or 800-800-1020

Appendix E Troubleshooting

Symptom	Probable Cause	Remedy
Unit does not turn on.	Batteries are exhausted.	Replace batteries.
Unit will not turn ON, even with new batteries.	Batteries may be installed backwards. You are pressing and <u>releasing</u> the POWER button.	Reinstall batteries. You must press and <u>hold</u> the POWER button for two seconds.
The unit turns On, then turns OFF.	Batteries may be nearly exhausted.	Replace batteries.
It takes more than ten minutes to get a location fix.	The unit's view of satellites is obstructed.	Move to a location with a clear view of the sky.
Cannot access a WAAS system satellite after 2 to 5 minutes.	Your view of the satellite is obstructed or you are located too far from satellites currently in service for the Americas. System GPS operation is set to something other than 'Normal' and/or interface setting is for RTCM.	Move to a location with a clear view and point the unit antenna in the direction of the satellite. Set system GPS to 'Normal' and interface to other than RTCM.
Cannot obtain a differential position from WAAS.	You have not collected enough information from the WAAS satellite.	Wait 10-20 minutes for the initial collection, then 1-2 minutes thereafter.
Cannot access Point of Interest Lists.	MapSource "Points of Interest" data is not installed.	Install "Points of Interest" data. (See page 4)
Cannot view a track being laid down on the map page when traveling.	The Track Log feature is turned Off.	Access the Tracks Page, highlight the 'ON' button and press in on the CLICK STICK .
Cannot see the panning arrow on the Map Page easily.	There is too much map clutter or the scale is such that map features are so densely displayed the arrow is difficult to view.	Use the Map Page Setup Page to reduce map clutter or change the map scale.
Cannot exit a menu or page by moving the CLICK STICK to the left.	Some menus and pages have an 'X' Exit on-screen button in the upper right corner.	Highlight the on-screen button and then press in on the CLICK STICK to exit.

The eTrex Mariner is programmed to provide "pop-up" messages concerning operational characteristics and conditions. Press in on the **CLICK STICK** to acknowledge a message and return to the current feature.

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Appendix G **GARMIN** **Limited Warranty**

GARMIN Corporation warrants this product to be free from defects in materials and workmanship for one year from the date of purchase. GARMIN will, at its sole option, repair or replace any components which fail in normal use. Such repairs or replacement will be made at no charge to the customer for parts or labor. The customer is, however, responsible for any transportation costs. 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 EXPRESSED OR IMPLIED, INCLUDING ANY LIABILITY ARISING UNDER 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 EXCLUSIONS OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.

To obtain warranty service, call the GARMIN Customer Service department (913/397.8200) for a returned merchandise tracking number. The unit should be securely packaged with the tracking number clearly marked on the outside of the package, and sent freight prepaid and insured to a GARMIN warranty service station. A copy of the original sales receipt is required as the proof of purchase for warranty repairs. 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.

Product Registration

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

Connect to our website (www.garmin.com) and look for the Product Registration link on the Home Page.

Why should you register your eTrex Mariner unit?

- Notification of Product Updates
- Notification of New Products
- Lost or Stolen unit tracking



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