LOWRANCE®

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GlobalMap® 5300c iGPS
Mapping GPS Receiver
Operation Instructions

For free owner's manuals and the most current information on this product, its operation and accessories,
visit our web site:
www.lowrance.com

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NOTICE!

The storage and operation temperature range for your unit is from -20 degrees to +167 degrees Fahrenheit (-28 degrees to +75 degrees Celsius). *Extended storage or operation in temperatures higher or lower than specified will damage the liquid crystal display in your unit. This type of damage is not covered by the warranty.* For more information, contact the factory's Customer Service Department; phone numbers are listed on the last page of the manual.

WARNING!
A CAREFUL NAVIGATOR NEVER RELIES ON ONLY ONE METHOD TO OBTAIN POSITION INFORMATION.

CAUTION
When showing navigation data to a position (waypoint), a GPS unit will show the shortest, most direct path to the waypoint. It provides navigation data to the waypoint regardless of obstructions. Therefore, the prudent navigator will not only take advantage of all available navigation tools when traveling to a waypoint, but will also visually check to make sure a clear, safe path to the waypoint is always available.

WARNING!
When a GPS unit is used in a vehicle, the vehicle operator is solely responsible for operating the vehicle in a safe manner. Vehicle operators must maintain full surveillance of all pertinent driving, boating or flying conditions at all times. An accident or collision resulting in damage to property, personal injury or death could occur if the operator of a GPS-equipped vehicle fails to pay full attention to travel conditions and vehicle operation while the vehicle is in motion.

Notes

Section 1: Read Me First!

How this manual can get you out on the road, fast!

Welcome to the exciting world of digital GPS! We know you're anxious to begin navigating, but we have a favor to ask. Before you grab the GlobalMap® 5300c iGPS and begin installing it, please give us a moment or two to explain how our manual can help you get the best performance from your compact, wide-screen, mapping GPS receiver.

First, we want to thank you for buying a Lowrance GPS unit. Whether you're a first time user or a professional fisherman, you'll discover that your GlobalMap 5300c is easy to use, yet capable of handling demanding navigation tasks. When you team your unit with our custom mapping software MapCreate™, you have an incredible combination. You won't find another GPS unit with this much power and this many features for this price!

Our goal for this book is to get you on the road fast, with a minimum of fuss. Like you, we'd rather spend more time navigating and less time reading the manual!

So, we designed our book so that you *don't* have to read the *whole thing* from front to back for the information you want. At the start (or end) of each segment, we'll tell you what content is coming up next. If it's a concept you're already familiar with, we'll show you how and where to skip ahead for the next important topic. We've also made it easy to look up any tips you may need from time to time. Here's how:

The manual is organized into 7 sections. This first section is an introduction to Lowrance GPS. It tells you the basics you need to know before you can make the unit look around and tell you where you are.

Section 2 will help you install your unit. We'll show you how to get the MultiMedia Card (MMC) correctly installed inside the unit. We'll also tell you about some of the available accessories.

Section 3 covers *Basic GPS Operation*. It will show you how easy it is to run the GlobalMap 5300c, right out of the box. This section features a one-page GPS Quick Reference. **(If you've already jumped ahead and figured out how to install the unit yourself, and you just *can't* wait any longer, turn to the Quick Reference on page 40 and head for the road with your GPS unit!)**

Section 3 contains short, easy-to-scan GPS lessons that follow one another in chronological order. They're all you'll need to know to find your way on the water or in the wilderness quickly.

After you've learned the basics (or if you already have some GPS experience), you may want to try out some of the GlobalMap 5300c's many advanced navigation features. That brings us to Section 4, *Advanced GPS Operations*.

When you come to a GPS menu command on the GlobalMap 5300c's screen, you can look it up in the manual by skimming over the table of contents, just flipping through Section 3 or scanning through the command portion of Section 4.

This unit is ready to use right out of the box, but you can fine tune and customize its operation with dozens of options. We describe how to use general system options along with GPS options in Section 5, *System Setup and GPS Setup Options*.

In Section 6, we go into more detail on one of the GlobalMap 5300c's most remarkable capabilities — Searching. We'll introduce a search example in the Basic GPS Operation section, but there are so many map items you can search for, we had to give this function its own section in the manual! For example, did you know this unit can look up business phone numbers, functioning as a virtual Yellow Pages? We'll show you how in Section 6.

Finally, in Section 7, we offer *Supplemental Material*, including a list of the GPS datums used, warranties and customer service information.

Now, if you're into the fine details, glance over the next segment on specifications to see just how much GPS power your GlobalMap 5300c contains.

Specifications: GlobalMap® 5300c iGPS

General

Display: ....Color 5.0" (12.7 cm) diagonal; SolarMax™ TFT display programmable to viewing preference.

Resolution: ....480 pixel x 480 pixel resolution; 230,400 total pixels.

Backlighting: ....Fluorescent cold cathode backlit screen with multiple lighting levels; backlit keypad.

Input power: ....10 to 15 volts DC.

Case size: ....5.4" H x 6.9" W x 3.4" D (13.8 x 17.6 x 8.6 cm); sealed and waterproof; suitable for saltwater use.

MMC slots: ....One with waterproof door (SD card compatible).

Recording:........................MMC & SD memory cards for recording GPS trip details and displaying charts or maps.

Back-up memory:...........Built-in memory stores GPS data for decades. User settings are stored when unit is turned off.

Languages:......................10; menu languages selectable by user.

GPS

Receiver/antenna: ....Internal; Built-in 12 parallel channel GPS/WAAS .

Background map: ....Built-in custom, detailed Lowrance map. Contains: enhanced detail of continental U.S. and Hawaii. Includes more than 60,000 nav aids and 10,000 wrecks/obstructions in coastal and Great Lakes waters. Metro areas, selected major streets/highways and interstate exit services details included.

Custom mapping:...........MapCreate™ software optional; optional plug and play LEI FreedomMaps™ offer the same high detail without the computer work of MapCreate. Other plug and play mapping options include Fishing Hot Spots® Elite, LEI NauticPath™, LakeMaster® ProMaps and Navionics® charts.

Mapping memory: ....Up to 2 gigabytes on one MMC (or SD) card.

Position updates:...........Every second.

Position points:..............1,000 waypoints; 1,000 event marker icons.

Audible alarms:..............Arrival/off-course/anchor.

Graphic symbols for waypoints or event marker icons:..................63.

Routes: ....100; up to 100 waypoints per route.

Plot Trails:.......................10 savable; up to 9,999 points per trail.

Zoom range: ....39 ranges; 0.02 to 4,000 miles.

NOTE:

The above memory capacities refer only to the GlobalMap 5300c's onboard memory. The amount of GPS data you can record and save for recall later is limited only by the number of MMC cards you have.

How Lowrance GPS Works

You'll navigate faster and easier if you understand how the GlobalMap 5300c scans the sky to tell you where you are on the earth — and, where you're going. (But if you already have a working understanding of GPS receivers and the GPS navigation system, skip on ahead to Section 2, *Installation & Accessories* on page 11. If you're new to GPS, read on, and you can later impress your friends with your new-found knowledge.)

First, think of your unit as a small but powerful computer. (But don't worry — we made it easy to use, so you don't need to be a computer expert to find your way!) The GlobalMap 5300c includes a keypad and a screen with menus so you can tell it what to do. The screen also lets the unit show your location on a moving map, as well as point the way to your destination.

This gimbal-mounted GlobalMap 5300c uses an internal antenna/receiver module, which makes the whole system work something like your car radio. But instead of your favorite dance tunes, this receiver tunes in to a couple of dozen GPS satellites circling the earth. (It will also listen in to the WAAS satellites in orbit, but more about that in the upcoming segment introducing you to GPS and WAAS.)

Your unit listens to signals from as many satellites as it can see above the horizon, eliminates the weakest signals, then computes its location in relation to those satellites. Once the GlobalMap 5300c figures its latitude and longitude, it plots that position on the moving map shown on the screen. The whole process takes place several times a second!

The performance doesn't stop there. Stored in the permanent memory of each unit is a basic background map of the *entire* world. We lock it in here at the factory — you can't change or erase this map.

The background map is suitable for many navigation chores, but for maximum accuracy and much more detail, you need our optional map-making software, MapCreate™. Some unit features — such as searching for businesses and addresses — won't work without a custom Map-Create map. There is so much detail in our background map (and even more in MapCreate) that we'll describe their contents and differences in Section 3, *Basic GPS Operations*, on page 34.

Another portion of the GlobalMap 5300c's onboard memory is devoted to *recording* GPS navigation information, which includes waypoints, event marker icons, trails and routes. This lets you look back the way you came. Think of this data storage like the hard drive memory in a computer or a tape in a cassette tape recorder. You can save several different GPS data

files, erase 'em and record new ones, over and over again. Like any computer file, these *GPS Data Files* (file format *.usr) can be shared between Lowrance GPS or sonar/GPS units or even personal computers.

This GlobalMap 5300c has one more thing in common with a personal computer. Just as computers have a floppy disk drive for storing and exchanging files, the unit has a slot for an MMC (MultiMedia Card) or SD (Secure Digital card) flash memory card. These solid-state memory devices are about the size of a postage stamp, but can hold data ranging from 8 MB to 2 GB in size. (Compare that to a floppy disk's 1.44 MB capacity!) This unit uses all that MMC space for two key GPS purposes.

First, you can backup your onboard GPS Data Files by copying them to the MMC. Since the MMC is removable (like a floppy disk or a cassette tape), you can store these GPS Data Files on a personal computer equipped with an MMC card reader. (Or store them on a pocketful of MMCs, if you don't have a computer.) Our MapCreate mapping software can save, edit or create its own GPS Data Files, which can be copied to the MMC and then loaded from the MMC into the unit's memory. (**NOTE:** No matter where they come from, GPS Data Files *must* be loaded from the MMC into memory before the GlobalMap 5300c can use them.)

The other key GPS use for MMCs is storage of special high-detail, custom maps, which you can produce on your computer with our MapCreate software. These MapCreate custom maps contain much greater detail than the basic background map. These *Custom Map Files* (file format *.lcm) can also be shared between Lowrance GPS or sonar/GPS units and personal computers.

This unit automatically reads Custom Map Files directly from the MMC or SD card. To use a custom map, all you need to do is slide an MMC containing a map into the GlobalMap 5300c.

Introduction to GPS and WAAS

Well, now you know the basics of how the unit does its work. You might be ready to jump ahead to Section 2, *Installation & Accessories,* on page 11, so you can mount your GlobalMap 5300c and plug in the power. Or you might want to see how our text formatting makes the manual tutorials easy to skim. If that's the case, move on to "How to Use This Manual" on page 8. But, if you want to understand the current state of satellite navigation, look over this segment describing how GPS and its new companion WAAS work together to get you where you're going.

The Global Positioning System (GPS) was launched July 17, 1995 by the United States Department of Defense. It was designed as a 24-hour-a-day, 365-days-a-year, all weather global navigation system for the armed

forces of the U.S. and its allies. Civilian use was also available at first, but it was less accurate because the military scrambled the signal somewhat, using a process called Selective Availability (SA).

GPS proved so useful for civilian navigation that the federal government discontinued SA on May 2, 2000, after the military developed other methods to deny GPS service to enemy forces. Reliable accuracy for civilian users jumped from 100 meters (330 feet) under SA to the present level of 10 to 20 meters (about 30 to 60 feet.)

Twenty-four satellites orbit 10,900 nautical miles above the Earth, passing overhead twice daily. A series of ground stations (with precisely surveyed locations) controls the satellites and monitors their exact locations in the sky. Each satellite broadcasts a low-power signal that identifies the satellite and its position above the earth. Three of these satellites are spares, unused until needed. The rest virtually guarantee that at least four satellites are in view nearly anywhere on Earth at all times.
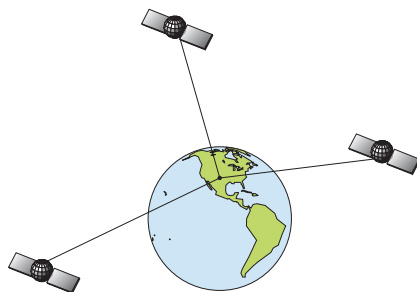
A minimum of three satellites are required to determine a 2D fix.

The system requires signal reception from three satellites in order to determine a position. This is called a 2D fix. It takes four satellites to determine both position and elevation (your height above sea level — also called altitude). This is called a 3D fix.

Remember, the unit must have a clear view of the satellites in order to receive their signals. Unlike radio or television signals, GPS works at very high frequencies. These signals can be easily blocked by trees, buildings, an automobile roof, even your body.

Like most GPS receivers, this unit doesn't have a compass or any other navigation aid built inside. It relies solely on the signals from the satellites to calculate a position. Speed, direction of travel, and distance are all calculated from position information. Therefore, in order for the GlobalMap 5300c to determine direction of travel, you must be moving and the faster, the better.

This is not to say that it won't work at walking or trolling speeds — it will. There will simply be more "wandering" of the data shown on the display.

GPS alone is accurate for route navigation, but the U.S. Federal Aviation Administration has special aircraft navigation needs that go beyond basic GPS. So, the FAA has developed a program to boost GPS performance with its Wide Area Augmentation System, or WAAS. The FAA commissioned the system on July 11, 2003.

WAAS is designed to increase GPS accuracy to within 7.6 meters vertically and horizontally, but it consistently delivers accuracies within 1-2 meters horizontal and 2-3 meters vertical, according to the FAA. It does this by broadcasting correction signals on GPS frequencies. Your unit automatically receives both GPS and WAAS signals.

There, however, are some fringe areas of the U.S., including parts of Alaska that do not yet receive robust WAAS coverage. Continued WAAS development is planned to extend WAAS coverage in the years to come.

WAAS boosts the accuracy of land GPS navigation, but the system is designed for aircraft. The satellites are in a fixed orbit around the Equator, so they appear very low in the sky to someone on the ground in North America. Aircraft and vessels on open water can get consistently good WAAS reception, but terrain, foliage or even large man-made structures can sometimes block the WAAS signal from ground receivers.

You'll find that using your GPS receiver is both easy and amazingly accurate. It's easily the most accurate method of electronic navigation available to the general public today. Remember that this receiver is only a tool. Always have another method of navigation available, such as a map or chart and a compass.

Also remember that this unit will always show navigation information in the shortest line from your present position to a waypoint, regardless of terrain! It only calculates position, it can't know what's between you and your destination, for example. It's up to you to safely navigate around obstacles, no matter how you're using this product.

Free Training Aids Available

Now that you know something about the technology that makes this unit possible, you are ready to start learning how to use that technology. This manual will guide you through the process of setting up and running your unit, but that is only one of many resources available.

If you or a friend has Internet access, visit our web site. Find us at **WWW.LOWRANCE.COM**. The site is packed with additional information on using our products.

Emulator

For the ultimate training aid, be sure to download the free emulator software for your unit. This program can help you learn both basic and advanced operations without burning fuel!

This PC application simulates the actual GPS unit on your computer. You can run it from your computer keyboard or use your mouse to press the virtual keys. Easy download and installation instructions are available on our web site.

The emulator works exactly like your real GPS unit. When using the GPS Simulators you can run GPS routes and trails, even create real waypoints you can use in the field.

And that is just *some* of the material available on our web site. To find out what we have available, log on and look around. For now, we'll get back to how to use this particular unit.

How to use this manual: typographical conventions

Many instructions are listed as numbered steps. The keypad and arrow "keystrokes" appear as boldface type. So, if you're in a real hurry (or just need a reminder), you can skim the instructions and pick out what menu command to use by finding the boldface command text. The following paragraphs explain how to interpret the text formatting for those commands and other instructions:

Arrow Keys
The arrow keys control the movement of dotted cross-hair lines on your mapping screen called the cursor. The arrow keys help you move around the menus so you can execute different commands. They are represented by symbols like these, which denote the down arrow key, the up arrow, the left arrow and the right arrow: ↓ ↑, ← →.

Keyboard
The other keys perform a variety of functions. When the text refers to a key to press, the key is shown in bold, sans serif type. For example, the "Enter/Icons" key is shown as **ENT** and the "Menu" key is shown as **MENU**.

Menu Commands
A menu command or a menu option will appear in small capital letters, in a bold sans serif type like this: **ROUTE PLANNING**. These indicate that you are to select this command or option from a menu or take an action

of some kind with the menu item. Text that you may need to enter or file names you need to select are show in italic type, such as *trail name*.

Instructions = Menu Sequences

Most functions you perform with this unit are described as a sequence of key strokes and selecting menu commands. We've written them in a condensed manner for quick and easy reading.

For example, instructions for navigating a trail would look like this:

1. From the Map Page, press **MENU**|**MENU**|↓ to **MY TRAILS**|**ENT**.

2. Press ↓ to *Trail 1*|**ENT**|→|↓ to **NAVIGATE**|**ENT**.

3. You are asked to wait while it converts the trail into a route.

4. The wait message disappears and the GlobalMap 5300c begins showing navigation information along the trail. Now, begin moving and follow your GlobalMap 5300c.

Translated into complete English, step 1 above would mean: "Start on the Map Page. Press the Menu key twice. Next, repeatedly press (or press and hold) the down arrow key to scroll down the menu and select (highlight) the My Trails menu command. Finally, press the Enter key."

Step 2 would mean: "Press the down arrow key repeatedly to scroll to the trail named Trail 1, and press Enter. Next, press the right arrow key and then the down arrow key to highlight the Navigate command, then press Enter."

Notes

Section 2: Installation

Preparations

You can install the GPS system in some other order if you prefer, but we recommend this installation sequence:

Caution:

You should read over this entire installation section before drilling any holes in your vehicle or vessel!

1. Determine the approximate location for the GPS unit, so you can plan how and where to route the power cable. This will help you make sure you have enough cable length for the desired configuration.

NOTE:

The GPS antenna is inside the unit, so you must mount the unit in a location with an unobstructed view of the sky.

2. Determine the location of your battery or other power connection, along with the power cable route.

3. Install the power cable and route it to the GPS unit.

4. Mount the GPS unit.

Power Connections

Your unit comes with a power/data cable that splits into three branches, each with several exposed wires.

The thicker three-wire cable (white, red and black) is the power supply for your display unit. This cable has no label.

The thinner branch with three wires (red, black and shield) is the power cable for a NMEA 2000 network. It is labeled "NMEA 2000 POWER."

The branch with four wires (blue, yellow, orange, and shield) is a data cable, labeled "RS-232 COMM." It supports a serial communication port. This allows your unit to exchange NMEA 0183 data with another device, such as an autopilot, DSC marine radio or computer.

**Display unit power wires:
white, red and black**

**NMEA 2000 power wires:
red, black and shield**

**Data cable wires:
blue, yellow, orange,
and shield**

To unit
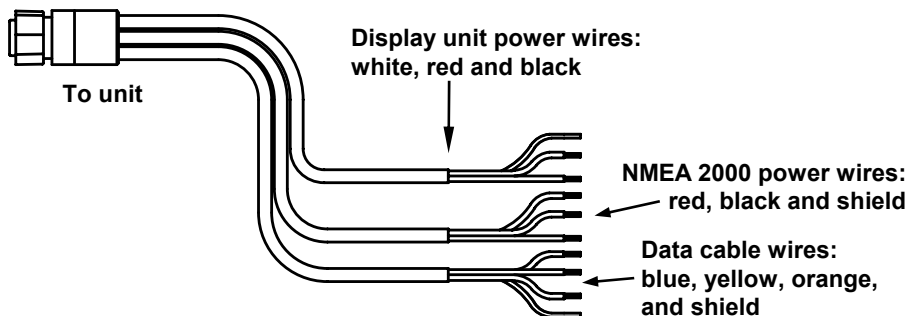
The Power/Data cable for this unit.

NOTE:

> There are two basic power connection options, which are shown in the following two diagrams. ***Read the following instructions carefully to determine which power connection applies to your unit.*** Depending on your configuration, you may not use all of these wires.

Caution:

> *All of the wires in the power/data cable have bare ends for easier installation. The bare ends on any unused wires could cause an electrical short if left exposed. To prevent this, you should cover the individual wire ends – either by capping them with wire nuts, wrapping them with electrical tape or both. (You should cut off the bare wire before taping off the ends.)*

Powering Your Display Unit

The display unit works from a 12-volt DC battery system. Attach the display power cable (with provided 3-amp fuse) to an accessory switch or power bus. If this results in electrical interference, connect direct to a battery but install an in-line switch on the cable.

Caution:

> *We strongly recommend that you shut off the power supply to the power cable when the unit is not in use, especially in saltwater environments. When the unit is turned off but still connected to a power supply, electrolysis can occur in the power cable plug. This may result in corrosion of the plug body along with the electrical contacts in the cable and the unit's power socket. Risk of electrolysis corrosion is even greater when the cable is unplugged from the unit, but still connected to a power source.*

> *We recommend you connect the power cable to the auxiliary power switch included in most boat designs. If that results in electrical*

interference, or if such a switch is not available, we recommend connecting direct to the battery and installing an in-line switch. This will let you shut off power to the power cable when the unit is not in use. When you are not using the unit, you should always shut off power to the power cable, especially when the power cable is disconnected from the unit.

WARNING:

This product *must* be independently fused with the enclosed 3-amp fuse (or equivalent), even if you connect to a fused accessory or power bus.

If a malfunction happens inside the unit, extensive damage can occur if the enclosed fuse is not used. As with all electrical devices, this unit could be damaged to a point that it is unrepairable and could even cause harm to the user when not properly fused.

Failure to use a 3-amp fuse will void your warranty.

If possible, keep the power cable away from other boat wiring, especially the engine's wires. This will provide the best isolation from electrical noise. If the cable is not long enough, splice #18 gauge wire onto it.

The display power cable has three wires, white, red and black. Red is the positive (+) lead, black is negative (–) or ground. The white wire is unused by your unit and should be capped. Make sure to attach the in-line fuse holder to the red lead *as close to the power source as possible.*

For example, if you have to extend the power cable to the power bus or battery, attach one end of the fuse holder directly to the power bus or battery. This will protect both the unit and the power cable in the event of a short.

This unit has reverse polarity protection. No damage will occur if the power wires are reversed. However, the unit will not work until the wires are attached correctly.

Power Diagram A
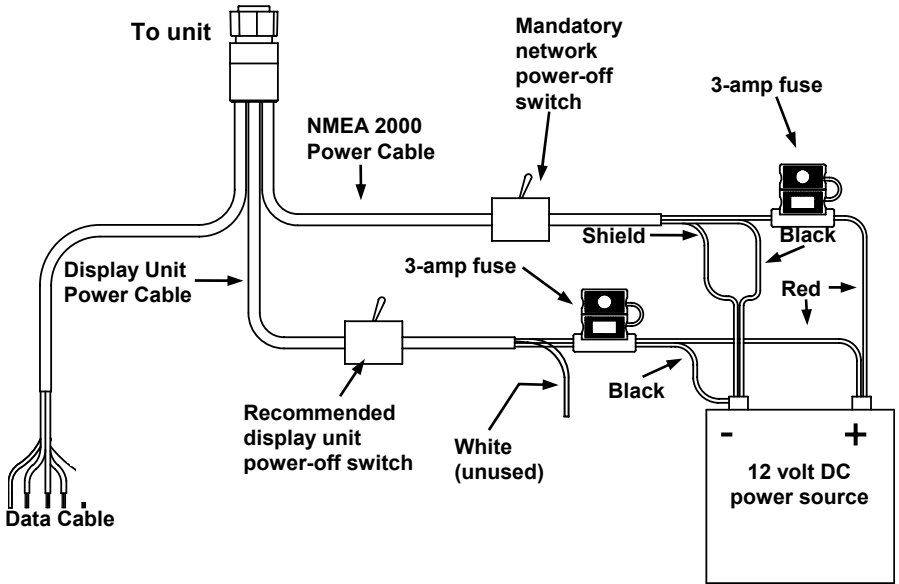
Use this method if you are powering the display unit and a GPS module or the display unit and a NMEA 2000 network. (Fuses may be different from those shown.).

The network and any NMEA 2000 devices, including the GPS module, <u>will not operate</u> *unless the NMEA 2000 Power Cable is connected to power.* The NMEA 2000 power cable must be connected to power even if your only NMEA 2000 device is the GPS module and it is connected to the display unit's Network socket. *(However,* **never connect multiple power sources to a NMEA 2000 network.** *If you have a network that is already powered, see diagram B on page 15.)*

Power Diagram B

To unit

Display Unit Power Cable

White wire (unused)

Red wire with 3-amp fuse

All unused Data or NMEA 2000 power wires should be capped with wire nuts and electrical tape to prevent shorts.

Recommended power off switch

Black wire →

−   +

12 volt DC power source

Data Cable   **NMEA 2000 Power Cable**
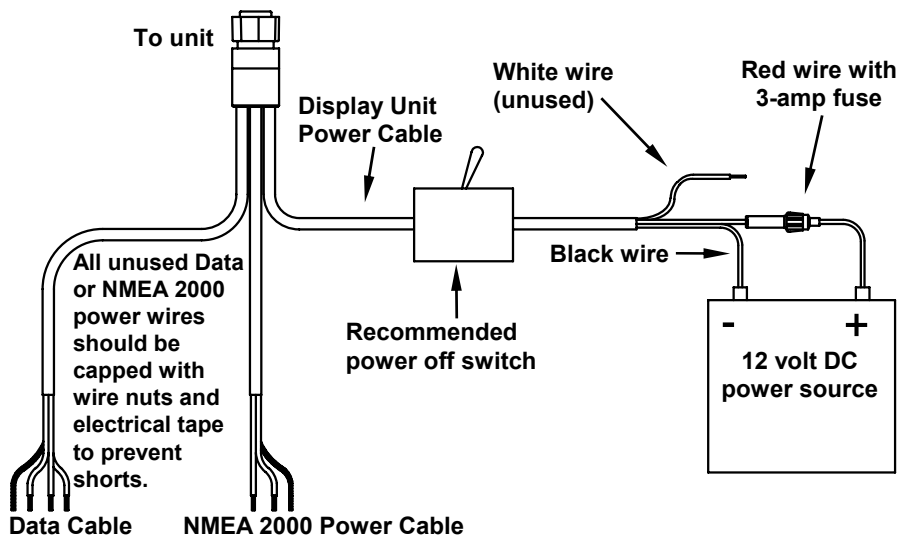
Use this method if you are *only* powering your display unit and are not powering a NMEA 2000 network or any NMEA 2000 accessory device, including a GPS module. (Fuse may be different from that shown.)

The method in diagram B is also used when your display unit is connected to a NMEA 2000 network *that is already connected to power.* (Never connect multiple power sources to a NMEA 2000 network.)

Powering a NMEA 2000 Network Bus

A NMEA 2000 bus must be connected to a power source to operate. NMEA 2000 devices, including GPS modules, draw their power from the network bus.

If you have a pre-existing NMEA 2000 network installation, it may already be connected to another power source. If you are not sure about a network's power status, consult the boat manufacturer or dealer. *If* your NMEA 2000 bus is already powered, you can ignore the NMEA 2000 Power cable and use the method shown in Power Diagram B above. *Never attach two power sources to a single NMEA 2000 bus.*

If you do need to power your NMEA 2000 bus, attach the NMEA 2000 Power cable to an accessory switch as indicated in power diagram A on page 14. The NMEA 2000 Power cable's red wire should be attached (with provided 3-amp fuse) to the positive (+) terminal. The NMEA 2000 Power cable's black and shield wires should both be attached to the negative (–) terminal.

WARNING:

The NMEA 2000 network bus is always on and constantly drawing power. You must connect NMEA power to a switched power source so you can turn off the network when not in use. Failure to connect to and use a power switch will drain your boat battery, which could stop your boat's operation.

Connecting to a NMEA 2000 Network

Your unit can be connected to a NMEA 2000 bus, receiving sensor information from units and devices attached to the network. Contact LEI Extras (look inside back cover for accessory ordering information) for NMEA 2000 accessories.

NOTE:

GPS data from your internal GPS receiver can not be transmitted across a NMEA 2000 network. The only way to transmit GPS data across the network is to add a LGC module to the network. For more information see page 125.

NMEA 0183 Cable Connections

NMEA 0183 is a standard communications format for marine electronic equipment. For example, an autopilot can connect to the NMEA interface on the GlobalMap 5300c and receive positioning information. The GlobalMap 5300c can exchange information with any device that transmits or receives NMEA 0183 data.

See the following diagram for general wiring connections. Read your other product's owner's manual for more wiring information.

NMEA 0183 Wiring
(Data cable)

To exchange NMEA 0183 data, the GlobalMap 5300c has one NMEA 0183 version 2.0 communication port. Com port one (Com-1) can be used to receive NMEA format GPS data. The com port can also transmit NMEA format GPS data to another device.

The four wires for the com port are combined with the Power Supply cable and NMEA 2000 Power cable to form the power/data cable (shown earlier). Com-1 uses the yellow wire to transmit, the orange wire to receive and the shield wire for signal ground. Your unit does not use the blue wire.

Orange (Receive)   **NMEA Transmit**

Com-1
To GlobalMap
5300c

Shield (Ground)   **Ground**

To Other
GPS Receiver
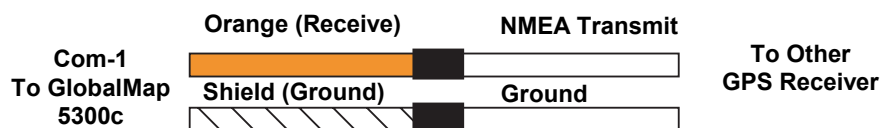
Com-1 wiring to receive NMEA position information from some other GPS receiver

Yellow (Transmit)   **NMEA Receive**

Com-1
To GlobalMap
5300c

Shield (Ground)   **Ground**

To Other
Device
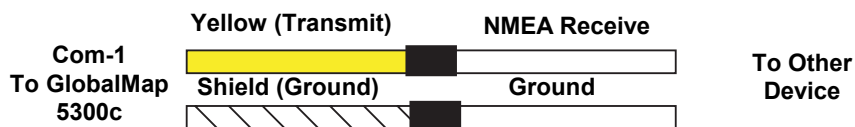
Com-1 wiring to transmit NMEA position information to another NMEA-compatible device.

Power/Data socket

Ethernet (future enhancement

Network Port

Data Cable

NMEA 2000 Power cable
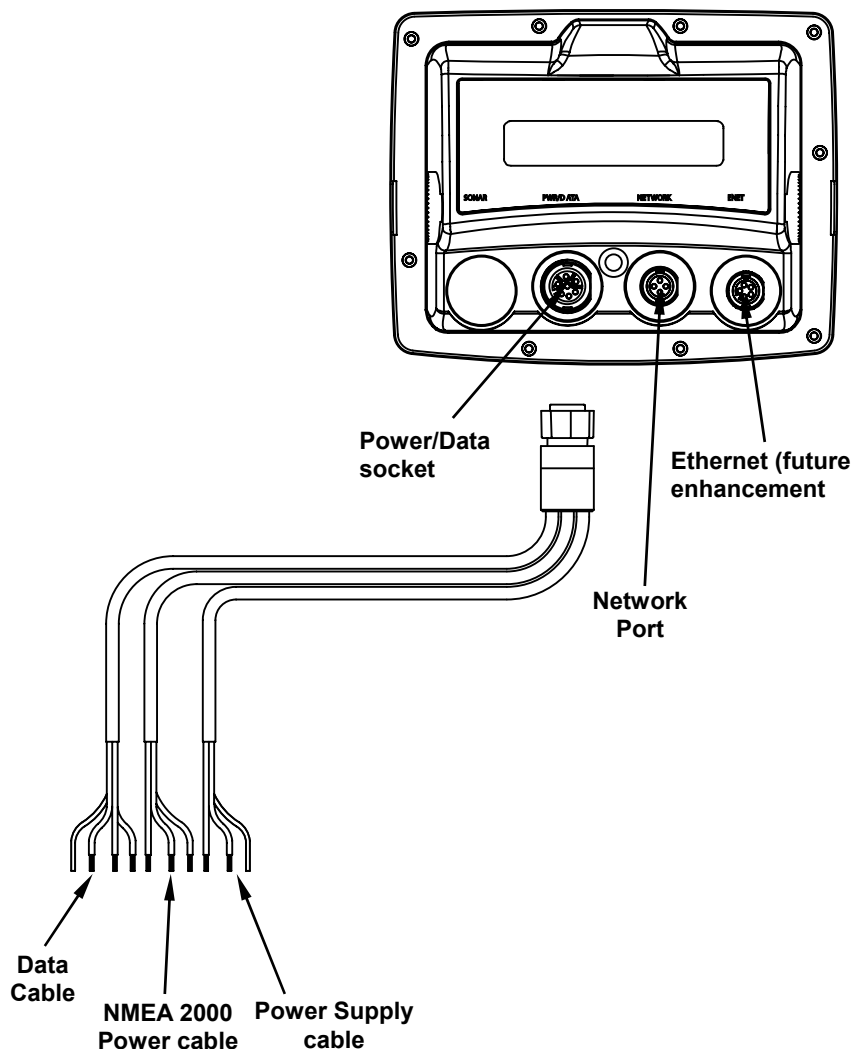
Power Supply cable

GlobalMap 5300c iGPS Cable Connections.

Mounting the Unit: Bracket or Portable

You can install the GlobalMap 5300c on the top of a dash with the supplied gimbal bracket. It can also be mounted on a portable power supply.

If you use the supplied bracket, you may be interested in the optional R-A-M® bracket mounting system. This converts the unit's gimbal bracket to a swivel mount, which can be used on the dash or overhead mounting positions. R-A-M offers permanent mounts and temporary mounts suitable for many vehicle types. See your Lowrance dealer or

visit the LEI web site (**www.lei-extras.com**) for the latest options; accessory ordering information is on the inside back cover of this manual. For a complete look at the many mounting options, visit the RAM web site at **www.ram-mount.com**.

Optional R-A-M mounting system.

Bracket Installation

Mount the GlobalMap 5300c in any convenient location, provided there is clearance behind the unit when it's tilted for the best viewing angle.

Caution:

*The unit must be installed in a location with a clear view of the sky, so the internal GPS antenna can lock-on to satellite signals. The antenna is located near the back of the case, so that **tilting the unit at an extreme angle will obstruct the internal antenna's view of the sky and can block or degrade satellite signal reception.** For example: If the unit is installed on the deck of a boat and you are fishing in a standing position or in a chair, tilting the unit horizontal may provide the best view of the display. **However, a horizontal position usually hampers antenna operation in this type of unit.***

You can still mount the unit on a deck and maintain good reception. Just switch to the Satellite Page, then slowly tilt the unit back. As the angle increases, watch for signal degradation or loss of lock. This step allows you to tilt the unit as much as possible while maintaining satellite lock. After you've determined the best combination of unit visibility and signal strength, you can switch back to the Sonar or Map page for normal operation

Make sure there is enough room behind the GlobalMap 5300c to attach the power cable. (A drawing on the next page shows the dimensions of a gimbal-mounted GlobalMap 5300c.)

Holes in the bracket's base allow wood screw or through-bolt mounting. You may need to place a piece of plywood on the back side of thin fiber-glass panels to reinforce the panel and secure the mounting hardware.
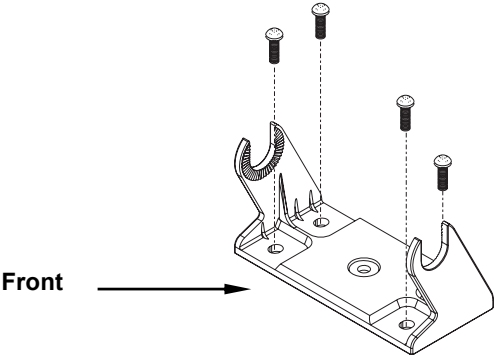
Front

Install the gimbal bracket. Orient the bracket so the arms slope to-ward the front of your unit.

Drill a 1-inch (25.4 mm) hole in the dash for the power cable. The best location for this hole is immediately under the gimbal bracket location. This way, the bracket can be installed so that it covers the hole, holds the cables in position and results in a neat installation. Some custom-ers, however, prefer to mount the bracket to the side of the cable hole — it's a matter of personal preference.
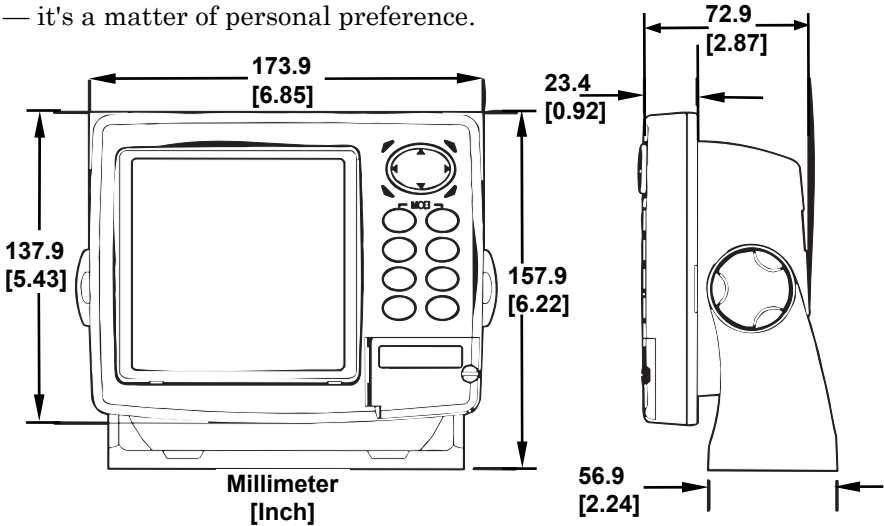
Front view (left) and side view (right) showing dimensions of the GlobalMap 5300c when mounted on gimbal bracket.

After drilling the hole, pass the power cable's bare-wire end *down* though the hole from the top.

If you wish, you can fill in the hole around the cables with a good marine sealant compound. (Some marine dealers stock cable hole covers to conceal the opening.) No matter what type of installation you prefer, be sure to leave enough slack in the cables to allow tilting or swiveling the GlobalMap 5300c. If you choose to fill in the hole, be sure to position the cables against the rear edge of the hole as you apply the fill material.

Before positioning the bracket, be sure to hold the cables against the rear edge of the hole. Then, slide the bracket over the hole and butt the rear of the bracket base firmly against the cables, thus pinning them in place against the side of the hole. Finally, fasten the bracket to the dash. Attach the unit to the gimbal bracket using the supplied gimbal knobs and washers.

Portable Installation

Like many Lowrance products, the GlobalMap 5300c is capable of portable operation by using an optional portable power pack. The power pack expands the uses for your GPS unit. The portable power pack makes it easy to transfer your unit from a boat to a car, recreational vehicle, airplane or other vehicle without drilling and mounting a second bracket. You can use your unit in your own car or boat, then take it along when riding in a friend's vehicle that's not equipped with GPS.

Most LEI portable power packs can be used with eight "D" cell alkaline batteries. Some use an optional sealed, rechargeable battery. For information on the PPP for your unit, see the accessory ordering information inside the back cover of this manual.

"D" cell battery
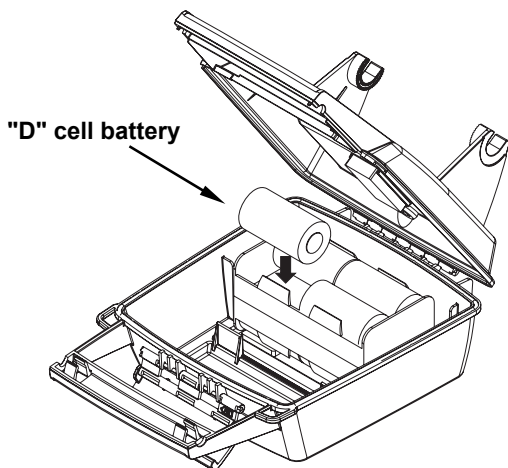
Installing batteries in a typical portal power pack.

MMC or SD Card Memory Card Installation

Your GlobalMap 5300c uses a MultiMedia Card to store information, such as custom maps, waypoints, trails and other GPS data. The unit can also use Secure Digital Cards (SD card) to store data.

NOTE:
> Throughout this manual, we will use the term MMC, but just remember that your unit can use an MMC *or* SD card to store data.

Both of these solid-state flash memory devices are about the size of a postage stamp. An SD card is slightly thicker than an MMC. As this manual went to press, MMCs and SD cards were available in various storage capacities up to 2 gigabytes.

Additional MMC cards are available from LEI Extras; see ordering information inside the back cover of this manual. MMCs and SD cards are also available at many camera and consumer electronics stores.

The MMC slot is located in a compartment on the front of the case. The compartment door is located at the lower right corner. The following figure shows a close-up with the door opened.

Memory card compartment with a 16 MB MMC card installed.

To remove an MMC

1. Open the card compartment door by unscrewing the thumb screw. The screw should only be finger tight. If it was over-tightened, use a thumbnail, a coin or a screwdriver to open the door.

2. Just press a finger against the label of the MMC and drag it from the slot.

3. Close the compartment door and fasten the thumbnail screw finger tight.

To add an MMC or SD Card

1. Open the card compartment door.

2. Grasp the bottom of the MMC and push the top of the card into the slot. Once the card is started, use your fingernails to slide it the rest of the way to the left, until it is firmly seated in the slot.

3. Close the compartment door and fasten the thumb screw finger tight.

Other Accessories

Cleaning Towel

A lint-free microfiber towel is included for cleaning the unit's screen. The towel is highly effective in clearing away water spots, smudges and finger prints. Just wipe the screen with the dry towel — it's not necessary to moisten the towel with water. If the screen is badly soiled, you may use water or common window or lens cleaners. However, **DO NOT** use polishing compounds or any other abrasive product.

If you lose the towel or wear it out, you can replace it with a similar microfiber cloth. These are often available where shop towels or automobile cleaning towels are sold.

Caution:

Cleaning fabrics other than the microfiber towel type may scratch the screen. Polishing compounds or other abrasive cleaners will scratch the screen. Damage caused by incorrect cleaning is not covered by the warranty. You may wash the towel if it becomes soiled or loses its effectiveness, but do not use fabric softener. Fabric softener will ruin the towel's cleaning capability.

Other accessories include MMC cards, MMC card readers and Map-Create™ custom mapping software for your computer. LEI offers several specialty plug-&-play map cards, including lake contour maps and marine coastal charts. A variety of LowranceNET NMEA 2000 electronic probe sensors and digital gauges are also available.

MapCreate™ CD-ROM, left; MMC card reader for USB ports, right.

Face Cover

A white protective cover that snaps on and off the front of the unit is available. This cover is intended for use when the vehicle is idle.

WARNING:

> **When the unit is mounted in an unprotected area, such as an open boat cockpit, the protective face cover must be removed when the vehicle is moving at high speed. This includes towing a boat on a trailer at highway speeds. Otherwise, wind blast can pop off the cover.**

Now that you have your GlobalMap 5300c installed, move on to Section 3, *Basic GPS Operations*. There, we'll present a series of step-by-step tutorials to teach you the basics of GPS navigation.

Section 3: Basic GPS Operation

This section addresses the unit's *most basic* GPS operations. The tutorials presented in Sec. 3 follow a chronological order. Sec. 4, *Advanced GPS Operations*, will discuss other more advanced functions and utilities.

Before you turn on the unit and find where you are, it's a good idea to learn about the different keys, the four Page screens and how they all work together. BUT, if you just can't wait to get outside, turn to the one-page *Quick Reference* on page 40.

Keyboard

GlobalMap 5300c GPS unit, front view, showing Map Page, keyboard and access door for the MMC slot.

1. **PWR/LIGHT** (Power & Light) – The PWR key turns the unit on and off and activates the backlight.

2. **PAGES** – Pressing this and the ← → arrow keys (4) switches the unit between the three different page screens. (Satellite Status Page, Navigation Page and Map Page.) Each page represents one of the unit's major operation modes.

3. **MENU** – Press this key to show the menus and submenus, which allow you to select a command or adjust a feature. This also accesses search functions for streets, intersections, addresses and highway exits.

4. **ARROW KEYS** – These keys are used to navigate through the menus, make menu selections, move the map cursor and enter data.

5. **ENT/ICONS** (Enter & Icons) – This key allows you to save data, accept values or execute menu commands. It is also used to create event marker icons.

6. **EXIT** – The Exit key lets you return to the previous screen, clear data or erase a menu.

7. **WPT** – (Waypoint) The Waypoint key is used to save and recall waypoints, search for waypoints and access the waypoint list. It also launches the Point-of-Interest (POI) search menus and is involved in some navigation functions.

8. **ZOUT** – (Zoom Out) – This key lets you zoom the screen out. This lets you see a larger geographic area on the map. Less detail is seen as you zoom out.

9. **ZIN** – (Zoom In) – This key lets you zoom the screen in. Zooming in lets you see greater detail in a smaller geographic area on the map.

Power/lights on and off

To turn on the unit, press **PWR**. As the unit powers up, the Map Page is displayed first. (To switch to another page, press **PAGES**|← or → to *Page Name*|**EXIT**.)

To turn on the backlight, press **PWR** again. The unit has three backlight levels to select from. Repeatedly pressing **PWR** will cycle through the backlight settings and turn off the backlight.

Turn off the unit by pressing and holding the **PWR** key for 3 seconds.

Main Menu

The unit has a Main Menu, which contains some function commands and some setup option commands. The tutorial lessons in this section will deal only with functions, the basic commands that make the unit do something. The GPS will work fine for these lessons right out of the box with the factory default settings. But, if you want to learn about the various options, see Sec. 5, *System Setup and GPS Setup Options*.

You can access the Main Menu from any of the three Page screens by pressing **MENU|MENU**. To clear the menu screen and return to the page display, press **EXIT**.
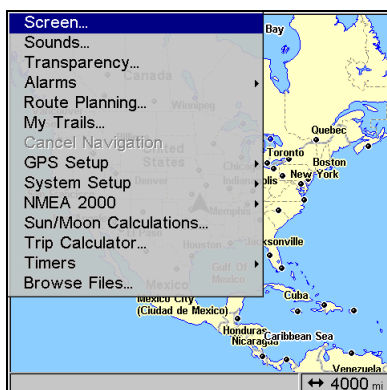
Main Menu.

The Main Menu commands and their functions are:

Screen: changes the contrast or brightness of the display screen.

Sounds: enables or disables the sounds for key strokes and alarms and sets the alarm style.

Transparency: adjust the level of transparency for menus.

Alarms: turns GPS alarms on or off and changes alarm thresholds.

Route Planning: used to plan, view or navigate a route.

My Trails: shows, hides, creates and deletes plot trails. Also used to navigate or backtrack a trail.

Cancel Navigation: cancels navigation commands. Used to stop navigating after you reach your destination.

GPS Setup: sets various GPS receiver options.

System Setup: sets general configuration options.

NMEA 2000: provides access to all NMEA 2000 network setup options, including the configuration of devices on the network. For more information, see Section 10: NMEA 2000 Menu.

Sun/Moon Calculations: finds the rising and setting time of the sun and the moon.

Trip Calculator: shows trip status and statistics.

Timers: controls the up timer, down timer and alarm clock settings.

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Browse MMC Files: this allows you to view the installed MMC card and the files it contains.

Pages

The unit has three Pages that represent the three major operating modes. They are the Satellite Status Page, the Navigation Page and the Map Page. They are accessed by pressing the **PAGES** key, then using → or ← to select a Page. (Clear the Pages Menu by pressing **EXIT**.)


Pages Menu.

Satellite Status Page

The Satellite Status Page provides detailed information on the status of the unit's satellite lock-on and position acquisition. To get to the Satellite Status Page: Press the **PAGES** key, then use → or ← to select **STATUS**. (Clear the Pages Menu by pressing **EXIT**.)

No matter what Page you are on, a flashing current position indicator/question mark symbol and flashing GPS data displays indicate that satellite lock has been lost and there is no position confirmed. The Satellite Status Page shows you the quality and accuracy of the current satellite lock-on and position calculation.

WARNING:

Do not begin navigating with this unit until the numbers have stopped flashing!
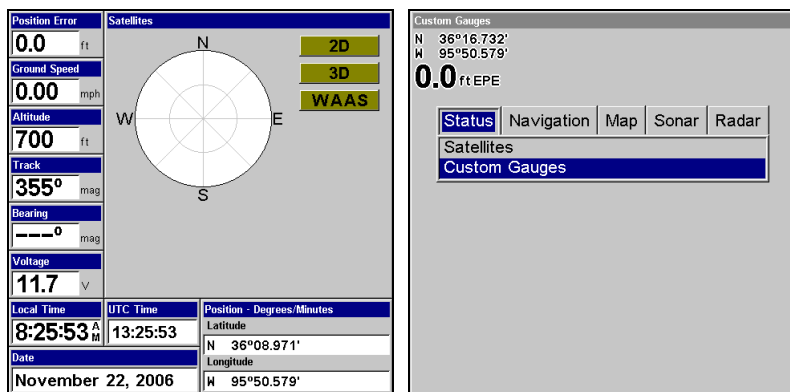
Satellite Status Page (left). Custom Gauges (right).

This screen will show a graphical view of the satellites that are in view. Each satellite is shown on the circular chart relative to your position. The point in the center of the chart is directly overhead. The small inner ring represents 45° above the horizon and the large ring represents the horizon. North is at the top of the screen. You can use this to see which satellites are obstructed by obstacles in your immediate area if the unit is facing north.

The GPS receiver will track satellites that are in bold type. The receiver hasn't locked onto a satellite if the number is grayed out, therefore it isn't being used to calculate your position.

Beneath the circular graph will be bar graphs, one for each satellite in view. Since the unit has twelve channels, it can dedicate one channel per visible satellite. The taller the bar on the graph, the better the unit is receiving the signals from the satellite.

You can set up custom digital gauges through the Satellite Status page menu. The Custom Gauges feature allows you to monitor a wide variety of data from one page.

To set up Custom Gauge page:

1. Select the **SATELLITE STATUS** page from the Pages menu, highlight **CUSTOM GAUGES** and press **ENT**.

2. Press **MENU**. **OVERLAY DATA** will highlighted, so press **ENT**. The Overlay Data shown menu will appear.

3. Highlight **(PRESS ENT TO ADD…)** and press **ENT** to open the Data Viewer menu with five expandable data categories: GPS Data, Navigation, Trip Calculator, Time and Sensor Data.

4. Highlight the desired data category and press **ENT**, which will expand the list, revealing several subcategories with checkboxes next to them.

5. Select the desired subcategory and press **ENT**, which will place a checkmark in the checkbox, showing the selected data is set for display.

6. If you want to display other data types, repeat Steps 4 and 5. Press **EXIT** repeatedly to get back to the Custom Gauges page. The data you selected will now be displayed on the screen.

To change Overlay data size:

1. From the Custom Gauges page, press **MENU SELECT OVERLAY DATA** and press **ENT**. The Overlay Data Shown menu will appear.

2. Highlight the data you want to resize, then use ← → to set the data to the desired size to one of four options: Off, Small, Medium, Large and Enormous.

3. To change the size of another Data Type, repeat the steps above. To return to the Sonar with Custom Gauges display, press **EXIT**.

NOTE:

> One of the data display options for the Satellite Status page is "Position Error" (horizontal position error), which can appear in one of the page's data boxes. If you turn on Position Error, it will show you the expected error from a benchmark location. In other words, if the Position Error box shows 50 feet, then the position shown by the unit is estimated to be within 50 feet of the actual location.

> This also gives you an indicator of the fix quality the unit currently has. The smaller the position error number, the better (and more accurate) the fix is. If the position error flashes dashes, then the unit hasn't locked onto the satellites, and the number shown isn't valid. (For details, see the Customize Page Displays entry in Sec. 8.)

The Satellite Status Page has its own menu, which is used for setting various options. (Options and setup are discussed in Sec. 8). To access the Satellite Status Page Menu, from the Status Page, press **MENU**.

Navigation Page

This screen has a compass rose that not only shows your direction of travel, but also the direction to a recalled waypoint. To get to the Navigation Page: Press **PAGES** | → or ← to **NAVIGATION** | **EXIT**.

The navigation screen looks like the one below when you're *not* navigating to a waypoint or following a route or trail. Your position is shown by an arrow in the center of the screen. Your trail history, or path you've just taken, is depicted by the line extending from the arrow. The arrow pointing down at the top of the compass rose indicates the current track (direction of travel) you are taking.
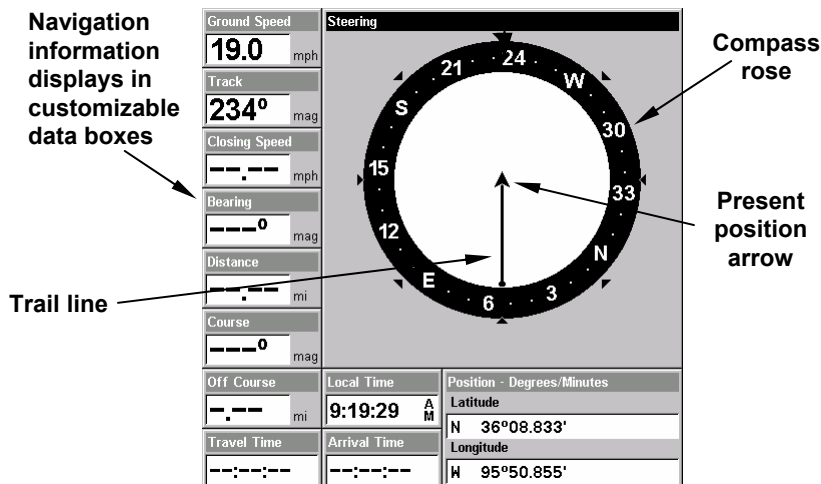
Navigation Page, recording a trail, traveling southwest. Page looks like this when the unit is not navigating to a waypoint, following a route, or backtracking a trail.

When navigating to a waypoint, the Navigation screen looks like the following figure. Your ground speed, track, distance and bearing to waypoint, and course are all shown digitally on this screen.

NOTE:

Remember, when the Speed, Track and Position information displays are flashing, satellite lock has not been achieved and no position fix has been determined. A question mark will also flash on the present position arrow in the center of the compass rose.

Speed (ground speed) is the velocity you are making over the ground. (If you wish, you can customize the Speed data box to display Closing Speed instead. Closing Speed is also known as velocity made good. It's the speed that you're making toward the waypoint. For instructions, see the Customize Page Displays entry in Sec. 5.)

Track is the heading, or the current direction you are actually traveling. Bearing is the direction of a line-of-sight from your present position to the destination. No matter what direction you are steering, the Bearing data box shows the compass direction straight to the destination from your location at the moment. Distance shows how far it is to the waypoint you're navigating toward.

The Off Course window shows the current cross track error. This shows the distance you are off-course to the side of the desired course line. The course line is an imaginary line drawn from your position when you started navigating to the destination waypoint. The course line is shown on the Navigation Page screen (and the Map Page screen) as a dotted line.
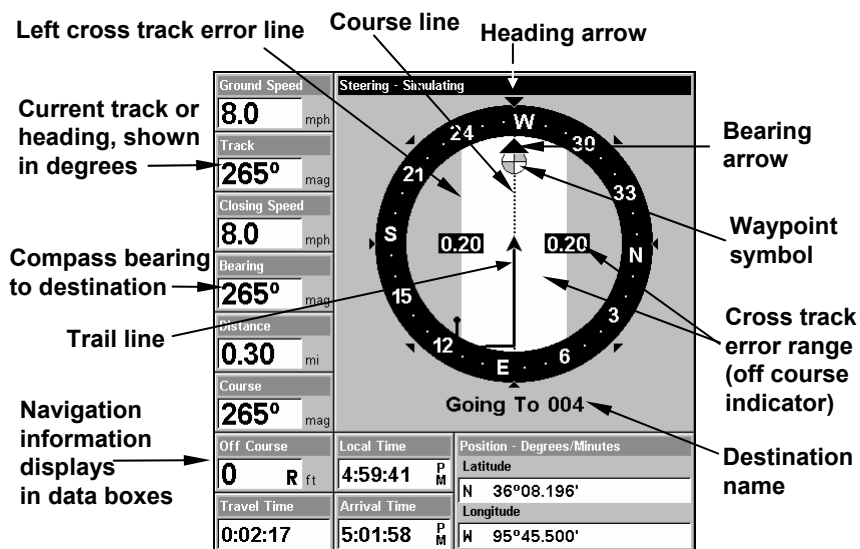
Navigation Page, going to a waypoint while creating a new trail.

The cross track error range is shown on the compass rose as a wide, white, corridor enclosing the course line. The outer edges of this white corridor represent lines that show the current cross track error range. The default for the cross track error range is 0.20 miles.

For example, if the present position symbol touches the right cross track error line, then you are 0.20 miles to the right of the desired course. You need to steer left to return to the desired course. You can use the **ZIN** or **ZOUT** keys to change the cross track error range.

A circular symbol depicting your destination (waypoint) appears on the screen as you approach the waypoint, as shown on the screen in the preceding figure.

Travel Time is the time that it will take to reach your destination at your present closing speed. (You can also customize the time data box to show Arrival Time instead. Arrival Time is the local time it will be when you arrive at the destination, based upon your present closing speed and track.)

In the preceding example figure, the driver is headed west (a 265º track) toward a waypoint 265º (bearing) away. The cross track error range (white corridor) is 0.20 miles either side of the course. The driver is headed toward trail waypoint 4, which is 0.3 miles away. The vehicle is right on course. Traveling at a speed of 8 mph, the driver will arrive at the waypoint in 2 minutes, 17 seconds.

The Navigation Page has its own menu, which is used for some advanced functions and for setting various options. (Options and setup are discussed in Sec. 5). To access the Navigation Page Menu, from the Navigation Page, press **MENU**.
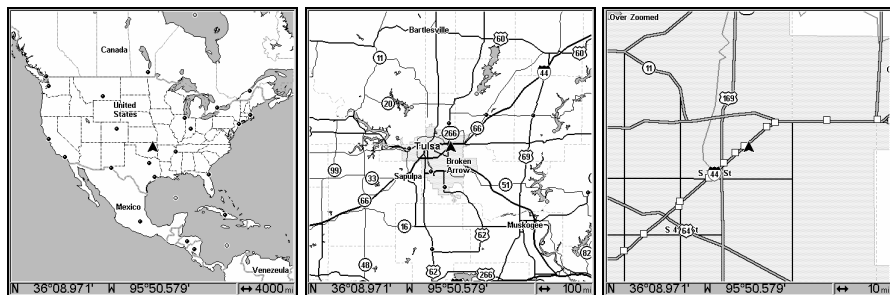
Map Page

The Map Page screens show your course and track from a bird's-eye view. By default, this unit shows the map with north always at the top of the screen. (This can be changed. See the topic *Map Orientation*, in Sec. 8.) If you're navigating to a waypoint, the map also shows your starting location, present position, course line and destination. You, however, don't have to navigate to a waypoint to use the map.

Map Page is the default screen that appears when you turn on the unit. To get to the Map Page from another page: Press **PAGES**|← or → to **MAP**|**EXIT**. When the Map Page is displayed, a screen similar to the following figures appears.

The arrow in the center of the screen is your present position. It points in the direction you're traveling. The solid line extending from the back of the arrow is your plot trail, or path you've taken.

The map zoom range is the distance across the screen. This number shows in the lower right corner of the screen. In the first of the following example figures, the range is 4,000 miles from the left edge of the map to the right edge of the map.

The Zoom In and Zoom Out keys zoom the map to enlarge or reduce its coverage area and the amount of mapping detail shown. There are 39 available map zoom ranges, from 0.02 miles to 4,000 miles.

Map Page opening screen (left). Set to 100-mile zoom (center) and 10-mile zoom (right). Over Zoomed means you have reached the detail limits in an area covered only by the basic background map. Zooming in closer will reveal no more map detail because a high-detail custom map has not been loaded on the MMC for this area.

If you're using only the factory-loaded background map, the maximum zoom range for showing *additional* map detail is 20 miles. You can continue to zoom in closer, but the map will simply be enlarged without revealing more map content (except for a few major city streets.) Load your own high-detail custom map made with MapCreate (or a pre-made FreedomMap from LEI), and you can zoom in to 0.02 miles with massive amounts of accurate map detail.
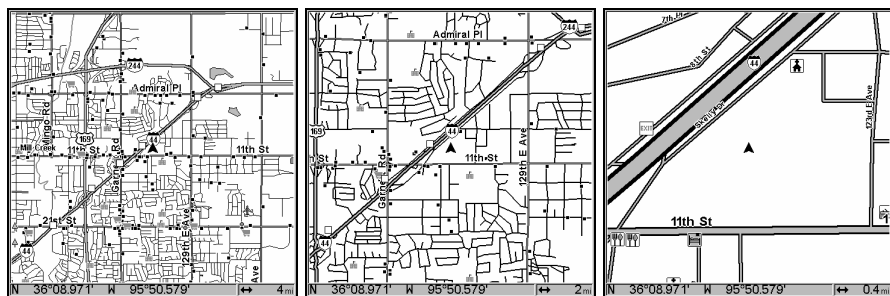
Map Pages with high-detail MapCreate map of an urban area loaded on the MMC. Arterial streets appear at the 4-mile zoom range (left) with a few Point of Interest icons visible. Numerous dots representing Points of Interest are visible at the 2-mile range (center) along with minor streets. At a 0.4-mile zoom (right), you can see an interstate highway with an exit, major and minor streets as well as Point of Interest icons.

Background map vs. MapCreate map content

The background map includes: low-detail maps of the whole world, containing cities, major lakes, major rivers, political boundaries, and medium-detail maps of the United States. The medium-detail U.S. maps contain: all incorporated cities, shaded metropolitan areas, county boundaries, shaded public lands (such as national forests and parks) and some major city streets. Also included are Interstate, U.S. and state highways, large- and medium-sized lakes and streams and more than 60,000 navigation aids with 10,000 wrecks and obstructions in U.S. coastal and Great Lakes waters. New for 2007 are more than 3,000 enhanced lake maps that show better defined shorelines, depth contours and other underwater features.

MapCreate custom maps include massive amounts of information not found in the background map. MapCreate contains: the searchable Points of Interest database, all the minor roads and streets, all the landmark features (such as summits, schools, radio towers, etc.); more rivers, streams, smaller lakes and ponds and their names.

What's more important is the large scale map detail that allows your GPS unit to show a higher level of position accuracy. For example, the

background map would show you the general outline and approximate shape of a coastline or water body, but the higher detail in MapCreate shows the shoreline completely and accurately (finer detail). Many smaller islands would not be included in the background map, but are in MapCreate.

NOTE:

Available through LEI Extras (look inside back cover for accessory ordering information), FreedomMaps are pre-made maps that contain all of the same information available in a custom MapCreate map, without any work on your part.
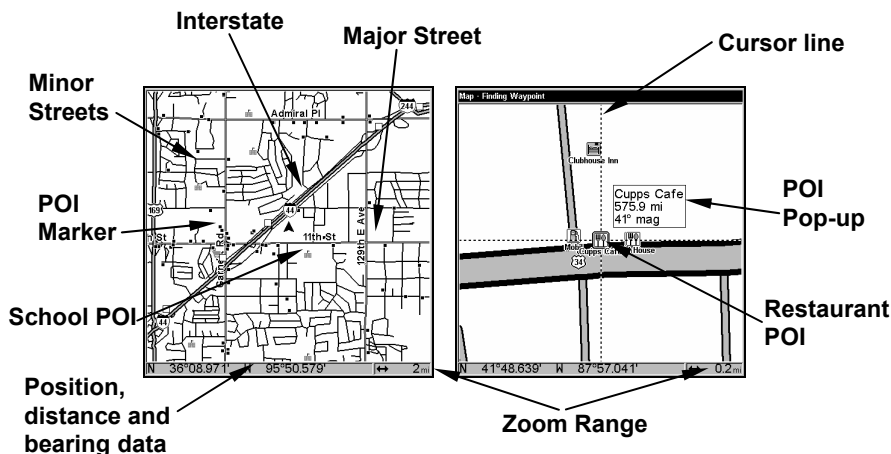

When the map is zoomed out far enough, most POIs appear as square dots. As you zoom in closer, the symbols become readable icons. In the 0.2 mile zoom example (right), the cursor has selected the Cupps Café POI, which triggers a pop-up box with the POI name. This pop-up box works on POIs at any zoom range.

Tip:

In some urban areas, businesses are so close to one another that their POI icons crowd each other on the screen. You can reduce screen clutter and make streets and other map features easier to see by simply turning off the *display* of POIs you're not watching for. (To see how, check the text on Map Detail Category Selection, page 86. It shows how to use the Map Categories Drawn menu to turn individual POI displays off and on.) Even though their display is turned off, you can still search for POIs and their icons will pop-up when your unit finds them for you.

The Map Page has its own menu, which is used for several functions and for setting various options. To access map display options, press **PAGES** highlight **MAP**, then select the desired map page option. Press **EXIT**.
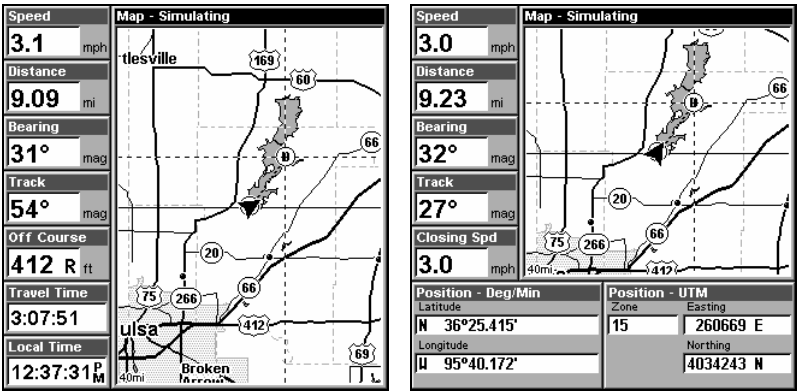
Digital Data map page (left). Two Position Formats page (right).

In pages that have two major windows (such as two maps) you can toggle back and forth between the two windows by pressing **PAGES|PAGES**. This allows you to change which map your cursor moves on, and which map the menu operates on. The window with the blue title bar is the active window.
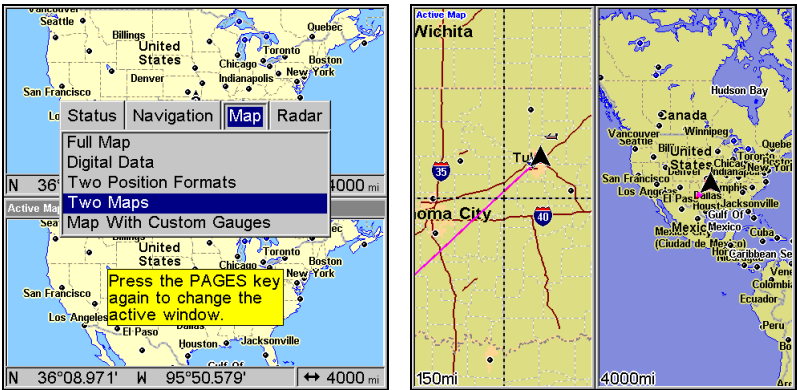

Pages Menu with Two Map option selected (left). The windows are in a horizontal position. Map Page with two vertical windows (right).

Resize Window is another feature for pages that have two major windows. You can change the horizontal size of the windows to suit your viewing preference.

1. From any two-window display, press **MENU**|↓ to **RESIZE WINDOW**|**ENT**.

2. Four flashing arrows appear along the centerline dividing the two windows. The windows will be in a horizontal position by default, so press ↑↓ to resize the windows. Or, if you want to realign the windows vertically, use ← → to switch the windows from a horizontal position to a vertical position. After the windows are in a vertical position, press ← → to resize the windows. Press **EXIT** to clear the menu.

3. To change the window size again or revert to the original display, just follow the steps above. You can also use the Reset Options command to revert to the factory default.

Map with Custom Gauges
The Map with Custom Gauges page has a split screen with a map on the right side and digital gauge information on the left side. The two windows can be resized to make one side bigger than the other or may be set up to split the screen evenly.
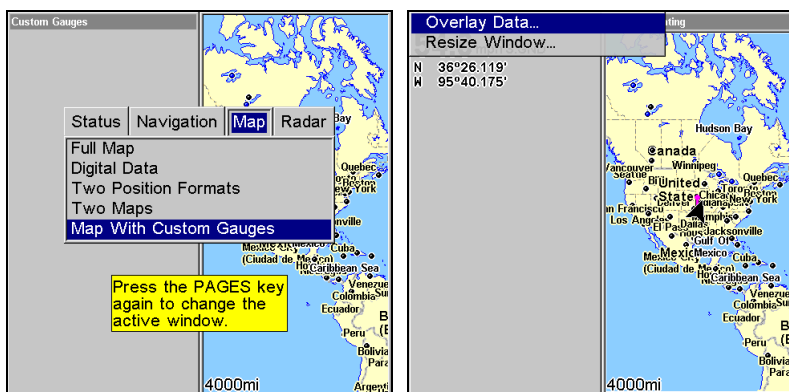
Map with Custom Gauges highlighted on Pages menu (left). Overlay Data selected on Map with Custom Gauges menu (right).

To customize digital gauge display:

1. Press **PAGES**, highlight Map, select **MAP WITH CUSTOM GAUGES** and press **ENT**.

2. Press **MENU**, select **OVERLAY DATA** and press **ENT**. The Overlay Data shown menu will appear.

3. Highlight **(PRESS ENT TO ADD…)** and press **ENT** to open the Data Viewer menu with five expandable data categories: GPS Data, Navigation, Trip Calculator, Time, Sonar Data and Sensor Data.

4. Highlight the desired data category and press **ENT**, which will expand the list, revealing several subcategories with checkboxes next to them.

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5. Select the desired subcategory and press **ENT**, which will place a checkmark in the checkbox, showing the selected data is set for display.

6. If you want to display other data types, repeat Steps 4 and 5. Press **EXIT** repeatedly to get back to the Map with Custom Gauges page. The data you selected will now be displayed in the gray area on the left side of the screen.

**To change Overlay data size:**
1. From the Map with Custom Gauges page, press **MENU** select **OVERLAY DATA** and press **ENT**. The Overlay Data Shown menu will appear.

2. Highlight the *Data Type* you want to resize, then use ← → to switch the data setting to one of the following four options: Off, Small, Medium, Large and Enormous.

3. To change the size of another Data Type, repeat the steps above. To return to the Sonar with Custom Gauges display, press **EXIT**.
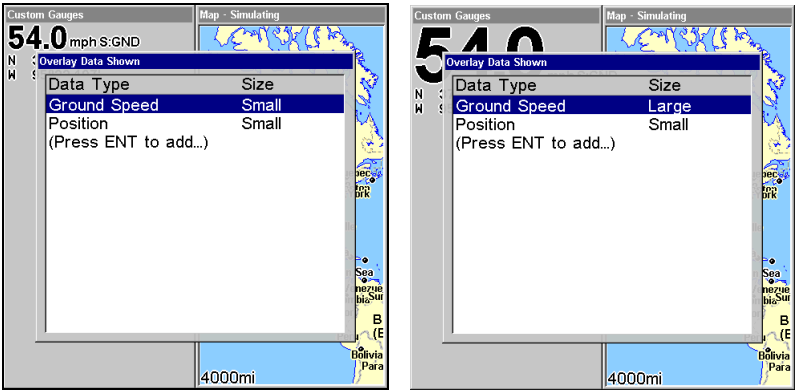
Ground Speed is set to small size (left). The size Ground Speed data has been changed to Large (right).

Radar

When you access the Radar Page, the screen will switch to the radar display. Information on radar installation and radar operation are included in two documents that come packed with Lowrance radar units: *Radar and RIM 100 Radar Interface Module Installation Instructions* and *Radar Operation Instruction Manual*. Refer to these documents for information on your radar unit.
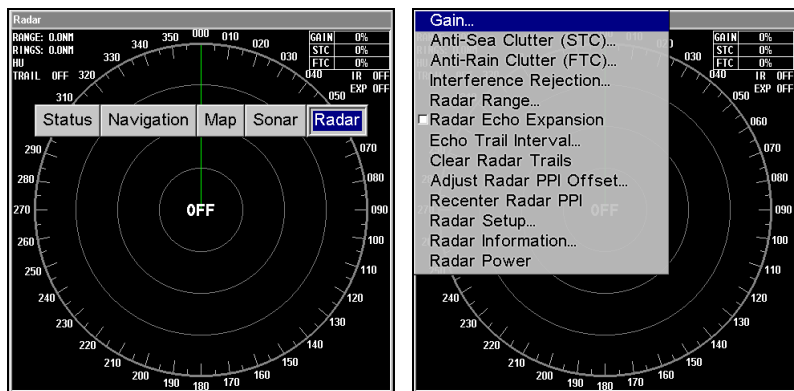
Radar Page (left) with Radar menu display (right).

To access Radar Page:

1. Press **PAGES**, highlight the **RADAR** tab and press **ENT**.

2. Press **MENU** to open the Radar menu. Press **EXIT** to return to the radar display.

The following page contains a 12-step quick reference for the most basic GPS operations.

Basic GPS Quick Reference

Start outdoors, with a clear view of the open sky. As you practice, try navigating to a location at least a few blocks away. Navigation in too small an area will constantly trigger arrival alarms.

1. Depress the **PWR** key to turn on the unit.

2. Opening screen displays map of North America at the 4,000 mile zoom range. Rotate through the four main Page screens (Map Page, Satellite Status Page, Navigation Page and Sonar Page) by pressing **PAGES**|← or → to select *Page Name*|**EXIT**. Switch Pages to display Satellite Status Page.

3. Wait while unit locates satellites and calculates current position. Process is visible on Satellite Page. This takes an average of 1 minute or less under when it is unobstructed by terrain or structures. When the unit acquires position, a tone sounds and a position acquired message appears.

4. With position acquired, press **PAGES** key to display the Map Page, which gives you a bird's eye view. You can manipulate the map by:

    Zoom in closer to see greater detail: press **ZIN** (zoom in key.)
    Zoom out to see more area, less detail: press **ZOUT** (zoom out key.)
    Scroll map north, south, east or west using arrow keys ↑ ↓ → ← .
To stop scrolling and return to current position on map, press **EXIT** key.

5. Set a waypoint (*Wpt 001*) at your current position so you can navigate back here: press **WPT**|**WPT**. Waypoint symbol and "001" appears.

6. Zoom/scroll map to find a nearby object or location to go to. Use arrow keys to center cursor crosshairss over the map object or location.

7. Navigate to the selected destination: press **MENU**|**ENT**|**EXIT**. Follow dotted course line on Map Page or compass bearing arrow on Navigation Page.

8. At destination, Arrival Alarm goes off; to clear it, press **EXIT**. Cancel navigation: press **MENU**|**MENU**|↓ to Cancel Navigation|**ENT**|← to Yes|**ENT**.

9. Return to Wpt 1 by Navigate To Waypoint or Backtrack Trail. ***To Waypoint***: press **WPT**|→ to Saved|**ENT**|**ENT**|**ENT**. Use ↑ or ↓ to select *Wpt 001*, press **ENT**|**ENT**; follow navigation displays. ***Trail:*** press **MENU**|**MENU**|↓ to My Trails|**ENT**. Press ↓ to *Trail 1*|**ENT**|→|↓ to Navigate|**ENT**|↓ to Navigate|**ENT**|→ to Reverse|**ENT**|← to Navigate|**ENT**. (If arrival alarm sounds, press **EXIT**.) Follow navigation displays.

10. Back home, Arrival Alarm goes off; press **EXIT**. Cancel navigation: press **MENU**|**MENU**|↓ to Cancel Navigation|**ENT**|← to Yes|**ENT**.

11. To turn off the unit, press and hold **PWR** key for three seconds.

Find Your Current Position

Finding your current position is as simple as turning on the unit. Without obstruction from dense foliage, terrain or structures, the unit automatically searches for satellites and calculates its position in approximately one minute or less.

If for some reason satellite acquisition takes longer, you may be inside a structure or vehicle or in terrain that is blocking signal reception. To correct this, be sure you are positioned so that the unit's antenna module has as clear a view of the sky as possible, then turn the unit off and back on again.

Moving Around the Map: Zoom & Cursor Arrow Keys

The map is presented from a bird's eye view. The current zoom range shows in the lower left corner of the screen.

1. Press the **ZIN** key (zoom in) to move in closer and see greater detail in a smaller geographic area.

2. Press the **ZOUT** key (zoom out) to move farther away and see less map detail, but a larger geographic area.

When you are traveling, the map will automatically move as you move. This keeps your current location roughly centered on the screen.

You can manually pan or scroll the map northward, southward, eastward or westward by using the arrow keys, which launch the crosshairs map cursor. This allows you to look at map places other than your current position. To clear the cursor, press **EXIT**, which move the map back to the current position or the last known position.

Tip:
> Use the cursor to determine the distance from your current position (or last known position, when working indoors) to any map object or location. Simply use the arrow keys to position the cursor over the object or place. The distance, measured in a straight line, appears in the popup data box. Press **EXIT** to clear the cursor.
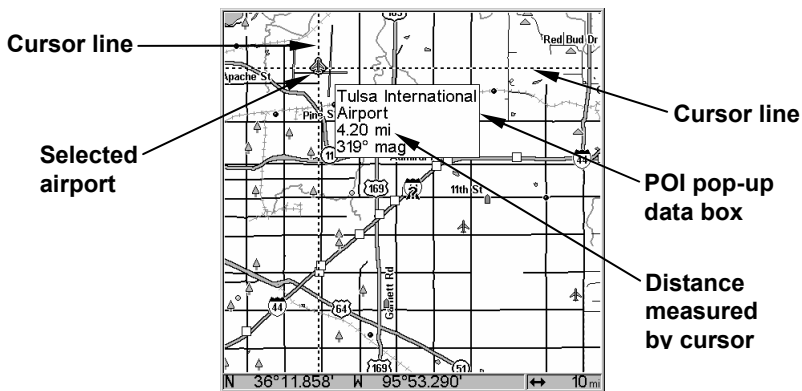
The selected airport to the northwest is 4.2 miles away.

Selecting Any Map Item With the Cursor

1. Use the zoom keys and the arrow keys to move around the map and find the item you wish to select.

2. Use the arrow keys and center the cursor crosshairs on the desired object. On most items, a pop-up box will give the name of the selected item.

Tip:

This unit has a Cursor Undo feature that lets you instantly return to the previous location you were looking at without scrolling. It works like this: Use the cursor (arrow keys) to scroll the map to some far away location or waypoint. Press **EXIT** to clear the cursor and jump back to your current position on the map. When you want to take another peek at that distant place, just press **EXIT** again. You can use this trick to toggle between your current position and your destination without a lot of scrolling.

Searching

Now that you have seen how the unit can find where *you* are, let's search for something else. Searching is one of the most powerful features in the Lowrance GPS product line.

In this example, we will look for the *nearest* fast-food restaurant. For more information on different types of searches, refer to *Sec. 6, Searching*.

NOTE:

This example requires the Point of Interest (POI) database included with a high detail MapCreate custom map.

After the unit has acquired a position:

1. Press **WPT|↓** to **POI-RESTAURANTS**.

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2. You could search the entire restaurant category, but in this example we will narrow our search. Press → to **SUBCATEGORY** column|↓ to **FAST FOOD CHAINS**|**ENT**|↓ to **NEAREST**|**ENT**.

3. The unit says it is calculating, then a list of restaurants appears, with the closest highlighted at the top of the list. The restaurant farthest from you is at the bottom of the list.
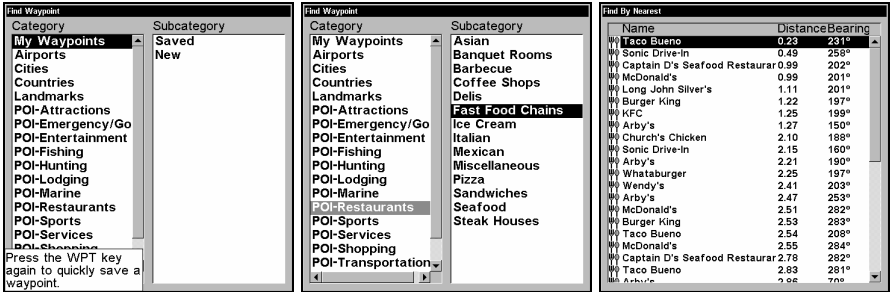

Find Waypoint Menu (left). Category Selection menu (center). List of the nearest restaurants (right).

4. You could scroll through the list to select another restaurant, but for now we will just accept the nearest one. Press **ENT**.

5. The POI information screen appears. (This is how you can use this unit as a business phone directory!) If you wanted to navigate there, you could press Enter, since the Go To Waypoint command is highlighted. But we just want to see it on the map, so press ↓ to **FIND ON MAP**|**ENT**.
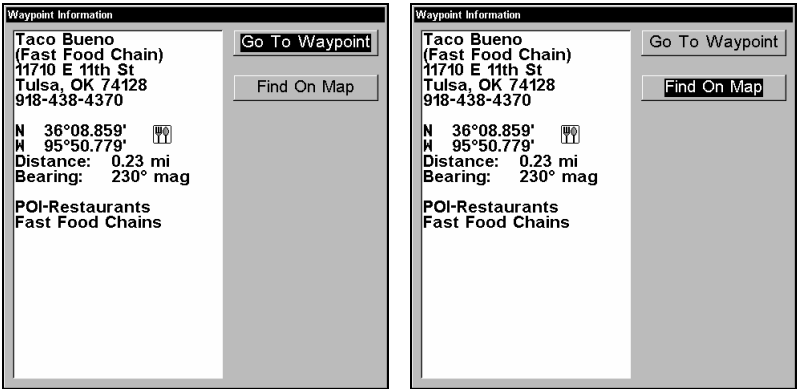
The POI Information screen shows name, street address, phone number, latitude/longitude, distance to restaurant and its compass bearing. In the first figure (left) Go to Waypoint is selected. In the second figure (right) Find on Map is highlighted.

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6. The unit's map appears, with the cursor crosshairss highlighting the restaurant's POI symbol. A pop-up data box shows the POI's name, distance and bearing. A data box at the bottom of the screen continues to display the location's latitude and longitude.
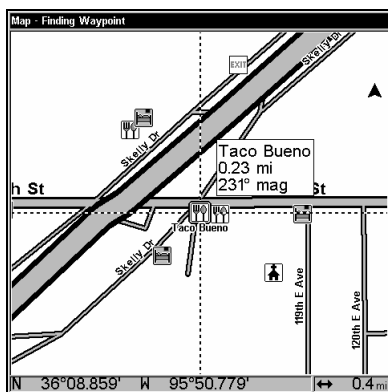
**Map screen showing Finding Waypoint,
the result of a restaurant search.**

7. To clear the search and return to the last page displayed, press **EXIT** repeatedly. (Before you completely exited out of the Search menus, you could have gone looking for another place.)

NOTE:
Search works from mapping and POI data loaded in the unit. If you do not have a high-detailed custom map (containing POI data) for the area you are searching loaded on the MMC, you may not find anything.

Set a Waypoint

A waypoint is simply an electronic address, based on the latitude and longitude of a position on the earth. A waypoint represents a location or destination that can be stored in memory, then recalled later for navigational use.

You can create a waypoint at the cursor position on the map or at your current position while you are navigating. A waypoint may be created at any location by manually entering the position's latitude and longitude. You can copy waypoints from your unit to your personal computer with MapCreate software. When you want to repeat a trip, these archived waypoints can be reloaded into your GPS unit.
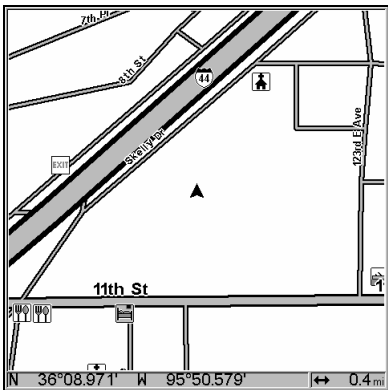
To create and save a Waypoint:

These first two techniques use the Quick Save method, the fastest and easiest way to create a waypoint.
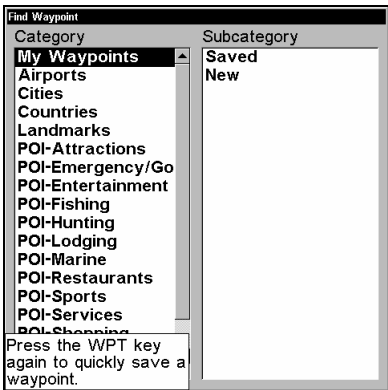
Create Waypoint at Current Position

While you are traveling, press **WPT|WPT**. The waypoint is saved and automatically given a name with a sequential number, such as "waypoint 003." The waypoint symbol and number appear on the map.
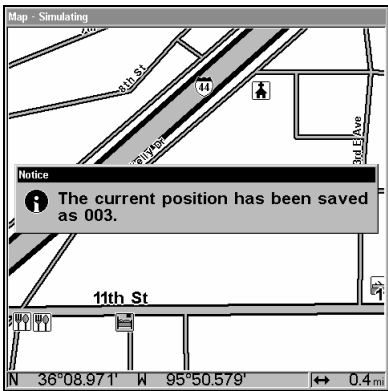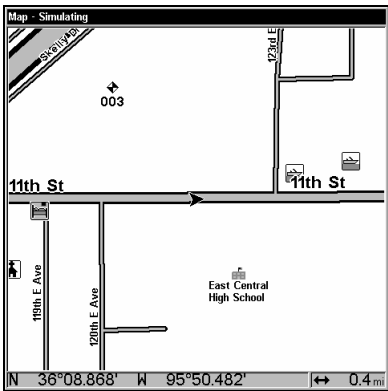
Step 1.   **Step 2.**

Step 3.   **Step 4.**

Sequence for setting a waypoint. Step 1: while traveling, press **WPT** *twice* to call up the Find Waypoint screen (seen in Step 2) and set a waypoint. Step 3: a message says the waypoint has been saved. Step 4: vehicle continues on its way; waypoint number and symbol are visible on map.

NOTE:

The Quick Save method uses the default waypoint symbol until you edit an existing waypoint and change its symbol. (Edit Waypoint

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Symbol is described in Sec. 4.) After you have changed a waypoint symbol, the unit will remember the one you chose and use it the *next* time you save a waypoint. To revert back to the *default* symbol, edit a waypoint and choose the original symbol, or use the Reset Options command (described in Sec. 5).

Create Waypoint on Map

1. Use the arrow keys to move the cursor crosshairss to the place where you want to make a waypoint.

2. Press **WPT|WPT**. The waypoint is saved and automatically given a name with a sequential number, like "waypoint 001." The waypoint symbol and number appear on the map.

Navigate To a Waypoint

You can select any waypoint visible on the Map Page with the cursor, then use the Navigate to Cursor command (we'll describe how later in this section.) However, you can avoid scrolling the map to pick your waypoint if you use the Find Waypoint commands:

1. Press **WPT|→** to **SAVED|ENT**. To look up the nearest waypoint, press ↓ to **NEAREST|ENT**; or, to look by name (and scroll through the entire waypoint list), press **ENT**. For this example, let's look by name.

2. If your waypoint list is a long one, you can spell out the waypoint name in the **FIND BY NAME** box to search for it. (Press ↑ or ↓ to change the first character, then press → to move the cursor to the next character and repeat until the name is correct, then press **ENT** to jump to the list below.)

3. If the list is short, you can jump directly to the **FIND IN LIST** box by pressing **ENT**. Use ↑ or ↓ to select the waypoint name, press **ENT** and the waypoint information screen appears with the **GO TO** command selected.

4. To begin navigating to the waypoint, press **ENT**.
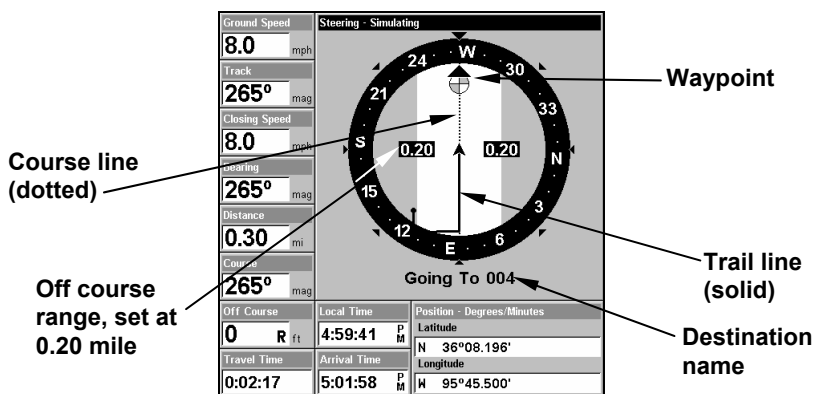
Navigation Page, navigating toward waypoint 004 and leaving a trail.

Set Man Overboard (MOB) Waypoint

One of boating's most terrifying events is having a friend or family member fall overboard. This situation can be deadly on any body of water. It's particularly dangerous at night or if you're out of sight of land. Of course, the first thing to do is remain calm and then use all standard safety procedures to rescue the person.

This unit has a man overboard feature that shows navigation data to the location where the feature was activated. To activate it, press the **ZOUT** and **ZIN** keys at the same time. Your position at the time these keys are pressed is used as the man overboard position.

Caution:

> *Saving a new "Man Overboard" waypoint will overwrite the previous "Man Overboard" waypoint.*

Navigate Back to MOB Waypoint

Find your way back to the accident position with the Navigation Page or Map Page. When MOB is activated, the Navigation Page automatically shows the compass rose with its bearing arrow pointing toward the man overboard position, and the destination name says "Going To Man Overboard." The Map Page displays a Man Overboard waypoint, represented by a human figure, and the steering arrow points where to steer to reach that position.
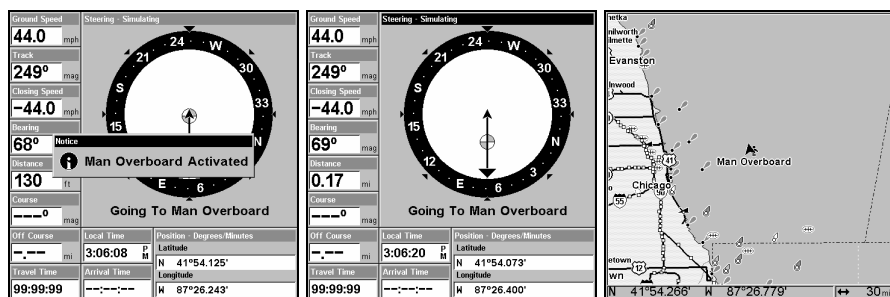
Navigating to Man Overboard: Man Overboard Activated message (left). Navigation Page, center, Map Page (right). The victim is to the starboard of the vessel. The GPS shows which direction to go for the rescue.

The man overboard position is also stored in the waypoint list for future reference. It can be edited the same as any other waypoint. This prevents the inadvertent loss of the current Man Overboard position.

To cancel navigation to MOB, press **MENU|MENU|↓** to **CANCEL NAVIGATION|ENT|←** to **YES|ENT**. The unit stops showing navigation information.

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Navigate to Cursor Position on Map

The **GO TO CURSOR** command: navigates to the current cursor position on the map. It's a quick and handy way to navigate to anything you can see on the map display.

1. Use the cursor (controlled by the arrow keys) with the zoom in and zoom out keys to maneuver around the map until you find a location you want to go to.

2. Center the cursor over the location to select it. See the example in the following figure. (Many map items such as waypoints, Points of Interest, towns, etc. can be "selected," and appear "highlighted" with a pop-up box. Other features, such as a river or a street intersection will not appear "highlighted," but the cursor will take you to those locations just the same.)
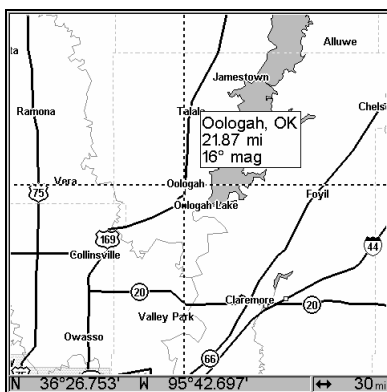
Navigate to cursor. In this example, the cursor is centered on Oologah, Oklahoma.

3. Press **MENU|ENT** and the unit will begin navigating to the cursor location.

The Map Page will display a dotted line from your current position to the cursor position. The Navigation Page displays a compass rose showing navigation information to your destination. See the following examples.
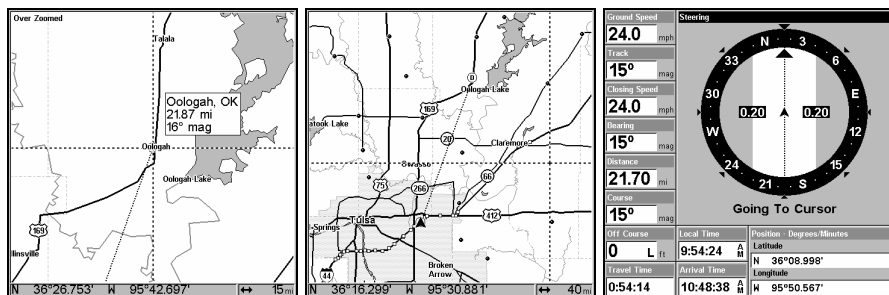
The 15-mile zoom figure (left) clearly shows the dotted course line connecting your current position to your destination. The 40-mile zoom (center) shows both current position and destination on screen. The Navigation Page (right) will also show navigation information.

To stop navigating to the cursor, use the Cancel Navigation command: press **MENU|MENU|↓** to **CANCEL NAVIGATION|ENT|←** to **YES|ENT**. The unit stops showing navigation information.

Navigate to a Point of Interest

For POIs that are in view on the map, you can easily use the Navigate to Cursor command above; just use the cursor to select the POI.

The other method involves searching for POIs with the Find Waypoint command, launched with the **WPT** key

To Navigate to a POI:

1. Press **WPT**, select the desired POI category, then press → to Subcategory.

2. Highlight the desired subcategory and press **ENT**. The Find By menu will appear with two search options: Name of Nearest.

3. Select the desired search option and press **ENT**. A list of POIs will appear. If you chose Nearest as the search option, use ↑ ↓ to select the desired POI and press **ENT**. If you chose to search by Name, use ↑ ↓, ← → to input the POI name. When the name has been entered press **ENT** to access the POI list.

4. Select the desired POI and press **ENT**, which will open the Waypoint Information menu.

5. Highlight **GO TO WAYPOINT** and press **ENT**. The unit begins showing navigation information to the item.

To cancel navigation, press **MENU|MENU|↓** to **CANCEL NAVIGATION|ENT|←** to **YES|ENT**. The unit stops showing navigation information.

Creating and Saving a Trail

A trail, or plot trail, is a string of position points plotted by the unit as you travel. It's a travel history, a record of the path you have taken. Trails are useful for repeating a journey along the same track. They are particularly handy when you are trying to retrace your trip and go back the way you came. On the screen, trails are represented by a solid line extending from the back of the current position arrow.

The unit is set at the factory to automatically create and record a trail while the unit is turned on. The unit will continue recording the trail until the length reaches the maximum trail point setting (default is 2,000, but the unit can record trails 9,999 points long). When the point limit is reached, the unit begins recording the trail over itself.

By default, the trail flashes once a second, making it easier to see against the background map. With the default auto setting, this unit creates a trail by placing a dot (trail point) on the screen every time you change directions. (The methods used for creating a trail and the trail update rate can both be adjusted or even turned off. See Sec. 8 for *Trail Options*.)

To preserve a trail from point A to point B, you must "turn off" the trail by making it *inactive* before heading to point C or even back to point A. When the current trail is set inactive, the unit *automatically* begins recording a new trail.
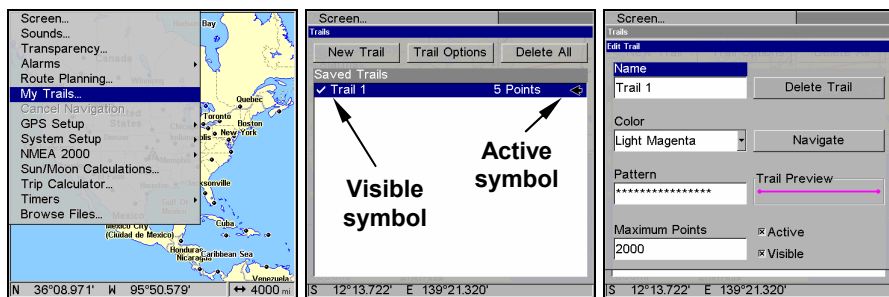

Sequence for saving a trail and beginning a new one. Left, My Trails command. Center, the Trails Menu. The arrow to the right of Trail 1 indicates the trail is "active," and the check to the left indicates the trail is visible on the map display. The right figure shows the Edit Trail menu, with the Active command selected.

To Save a Trail

1. Press **MENU|MENU|↓** to **MY TRAILS|ENT**.

2. Press **↓** to the *Active Trail Name*|**ENT**.

3. Press **↓** to **ACTIVE|ENT**. This unchecks the Active option.

4. To return to the previous page, press **EXIT** repeatedly. As you leave the Edit Trail menu, you will notice that a new trail starts with a new sequential number. In the example figure below, the new trail is number 2, showing zero points. Note that Trail 1 is inactive, but it is still visible on the map.
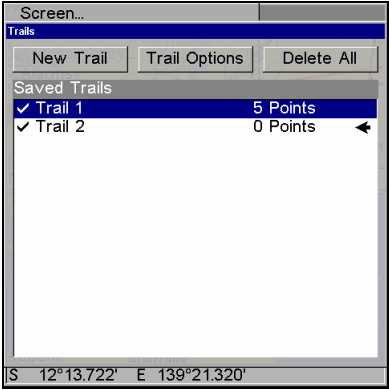
New trail, named "Trail 2," is created when Trail 1 is made inactive. Any new travel will be recorded in this trail, which is active and visible. Trails do not need to be visible in order to be active.

You can save and recall up to 10 different plot trails, which can be copied to your MMC for archiving or for transfer to your MapCreate software.

Tip:

Another quick way to stop recording one trail and begin a new one is to use the New Trail command: Press **MENU|MENU|↓** to **MY TRAILS|ENT|ENT**.

Caution:

You also have the option of completely turning off trail recording, under the trail Options command. However, if the Update Active Trail option is turned off, it will cancel the automatic trail creation feature.

Displaying a Saved Trail

The active trail is automatically displayed on the map (the "Visible" option) with the factory default settings. You can selectively turn trail display off and on for any saved or active trail. In the Saved Trails List, visible trails have a check mark in front of the trail name.

To turn off trail display:
1. Press **MENU**|**MENU**|↓ to **MY TRAILS**|**ENT**.

2. Press ↓ to enter the Saved Trail list, then use ↑↓ to select the desired *Trail Name*|**ENT**.

3. Press ↓ to **ACTIVE**|→ to **VISIBLE**|**ENT**. To return to the previous page, press **EXIT** repeatedly.

To turn on trail display:
1. Press **MENU**|**MENU**|↓ to **MY TRAILS**|**ENT**.

2. Press ↓ to enter the Saved Trail list, then use ↑↓ to select the desired *Trail Name*|**ENT**.

3. Press ↓ to **ACTIVE**|→ to **VISIBLE**|**ENT**. To return to the previous page, press **EXIT** repeatedly.

Navigating Trails

There are three methods for following a trail: visual trailing, navigating a trail (forward) and backtracking a trail (backward). Try each method to see which you prefer.

Visual trailing is the simplest method. It uses only the Map Page and requires no menu commands at all. The technique works the same if you are running a trail forward (from start to end) or backward (from end to start.) However, visual trailing provides no navigation information during the trip, such as the time to your destination.

The other two methods provide a full range of navigation data and work with both the Map Page and Navigation Page. The only difference between them is "navigating a trail" follows a trail forward (from start to end) while "backtracking" follows a trail in reverse (from end to start.)

When hiking at walking speed with a hand-held GPS, we often just use visual back trailing because it is a bit better at following each little turn on a foot path. At faster speeds, such as the highway or on the water, the Navigate Trail and Backtrack Trail commands are handy.

Visual Trailing
1. On the Map Page, zoom (**ZIN** or **ZOUT**) so your flashing trail is visible.

2. Begin moving and watch the Map Page. Simply walk or steer so that your current position arrow traces along the trail you have just made.

Tip:

Generally, when using this method, the smaller the zoom range, the more accurately you will be able to steer along the trail.

Navigate a Trail

The following figures illustrate the menu sequence for navigating a trail.

1. Press **MENU**|**MENU**|↓ to **MY TRAILS**|**ENT**.

2. Press ↓|↓ to enter the Saved Trail list, then use ↑ or ↓ to select the desired *Trail Name*|**ENT**.

3. Press → to **DELETE TRAIL**|↓ to **NAVIGATE**|**ENT**.

4. Press ↓ to **NAVIGATE**|**ENT**. The unit begins showing navigation information along the trail.

NOTE:

If you are already located at or near the beginning of your trail, the arrival alarm will go off as soon as you hit Enter. Press **EXIT** to clear the alarm and proceed.

5. Now, begin navigating with your unit.

6. When you reach your destination, be sure to cancel your navigation: press **MENU**|**MENU**|↓ to **CANCEL NAVIGATION**|**ENT**. The unit asks if you're sure; press ←|**ENT**.
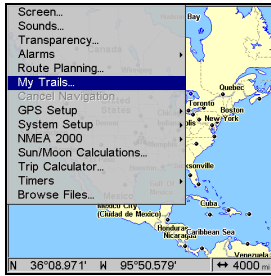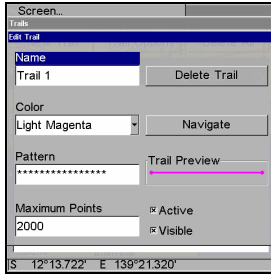
Figure 1.   **Figure 2.**
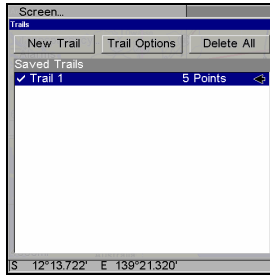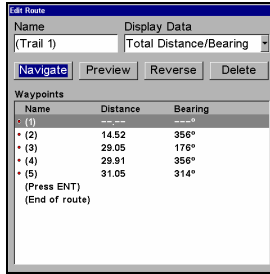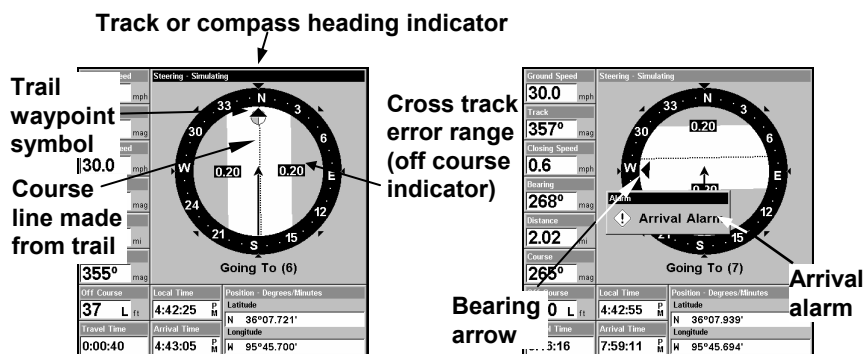

Figure 3.   **Figure 4.**

Navigate a trail menu sequence: Fig. 1, My Trails command. Fig. 2, Trails Menu. Fig. 3, Edit Trail Menu. Fig. 4, Edit Route Menu with Navigate command highlighted for Trail 6. A trail is always converted to a "route" when you navigate the trail.

On the Map Page, the trail you are navigating is represented by a dotted line that alternates with a flashing solid line. The Navigation Page will also show the navigated trail as a dotted line. The bearing arrow on the compass rose points to the next waypoint on the trail.

As you travel, the arrival alarm will go off when you near a trail waypoint, and the bearing arrow on the compass rose will swing around and point to the next trail waypoint. Press **EXIT** to clear the alarm.
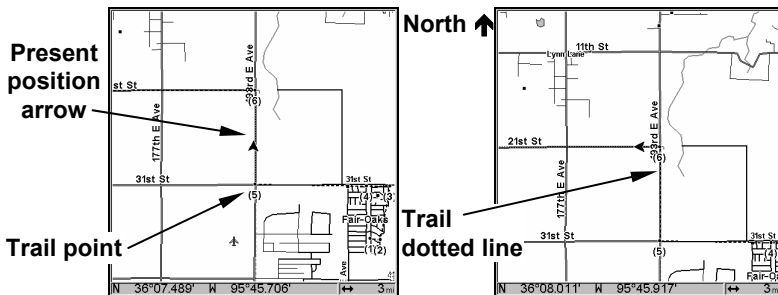
Navigate trail, map views: Driver is northbound heading straight toward trail point 6 (left). Northbound driver has reached point 6 and has turned west to follow trail (right).

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Track or compass heading indicator

Trail waypoint symbol

Course line made from trail

Cross track error range (off course indicator)

Bearing arrow

Arrival alarm

Navigate trail, navigation page (compass rose) views: driver is northbound heading straight toward trail point 6 (left); bearing arrow shows the trail point is due north (straight ahead.) Driver has reached trail point 6 and must turn west to follow the trail (right). Arrival alarm goes off and bearing arrow swings around toward the west and the next waypoint. The unit now shows navigation information to point 7, which is 2.02 miles away.

Navigate a Back Trail (backtrack)

1. Press **MENU|MENU|↓** to **MY TRAILS|ENT**.

2. Press **↓|↓** to enter the Saved Trail list, then use **↑** or **↓** to select the desired *Trail Name*|**ENT**.

3. Press **→** to **DELETE TRAIL|↓** to **NAVIGATE|ENT**.

4. Press **↓** to **NAVIGATE|→** to **REVERSE|ENT|←** to **NAVIGATE|ENT**. The unit begins showing navigation information along the trail, in reverse.

NOTE

> If you are already located at or near the end of your trail, the arrival alarm will go off as soon as you hit **ENT**. Press **EXIT** to clear the alarm and proceed.

5. Now, begin navigating with your unit.

6. When you reach your destination, be sure to cancel your navigation: press **MENU|MENU|↓** to **CANCEL NAVIGATION|ENT**. The unit asks if you're sure; press **←|ENT**.

Transfer Custom Maps and GPS Data Files

Custom Maps:

Custom maps work only from the MMC card or SD card. When a card containing a Custom Map File is loaded into the unit, the unit automatically loads the map into memory when the unit is turned on.

Instructions for copying Custom Map Files to an MMC are contained in the instruction manual for your MMC card reader and MapCreate software. For instructions on inserting an MMC into the unit, *see Sec. 2, Installation/Accessories*.

GPS Data files:

GPS Data Files contain waypoints, routes, trails and event marker icons. Instructions for copying GPS Data Files between your computer and an MMC are contained in the instruction manual for your MMC card reader and MapCreate software.

GPS data automatically recorded in the unit's internal memory must be saved to the MMC (as a GPS Data File) in order to store it on your personal computer. GPS Data Files stored on an MMC must be copied from the card to the unit's internal memory before the unit can read them. Here's how:

1. Insert the MMC into your unit. Press **MENU|MENU|↓** to **SYSTEM SETUP|ENT|↓** to **TRANSFER MY DATA|ENT** and the screen below appears.
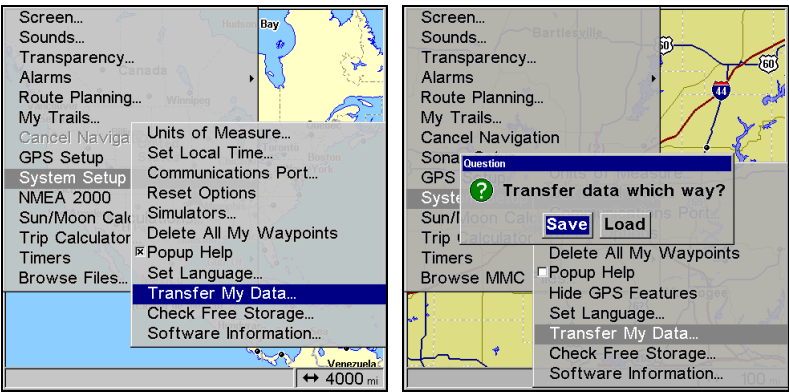
Transfer My Data highlighted on System Setup menu (left). When transferring data (right) you will have the option of transferring the unit's data to a MMC card or loading the data on the MMC card into the unit.

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2. The Transfer My Data menu includes a message which tells you if an MMC is present or not. If no MMC is present, you must first insert a card into the unit in order to activate the Load or Save commands.

To transfer data *from* **the unit** *to* **the MMC**: press **ENT** (for **SAVE**.)

To transfer data *from* **the MMC** *to* **the unit**: press → to **LOAD**|**ENT**.

3. **Saving to MMC**: To accept the default name "Data" for the GPS Data File, press ↓ to **SAVE DATA**|**ENT**. If you want to rename the file (as shown in the following figures), press **ENT** to activate the selection box. Press ↑ or ↓ to change the first character, then press → to the next character and repeat until the name is correct. Then, press **ENT**|↓ to **SAVE DATA**|**ENT**.

The unit will display first a progress message followed by a completion message when the data transfer is finished. To return to the Page view, repeatedly press **EXIT**.
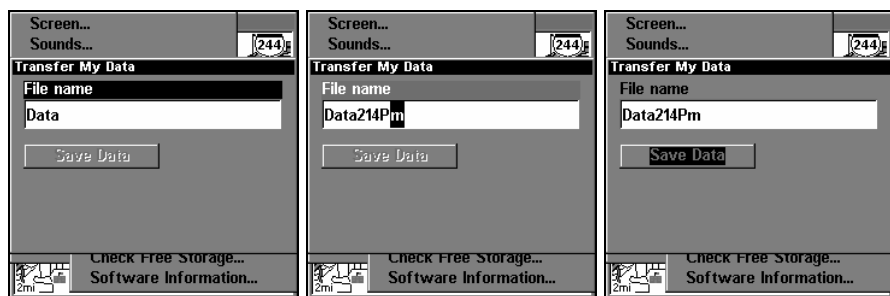
These figures (left to right) show the menu sequence for naming and saving a GPS Data File from the unit's memory to an MMC.

4. **Loading to unit memory**: There may be more than one GPS Data File (*.USR) on the card. To select a file, press **ENT** to activate the selection box, use ↓ or ↑ to highlight the file, then press **ENT** to accept the selection. Next, press ↓ to **LOAD DATA**|**ENT**. The unit will display a completion message when the data transfer is finished. To return to the Page view, press **EXIT** repeatedly.
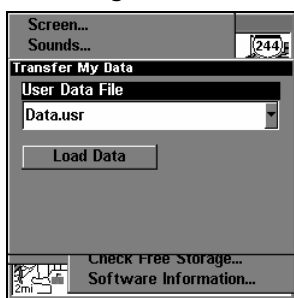
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Figure 1.	Figure 2.

Figure 3.	Figure 4.

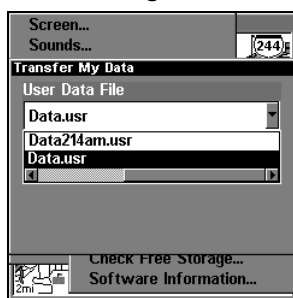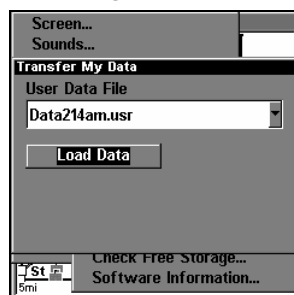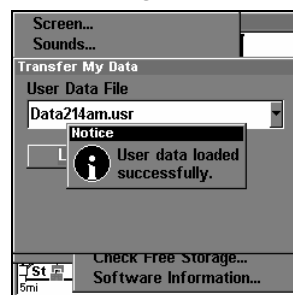**These figures show the menu sequence for loading a GPS Data File from an MMC into the unit's memory.**

Cancel Navigation

You can turn off any of the navigation commands after you reach your destination or at any other time by using the Cancel Navigation command. Press **MENU|MENU|↓** to **CANCEL NAVIGATION|ENT|←** to **YES|ENT**.

Section 4: Advanced Operations

Find Distance from different Locations

1. While on the Map Page press: **MENU**|↓ to **FIND DISTANCE**|**ENT**.

2. Center your cursor over the position you want to find the distance to. A rubber band line appears, connecting your current position to the cursor's location. The distance along that line will appear in a pop-up box. The box also shows the bearing to the point you're measuring to.

3. Press **EXIT** to return to regular operation.
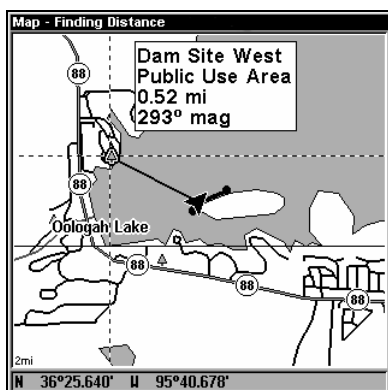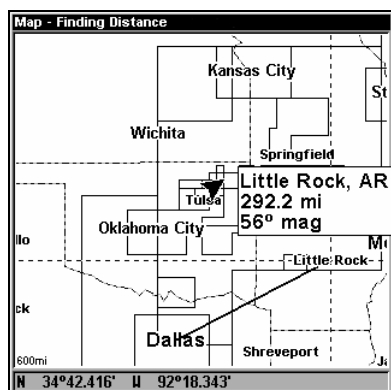
Distance from Dallas to Little Rock is 292.2 miles (left). The distance from the boat's current position to the boat ramp is 0.52 miles (right).

Find Distance from Point to Point

You can also measure distance between two other points on the map.

1. While on the Map Page press: **MENU**|↓ to **FIND DISTANCE**|**ENT**.

2. Center your cursor over the first position. (A rubber band line appears, connecting your *current* position to the cursor's location.) Press **ENT** to set the first point, and the rubber band line disappears.

3. Move the cursor to the second position. The rubber band line reappears, connecting the first point you set to the cursor. The distance along that line will appear in the pop-up box.

4. Press **EXIT** to clear the command and return to the page screen. (Press **EXIT** once more to clear the cursor.)

Icons

Icons are graphic symbols used to mark some location, personal point of interest or event. They can be placed on the map screen, saved and recalled later for navigation purposes.

These are sometimes referred to as event marker icons. This unit has 63 different symbols you can pick from when creating an icon.

Icons are similar to waypoints, but they do not store as much information (like names) as waypoints do. You can't use a menu to navigate to icons as you can with waypoints. (But, you *can* use the map cursor and navigate to any icon on the map.)

You can create an icon at the cursor position on the map, or at your current position while you are navigating.

Create Icon on Map
1. Use the arrow keys to move the cursor to the place where you want to make an icon.

2. Press **ENT** and the Select Icon Symbol menu will appear.

3. Press ↑ ↓ , ← → to select your icon symbol and press **ENT**. The icon appears on the map.
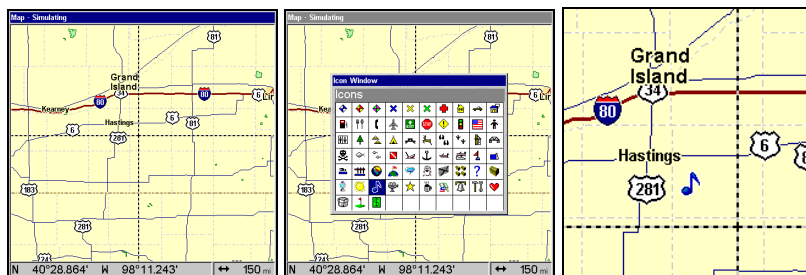
Cursor selects icon location (left). Select Icon Symbol menu (center), Music note icon on map (right). (Cursor has been moved for clarity.)

Create Icon at Current Position
1. While you are traveling, press **ENT** and the Select Icon Symbol menu will appear.

2. Press ↑ ↓, ← → to select your icon symbol, then press **ENT**. The icon appears on the map.

Delete an Icon
You can delete all the icons at one time, delete all icons represented by a particular symbol or use the cursor to delete a selected icon from the map.

1. Press **MENU**|↓ to **DELETE MY ICONS**|**ENT**.

2. Press ↓ to **DELETE ALL ICONS**, **DELETE BY SYMBOL**, or **DELETE FROM MAP** and press **ENT**.
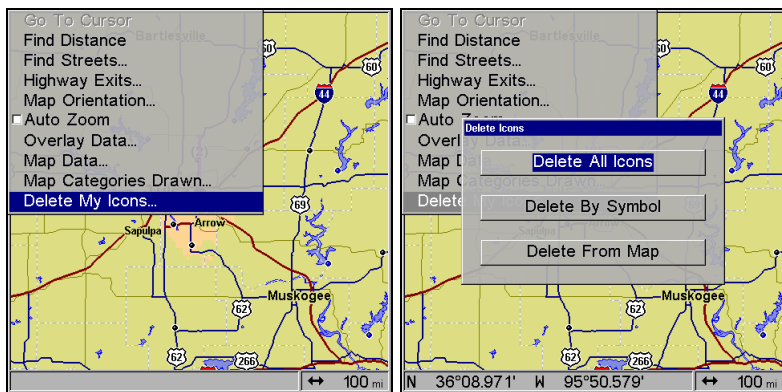
Delete icons menu.

The Delete All Icons command will ask if you are sure. Press ← to **YES|ENT**. All icons will be deleted from the map.

The Delete by Symbol command will launch the Select Symbol menu. Press ← or ↑ or → or ↓ to select the icon symbol to delete, then press **ENT**. A message appears saying all icons with the selected symbol have been deleted.

The Delete From Map command will prompt you to move the cursor over an icon to select it. After selecting the icon, press **ENT** and it disappears from the map.

Navigate to an Icon

Use the cursor to select the desired icon on the map, then use the Navigate to Cursor command.

1. Use arrow keys to center cursor crosshairss over the icon.

2. To navigate to the selected icon location: press **MENU|ENT|EXIT**. Follow course line on the Map Page or the compass bearing arrow on the Navigation Page.

Routes

A route is a series of waypoints, linked together in an ordered sequence to mark a course of travel. You can visualize a route as a string of beads. The beads represent waypoints and the string represents the course of travel connecting waypoint to waypoint.

The course from one waypoint to the next is a leg. Routes are composed of one or more legs. The legs of all GPS routes are based on straight lines between waypoints.

A route provides the automatic capability to navigate through several waypoints without having to reprogram the unit after arriving at each

waypoint. Once programmed into the GPS unit, a route provides the option of navigating forward through the route waypoints or in reverse order (you can even begin navigating in the middle of a route!)

Create and Save a Route

You have the option of creating and editing a route in the unit or you can make a route on your computer with our MapCreate software.

PC-created Routes

MapCreate is the easiest method for preparing a route, simply because your PC's larger screen, keyboard and mouse are easier to manipulate than the unit.

To load a MapCreate route into the unit, follow instructions in MapCreate's manual for creating a route and saving it as part of a GPS Data File (file format *.usr). Copy the GPS Data File to an MMC and insert the MMC in the unit. (See Sec. 2 for instructions on installing MMCs. To load the GPS Data File into the unit's memory, see the entry on *Transfer Custom Maps & GPS Data Files* in Sec. 6, *Basic GPS Operations*.)

Routes Created in the Unit

You can create a route by selecting existing waypoints from the waypoint list or you can set a series of route waypoints on the map with cursor arrows and the Enter key. In this example, we'll create a route from the map.
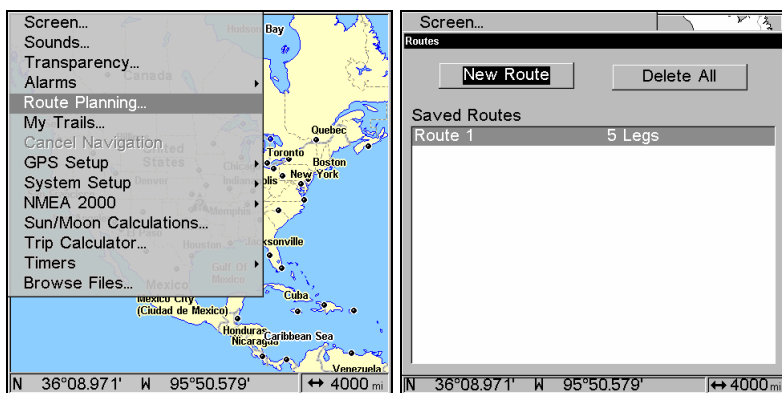
Route Planning command on Main Menu (left). Routes screen (right).

1. From the **NAVIGATION PAGE**, press **MENU|ENT** or from the **MAP PAGE**, press **MENU|MENU|↓** to **ROUTE PLANNING|ENT|ENT**.

2. Press ↓ to **(END OF ROUTE)|ENT|↓** to **ADD FROM MAP|ENT**. The Map Page appears with the cursor showing.
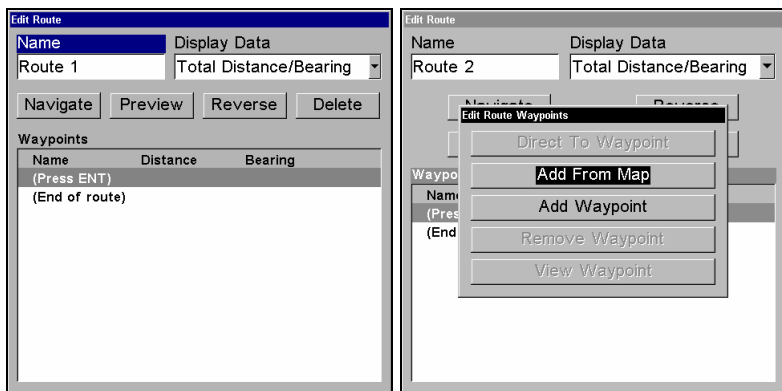
**Edit Route menu (left). Edit Route Waypoints menu (right)
with Add From Map command selected.**

3. Use the Zoom keys and arrow keys to move the map and cursor until
the cursor is centered on the spot where you want your route to begin.
(If you are starting at your current position or the current cursor posi-
tion, you are already at the starting spot.)

4. Set the first route waypoint: press **ENT**. In this example, we started
our route at the intersection of 11th Street and 145th E. Ave. The route
ends at a public hunting area next to a river. (Our route creation ex-
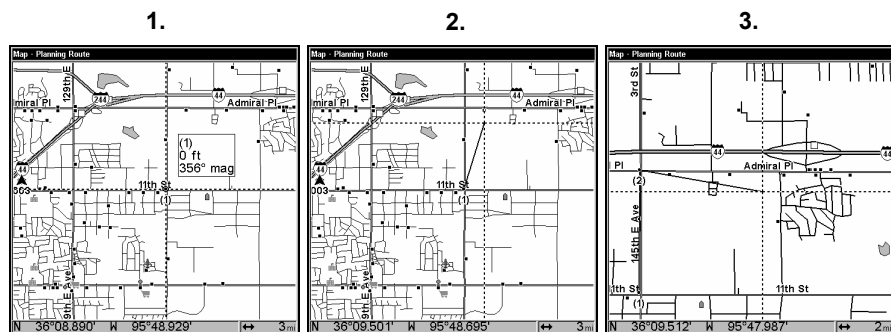ample is illustrated in the following figures.)

**Route creation sequence, from left: Fig. 1. Set route waypoint (1) at
11th St. & 145th Ave. Fig. 2. Zoom in; move cursor north to set point (2)
at 145th & Admiral. Fig. 3. With point (2) set, move cursor east to mark
interstate on-ramp with waypoint (3). In figures 2 and 3, notice the
rubber band line extending from the previously set waypoint to the
cursor. This line will become the course for the route.**
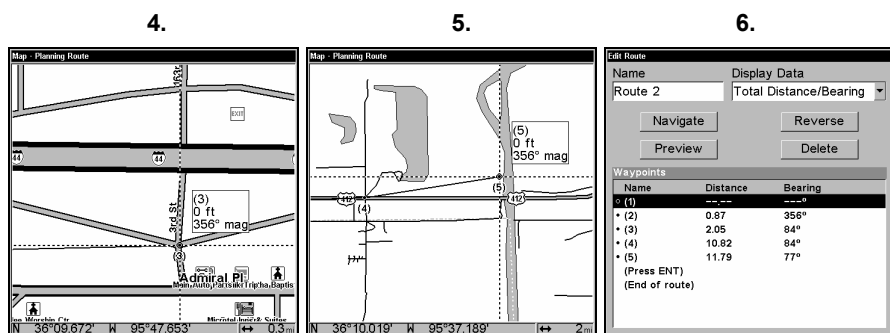
Route creation sequence, continued: Fig. 4. Point (3) set at on-ramp turn. Fig. 5. Waypoint (4) set at highway exit to frontage road leading to river. Waypoint (5) ends the route at a tree stand in the hunting area. Fig. 6. Press EXIT to save the route and you return to this screen.

5. Move the cursor to the next point in the route, a spot where you need to turn or change direction, and press **ENT** to set the next waypoint.

6. Repeat step five until the route reaches your destination.

7. To save your route, press **EXIT**. The unit reverts to the Edit Route screen, with the route automatically named "Route 1" and stored in the unit's internal memory. (In our example, Route 1 already existed, so the unit automatically made "Route 2.")

You can edit the route and run other commands, but if you are finished with the route for now, return to the last page displayed by pressing **EXIT** repeatedly.

Delete a Route

1. From the **NAVIGATION PAGE**, press **MENU|ENT** or from the **MAP PAGE** press **MENU|MENU|↓** to **ROUTE PLANNING|ENT**.

2. Press **↓** to *route name*|**ENT**.

3. Press **↓** to **NAVIGATE|ENT|→** to **DELETE|ENT|←** to **YES|ENT**.

Tip:

You can also delete all routes at once:
1. From the **NAVIGATION PAGE**, press **MENU|ENT** or from the **MAP PAGE** press **MENU|MENU|↓** to **ROUTE PLANNING|ENT**.

2. Press **→** to **DELETE ALL|ENT|←** to **YES|ENT**.

Edit a Route Name

1. From the **NAVIGATION PAGE**, press **MENU|ENT** or from the **MAP PAGE** press **MENU|MENU|↓** to **ROUTE PLANNING|ENT**.

2. Press ↓ to *route name*|**ENT**|**ENT**.

3. Press ↑ or ↓ to change the first character, then press → to move the cursor to the next character and repeat until the name is correct, then press **ENT**. Return to the previous page by pressing **EXIT** repeatedly.

Edit Route Waypoints

You can edit the route by adding and removing waypoints.

1. From the **NAVIGATION PAGE**, press **MENU**|**ENT** or from the **MAP PAGE** press **MENU**|**MENU**|↓ to **ROUTE PLANNING**|**ENT**.

2. Press ↓ to *route name*|**ENT**|↓ to **ROUTE WAYPOINTS LIST**. Use ↓ ↑ to select a waypoint and press **ENT**.
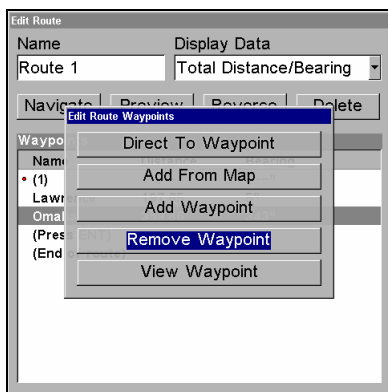
Edit Route Waypoints menu.

3. Use ↓ ↑ to select a command from the Edit Route Waypoints menu and press **ENT**. Add From Map lets you insert a waypoint in the route by clicking on a map location with the cursor. Add Waypoint calls up the Waypoint List so you can insert a waypoint from the list. Remove Waypoint will delete the waypoint from the route. View Waypoint will show you where the selected waypoint is on the map.

NOTE:

When adding waypoints to a route, the inserted waypoints will appear in the route in front of the waypoint you have selected. To insert waypoints at the end of the route, make sure to select "(End of route)" before adding them.
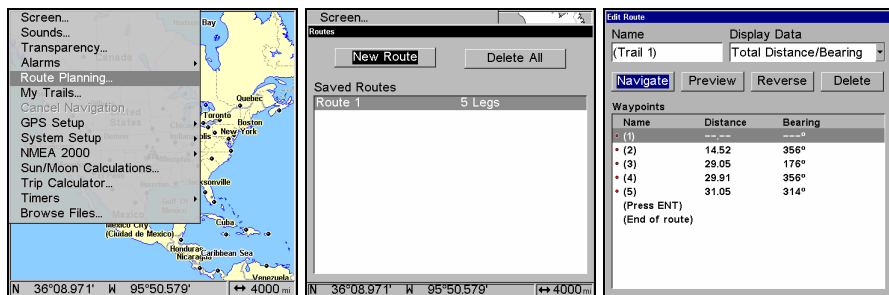
Route Planning on Main Menu (left). Routes menu (center). Edit Route menu (right). Navigate is selected on Edit Route menu.

Navigate a Route

1. From the **NAVIGATION PAGE**, press **MENU|ENT** or from the **MAP PAGE**, press **MENU|MENU|↓** to **ROUTE PLANNING|ENT**.

2. Press ↓ to select *route name*|**ENT|↓** to **NAVIGATE|ENT**.

3. Upon arrival at your destination, cancel navigation:
press **MENU|MENU|↓** to **CANCEL NAVIGATION|ENT|←** to **YES|ENT**.

The following figures show what the Navigation Page and Map Page look like while navigating a route.

Navigate a Route in Reverse

Here's how you run a route backward, from the end waypoint to the beginning waypoint:

1. From the **NAVIGATION PAGE**, press **MENU|ENT** or from the **MAP PAGE**, press **MENU|MENU|↓** to **ROUTE PLANNING|ENT**.

2. Press ↓ to select *route name*|**ENT|↓** to **NAVIGATE|→** to **REVERSE|ENT|←** to **NAVIGATE|ENT**.

3. Upon arrival at your destination, cancel navigation:
press **MENU|MENU|↓** to **CANCEL NAVIGATION|ENT|←** to **YES|ENT**.

Figure 1.   Figure 2.
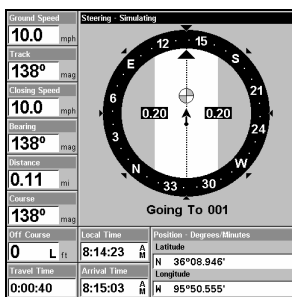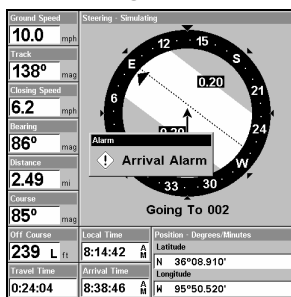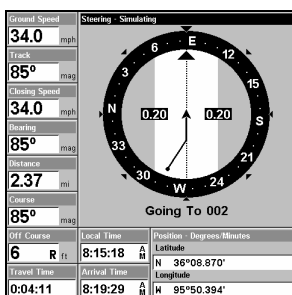
Figure 3.   Figure 4.
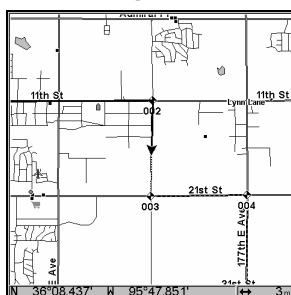
Navigating along a route: Fig. 1 shows the Navigation Page at the start of a route, heading straight for the first waypoint (Wpt 1). In Fig. 2, the traveler has arrived at Wpt 1; the arrival alarm has been triggered and the bearing arrow on the compass rose has turned to point toward Wpt 2, off to the east. In Fig. 3 the traveler has turned east on his new course and is heading straight for Wpt 2, which is 2.37 miles away. Fig. 4 shows route navigation on the Map Page. In this figure, the traveler has reached Wpt 2 and is half-way along the leg between Wpts 2 and 3.

Trails

Delete a Trail

This is the command used to delete a trail: Press **MENU|MENU|↓** to **MY TRAILS|ENT|↓** to *trail name*|**ENT|→** to **DELETE TRAIL|ENT|←** to **YES|ENT**.

Tip:

You can also delete all trails at once:

1. Press **MENU|MENU|↓** to **MY TRAILS|ENT**.

2. Press **→** to **DELETE ALL|ENT|←** to **YES|ENT**.

Edit a Trail Name

To edit a trail name: press **MENU**|**MENU**|↓ to **MY TRAILS**|**ENT**|↓ to *trail name*|**ENT**|**ENT**. Press ↑ or ↓ to change the first character, then press → to the next character and repeat until the name is correct. Press **ENT** then **EXIT** repeatedly to return to the previous page display.

Tip:

You can quickly call up the Edit Trail menu by selecting a trail on the map with the cursor. Simply move the cursor over a trail and a pop-up box appears. Press **WPT** and the Edit Trail menu opens.
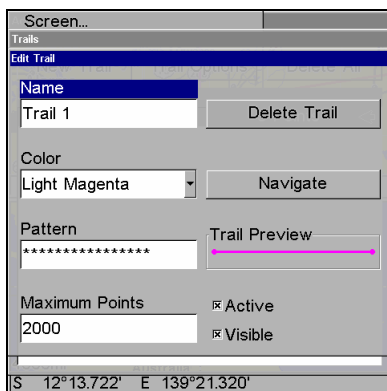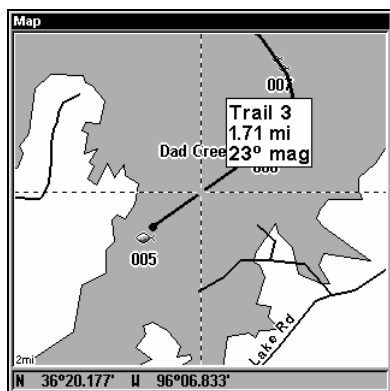
Trail selected with map cursor (left). The pop-up box shows distance and bearing from current position to the selected point on the trail. The Edit Trail menu (right).

Edit a Trail Color

To edit a trail color: press **MENU**|**MENU**|↓ to **MY TRAILS**|**ENT**|↓ to *trail name*|**ENT**|↓ to **COLOR**|**ENT**. Press ↑ or ↓ to select a color style, then press **ENT**. Press **EXIT** repeatedly to return to the previous page display.

Edit a Trail Pattern

To edit a trail pattern: press **MENU**|**MENU**|↓ to **MY TRAILS**|**ENT**|↓ to *trail name*|**ENT**|↓ to **PATTERN**|**ENT**. Press ↑ or ↓ to change the first character, then press → to the next character and repeat until the pattern is correct. Press **ENT**, then **EXIT** repeatedly to return to the previous page display.
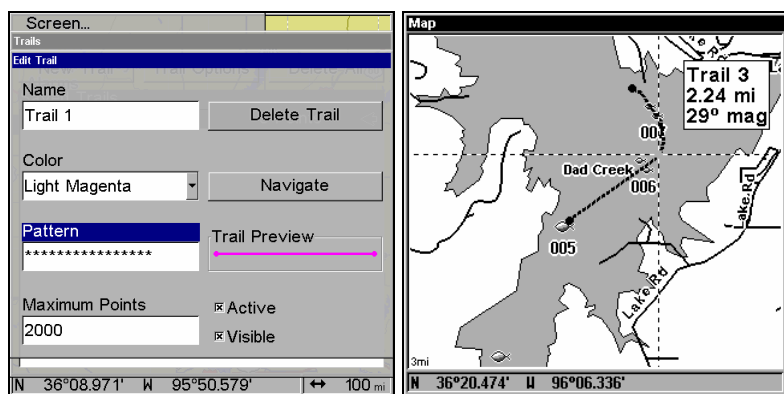
Edit Trail Menu with Pattern option selected (left). Edited trail with dotted line pattern (right).

Utilities

Utilities are useful tools for traveling or for outdoor activities.

Alarm Clock

To access the unit's alarm clock: press **MENU**|**MENU**|↓ to **TIMERS**|**ENT**|↓ to **ALARM CLOCK**|**ENT**.

Sun/Moon Rise & Set Calculator

To get to the Sun/Moon menu: press **MENU**|**MENU**|↓ to **SUN/MOON CALCU-LATIONS**|**ENT**.

Trip Calculator

To get to the Calculator menu: press **MENU**|**MENU**|↓ to **TRIP CALCULA-TOR**|**ENT**.

Trip Down Timer

To get to the Down Timer menu: press **MENU**|**MENU**|↓ to **TIMERS**|**ENT**|↓ to **DOWN TIMER**|**ENT**.

Trip Up Timer

To get to the Up Timer menu: press **MENU**|**MENU**|↓ to **TIMERS**|**ENT**|**ENT**.

Waypoints

Delete a Waypoint

To delete a waypoint from waypoint list:

1, Press **WPT**|**ENT**|**ENT**|**ENT**|↓ to *waypoint name*|**ENT**|↓ to **DELETE WAY-POINT**|**ENT**|← to **YES**|**ENT**. To return to the previous page, press **EXIT**|**EXIT**.

To delete a waypoint from the map:

1. Use the arrow keys to select the waypoint with the cursor.

2. Press **WPT**|↓ to **DELETE WAYPOINT**|**ENT**|← to **YES**|**ENT**. To return to the previous page and clear the cursor, press **EXIT**.

To delete all waypoints at one time:

1. Press **MENU**|**MENU**|↓ to **SYSTEM SETUP**|**ENT**|↓ to **DELETE ALL MY WAYPOINTS**|**ENT**|← to **YES**|**ENT**. To return to the previous page, press **EXIT**|**EXIT**.

Edit a Waypoint

To edit waypoint name:

1. Press **WPT**|**ENT**|**ENT**|**ENT**|↓ to *waypoint name*|**ENT**|↓ to **EDIT WAYPOINT**|**ENT**|**ENT**.

2. Press ↑ or ↓ to change the first character, then press → to the next character and repeat until the name is correct. Press **ENT** then **EXIT** repeatedly to return to the previous page display.

To edit waypoint symbol:

1. Press **WPT**|**ENT**|**ENT**|**ENT**|↓ to *waypoint name*|**ENT**|↓ to **EDIT WAYPOINT**|**ENT**|↓ to **CHOOSE SYMBOL**|**ENT**.

2. Use arrow keys to select desired symbol and press **ENT**. To return to the previous page, press **EXIT** repeatedly.

To edit waypoint position:

1. Press **WPT**|**ENT**|**ENT**|**ENT**|↓ to *waypoint name*|**ENT**|↓ to **EDIT WAYPOINT**|**ENT**.

2. Latitude: press → to **LATITUDE**|**ENT**. Press ↑ or ↓ to change the first character, then press → to the next character and repeat until the latitude is correct. Press **EXIT**.

3. Longitude: press ↓ to **LONGITUDE**|**ENT**. Press ↑ or ↓ to change the first character, then press → to the next character and repeat until the longitude is correct. Press **EXIT**.

4. When latitude and longitude are correct, return to the previous page: press **EXIT** repeatedly.

Selecting a Waypoint

To select a waypoint on the map (for navigating to, for editing, etc.,) use the arrow keys and center the cursor over the waypoint. A highlighted halo will appear around the waypoint.

Create Waypoint by Entering a Position

1. Press **WPT**|→ to **SUBCATEGORY** column|↓ to **NEW**|**ENT**.

2. Press ↓ to **ENTERED POSITION**|**ENT**|→ to **CREATE**|**ENT**.

3. Press → to **LATITUDE**|**ENT**. Enter the latitude by pressing ↑ or ↓ to change the first character, then press → to the next character and repeat until the latitude is correct. Press **ENT**.
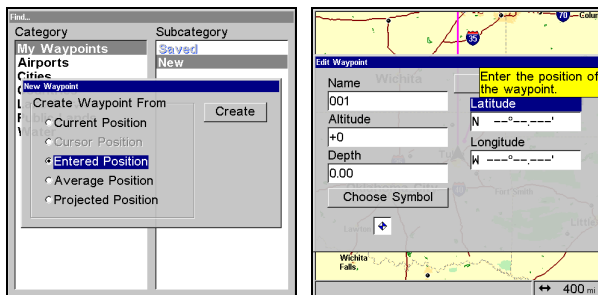
New Waypoint screen (left). Edit Waypoint menu with Latitude highlighted (right).

4. Press ↓ to **LONGITUDE**|**ENT**. Enter the longitude by pressing ↑ ↓ to change the first character, then press → to the next character and repeat until the longitude is correct. Press **ENT**. To edit the waypoint's name, altitude, depth or symbol, proceed to Step 5. If you want to see the waypoint on the map, press **EXIT**, select **GO TO WAYPOINT** or **FIND ON MAP** and press **ENT**. If you select Go to Waypoint, a route will be automatically be created directing you to the new waypoint. If you choose Find on Map, the map screen will appear with the cursor crosshairss centered on the waypoint you created.

5. You can edit the waypoint's Name, Altitude or Depth by highlighting the desired category and pressing **ENT**. Use ↑ ↓ to change the first character, then press → to the next character and repeat until the desired name, altitude or depth has been entered. Press **ENT.**

6. To edit the waypoint's symbol, highlight **CHOOSE SYMBOL** and press **ENT**. The Icon Window will appear with 63 symbols. Select the desired symbol and press **ENT**.

7. Press **EXIT**, which will open the Waypoint Information menu with up to four options: Go To Waypoint, Find on Map, Edit Waypoint and Delete Waypoint. Select the desired option and press **ENT**.

Set a Waypoint by Average Position

This feature sets a waypoint at the current position after taking several position readings and averaging them.

This boosts waypoint position accuracy by helping to eliminate errors caused by atmospheric conditions and other factors.

1. Press **WPT**|→ to **Subcategory** column|↓ to **New**|**ENT**.

2. Press ↓ or ↑ to **Average Position**|**ENT**|press → to **Create**|**ENT**.

3. Wait while the unit takes points to average for the position. (The greater the number of points, the greater the accuracy.) When the desired number of points accumulates, press **ENT** to create and save the waypoint.

4. The Edit Waypoint menu appears. You can simply save the waypoint by pressing **EXIT**|**EXIT** or you can edit the waypoint.

Set a Waypoint by Projecting a Position
This feature sets a waypoint at a point located a specific distance and bearing from a reference position. The reference position can be selected from your waypoint list, a map feature or from the Points of Interest list.

1. Press **WPT**|→ to **Subcategory** column|↓ to **New**|**ENT**.

2. Press ↓ to **Projected Position**|**ENT**|→ to **Create**|**ENT**.

3. Press → to **Choose Reference**|**ENT**. Use ↑ and ↓ to select a waypoint, map feature or Point of Interest. When the point has been selected, press **ENT** and you will be directed to the Waypoint information menu. There will be two options: Set Reference or Find on Map. Highlight Set Reference and press Enter.

4. Press ↓ to **Distance**|**ENT**. Press ↑ or ↓ to change the first character, then press → to the next character and repeat until the distance is correct. Press **ENT**.

5. Press ↓ to **Bearing**|**ENT**. Press ↑ or ↓ to change the first character, then press → to the next character and repeat until the bearing is correct. Press **ENT**.

6. Press ↑ to **Project**|**ENT**. The Edit Waypoint menu appears. You can simply save the new projected waypoint by pressing **EXIT**|**EXIT** or you can edit the waypoint. (Press **EXIT**|**ENT** if you want to immediately begin navigating to the new waypoint.)

Section 5: System & GPS Setup

Alarms

This unit has several GPS alarms. The factory default setting has all of these but the anchor alarm turned on. You can turn the alarms off and on and change their distance settings.

You can set an arrival alarm to flash a warning message and sound a tone when you cross a preset distance from a waypoint. For example, if you have the arrival alarm set to .1 mile, then the alarm will flash a message when you come within .1 mile of the recalled waypoint.

The off course alarm warns you when your track drifts too far to the right or left of the course line to the waypoint. For example, if the alarm is set to .1 mile, then the alarm flashes a message if you drift .1 of a mile or more to the right or left of the line to the waypoint.

The anchor alarm is triggered when you drift outside of a preset radius. Again, using the .1 mile as an example, if you're anchored and your boat moves more than .1 of a mile, the alarm will flash a message and sound a tone.
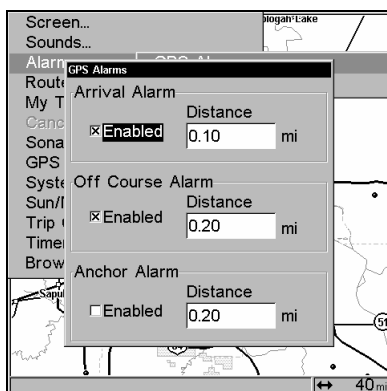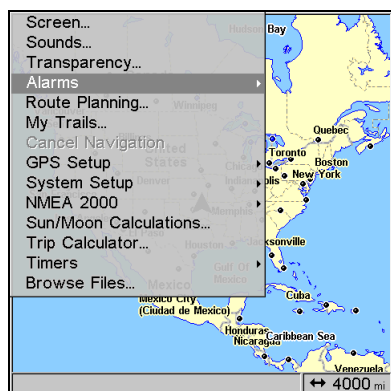
Alarms command (left). Alarm menu (right).

To change alarm settings:
1. Press **MENU|MENU|↓** to **ALARMS|ENT|ENT**.

2. Scroll **↓ ↑** to select the desired category, then press **ENT** to check or clear the Enabled box. This turns the alarm on (checked) or off (unchecked.)

3. To change distance settings, scroll ↓ ↑ to select the desired category, then press → |**ENT** to activate the distance dialog box. Use ↑ ↓ to change the first character, then press → to the next character and repeat until the name is correct.

4. When your adjustments are finished, return to the last page displayed by repeatedly pressing **EXIT**.

IMPORTANT ALARM NOTES

Anchor Alarm - The anchor alarm may be triggered even when you are sitting still. This typically happens when using small (less than .05 mile) anchor alarm ranges.

Arrival Alarm - If you set the arrival alarm's distance to a small number and you run a route (see the Navigate Routes segment), this unit may not show navigation data to the next waypoint, once you arrive at the first one. You may not be able to come close enough to the first waypoint to trip the arrival alarm.

Auto Satellite Search

To lock on to the satellites, the GPS receiver needs to know its current position, UTC time and date. (Elevation [altitude] is also used in the equation, but it's rarely required to determine a position.) It needs this data so that it can calculate which satellites should be in view. It then searches for only those satellites.

When your GPS receiver is turned on for the first time, it doesn't know what your position or elevation (altitude) is. It does know the current UTC time and date since these were programmed into it at the factory and an internal clock keeps the time while the unit is turned off. (If the time and/or date are incorrect, you can set them using the "Set Local Time" menu.)

The unit begins searching for the satellites using the above data that it acquired the last time it was turned on. This probably was at the factory. Since it's almost certain that you're not at our factory, it's probably looking for the wrong satellites.

If it doesn't find the satellites it's looking for after approximately one minute, it switches to Auto Search. The receiver looks for any satellite in the sky. Due to advanced technology, the auto search time has shrunk significantly from the early days of GPS.

Once the unit locks on to the satellites, it should take less than a minute to find your position the next time it's turned on, as long as you are approximately 100 miles from the last location it was used.

MMC File Browser.

Check MMC Files and Storage Space

To check MMC Files:
Press **MENU**|**MENU**|↓ to **BROWSE MMC FILES**|**ENT.**

Communications Port Configuration

The unit has one NMEA 0183 version 2.0 compatible communication port, or com port for short. The Com Port Menu, which is accessed from the System Setup Menu, allows you to configure the communications port to send or receive data from another electronic device, such as an autopilot. The com port can be used for either NMEA, or SiRF Binary data transfer.
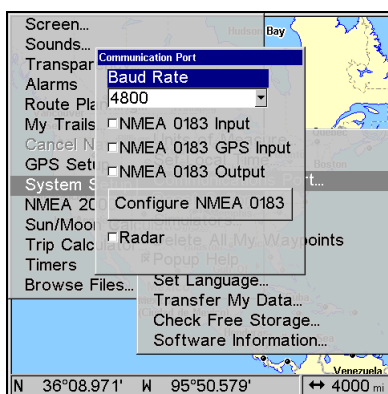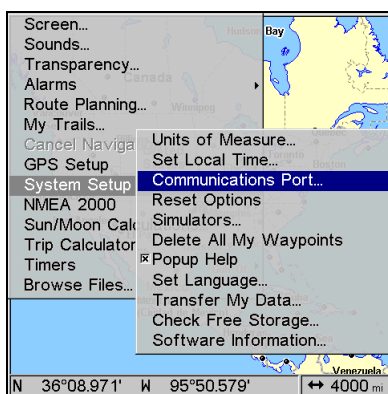
Communications Port highlighted on System Setup menu (left). Baud Rate selected on Communications Port menu (right).

For connectors and wiring information for another device, see page 16. For assistance in configuring the unit to communicate with another device, consult the factory. Customer service phone numbers are in the back of this manual.

Configure NMEA

You can configure the unit to use specific NMEA sentences.

1. Press **MENU**|**MENU**|↓ to **SYSTEM SETUP**|**ENT**.

2. Press ↓ to **COMMUNICATIONS PORT**|**ENT**|↓ to **CONFIGURE NMEA**|**ENT**.

3. A menu appears showing the prefixes of the available NMEA sentences. A check mark next to a prefix means the prefix is in use. Use ↑ ↓, → ← to select a prefix, then press **ENT** to turn off the prefix. (Press **ENT** again to check the box and turn on a prefix.)

4. When the desired prefixes are checked or unchecked, press **EXIT** repeatedly to return to the previous page.

NOTE:
Placing a check in the checkbox next to Radar at the bottom of the Communications Port menu will set the Baud Rate to the default Radar Baud Rate setting.

Coordinate System Selection

The Coordinate System Menu lets you select the coordinate system to use when displaying and entering position coordinates.
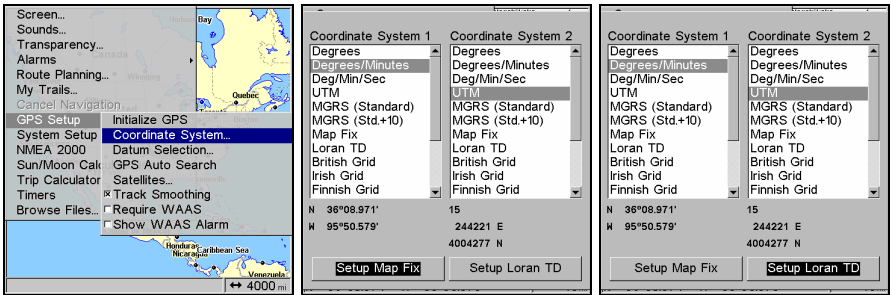
Menus for changing coordinate system used to display positions.

To get to Coordinate System Selection:
1. Press **MENU**|**MENU**|↓ to **GPS SETUP**|**ENT**.

2. Press ↓ to **COORDINATE SYSTEM**|**ENT**.

This unit can show a position in degrees (36.14952°); degrees, minutes and thousandths of a minute (36° 28.700'); or degrees, minutes, seconds and tenths of a second (36° 28' 40.9"). It can also show position in: UTM

(Universal Transverse Mercator) projection; MGRS (Standard); MGRS (Standard + 10); Map Fix; Loran TD; British, Irish, Finnish, German, New Zealand, Swedish, Swiss, Taiwan and Greek.

UTM's are marked on USGS topographic charts. This system divides the Earth into 60 zones, each 6 degrees wide in longitude.

British, Irish, Finnish, German, New Zealand, Swedish, Swiss, Taiwan, and Greek grid systems are the national coordinate system used only in their respective countries. In order to use these grid systems, you must be in the respective country. This unit will pick the matching datum for you when you select the grid. See the entry on Map Datum Selection for more information.

The Military Grid Reference System (MGRS) uses two grid lettering schemes, which are referred to as standard and standard + 10 MGRS on this unit. Your position and datum in use determines which one to use. If you use standard, and your position is off significantly, then try the alternate.

NOTE:
When the position format is changed, it affects the way all positions are shown on all screens. This includes waypoints.

To change the coordinate system

1. Press **ENT** while **COORDINATE SYSTEM** is highlighted.

2. Use ↑ ↓ to highlight the desired format and press **ENT**. Press **EXIT** repeatedly to return to the map display.

To set up Loran TD:
If the Loran TD conversion is chosen, you must enter the local Loran chain identification for the master and slaves. Highlight **SETUP LORAN TD** at the bottom of the Coordinate System menu and select the ID. Press **EXIT** to close this menu.

Configure Loran TD menu.

Map Fix

Map Fix is used with charts or maps. This system asks for a reference position in latitude/longitude, which you take from a marked location on the map. It then shows the present position as distance on the map from that reference point.

For example, if it shows a distance of UP 4.00" and LEFT 0.50", you then measure up four inches and to the left a half-inch from the reference point on the map to find your location.

To configure a map fix:

To use this format, you need to follow these steps in order. First, take your map of the area and determine a reference latitude/longitude. (Note: in order for this system to work, the latitude/longitude lines must be parallel with the edge of the map. USGS maps are parallel, others may not be. Also, this works better with smaller scale maps, such as 1:24000.) The reference position can be anywhere on the map, but the closer it is to your location, the smaller the numbers will be that you'll have to deal with.

Once you've decided on a reference position, you can save it as a waypoint. See the waypoint section for information on saving a waypoint. Save the reference position as a waypoint. Exit from the waypoint screens.

1. Press **MENU|MENU|↓** to **GPS SETUP|ENT**.

2. Press ↓ to **COORDINATE SYSTEM|ENT**.

3. Press ↓ to **SETUP MAP FIX|ENT**. The screen below appears, and **MAP SCALE** is highlighted.

4. Press **ENT** and enter the map's scale. This is generally at the bottom of the paper map. It is shown as a ratio, like 1:24000. Press **EXIT** and the unit to return to the Configure Map Fix screen.

Configure a map fix so the unit can find your position on a printed chart or topographical map.

5. Press → to **SELECT ORIGIN**|**ENT**|**ENT**|**ENT** to bring up the waypoint list. Select the waypoint that you saved the reference point under and press **ENT**. The unit displays a waypoint information screen with the command **SET AS ORIGIN** selected.

6. Press **ENT** and the unit returns to the Configure Map Fix menu. Finally, press **EXIT** to close this menu.

7. Press ↑ to **COORD SYSTEM**|**ENT**, select **MAP FIX** from the list and press **ENT**|**EXIT**. All position information now shows as a distance from the reference point you chose.

Customize Page Displays

Every Page display option except Full Map (on the Map Page) has customizable data boxes to provide constant on-screen information.

The data available from your unit is divided into categories in the Data Viewer menu. These categories include GPS Data, Navigation, Trip Calculator, Time, Sonar and Miscellaneous. You can select items from any of these categories for display in any data box — the category divisions are only there to help you sort through the information.

To change the information displayed in a data box:
1. On the Page display you wish to change, press **MENU**|↓ to **CUSTOMIZE**|**ENT**. A data box name flashes, indicating it is selected.

2. Press **ENT** to change the box or hit ↑, ↓, ← → to select another box, then press **ENT**. You will see a list of categories with "+" or "–" symbols next to each category. A category with a "+" is *expandable*, meaning its contents are hidden.
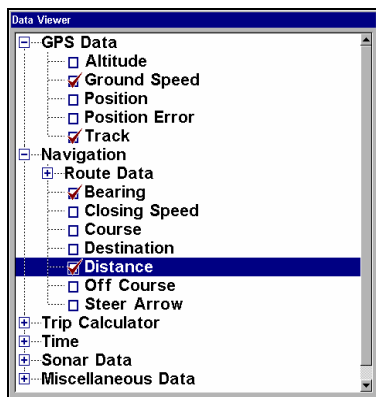
Customize Menu, with "GPS Data" and "Navigation" categories expanded.

Selecting the category name and pressing **ENT** will show the category's contents, so you can choose items within it. An expanded category (one with a "–" next to its name) can be collapsed to hide its contents. Just select the category name and press **ENT**.

3. Expand any categories that might contain data you want to display. Press ↓ ↑ to select a different data option.

4. With the new option highlighted, press **ENT** to switch the contents of the box to the new data type and press **EXIT**. You can now select another box to change. When you are finished with the settings, press **EXIT** again to end the Customize command, and the box name stops flashing.

NOTE:

> A Page display can show a limited number of data boxes. You can not add or remove data boxes.

GPS Simulator

The GPS simulator lets you use the unit as if you were outdoors navigating somewhere. It's a great way to practice using your unit. You can set the starting location by entering latitude/longitude (Starting Position) or from a stored waypoint, map place or POI. You can steer your position and change speed on the map by using the arrow keys (**STEER WITH ARROWS** command) or by setting the track and speed in the dialog boxes provided on the simulator menu screen.

To turn on the GPS Simulator:

1. Press **MENU|MENU**, highlight **SYSTEM SETUP** and press **ENT**.

2. Select **SIMULATORS** and press **ENT**.
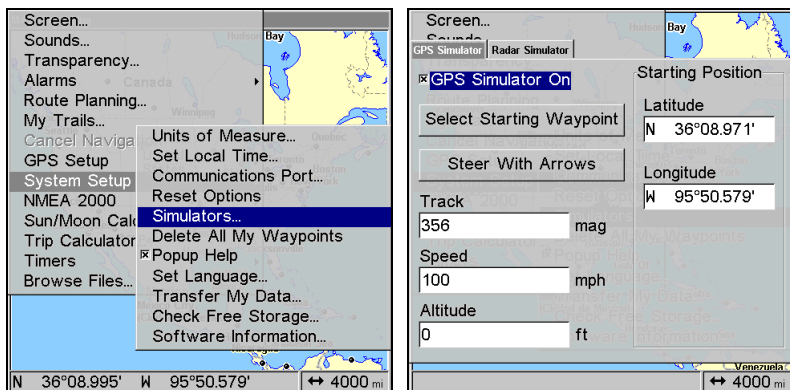
The GPS Simulator menu.

The GPS Simulator page will appear. The page has dialog boxes that allow you to change the Track, Speed, Altitude, Latitude and Longitude of your simulation.

You can begin your simulation at a waypoint by using the Select Starting Waypoint command or direct the simulation manually by using the Steer with Arrows command, which will place Steer with Arrow boxes on the main display.

Tip:

The Initialize GPS command offers another way to choose a desired location to begin a simulation. The Initializing GPS command allows you to move the center display arrow to any location on the map. We will explore the Initialize GPS command in more detail in the *Initialize GPS* entry below.

3. When all settings have been set to your preferences, turn on the simulator on by highlighting the **GPS SIMULATOR ON** box and pressing **ENT**. Press **EXIT** repeatedly to return to the map display. Repeat Steps 1-3 to turn off the simulator.

NOTE:

A message and tone appear periodically, warning you that the simulator is on. To turn the simulator off, repeat the above steps or turn the unit off.

Steer with Arrows

When you are using the Steer with Arrows command, you can press **EXIT** to clear the steering and speed boxes from the screen while continuing the simulation. This action will allow you to use the map cursor during a simulation. To turn steering and speed boxes back on again, return to the GPS Simulator menu, highlight the **STEER WITH ARROWS** command, press **ENT**. Press **EXIT** repeatedly to return to the previous page.

Simulating Trail or Route Navigation

In Simulator mode, your unit can automatically follow a trail or route without manual steering if you use these steps:

1. From the Map Page, go to the simulator menu. Pick a **STARTING POSITION** at or near the beginning of your trail/route. Enter an approximate **TRACK** (shown in compass degrees) that will point you toward the start of the trail/route.

2. Set **SPEED** to zero. Select **STEER WITH ARROWS** command and press **ENT**, which turns on the simulator and returns you to the Map Page.

3. Begin navigating along the trail/route. (If you are close enough to the first waypoint, the arrival alarm will usually go off as soon as navigation begins. Press **EXIT** to clear the alarm.) When navigation starts, press ↑ to increase speed to the desired setting.

4. Press **EXIT** to turn off the steering and speed boxes. The unit will now automatically steer along the trail or route. Cancel navigation when you arrive at your destination.

Initialize GPS

This command is handy when you are practicing in simulator mode. (See the entry in this section for *GPS Simulator*.) In simulator mode, this command makes the unit operate as if it is sitting someplace other than its actual location. So, you and your unit could be located in Kansas City, but easily practice navigating in the ocean off Islamorada, Florida.

1. Press **MENU**|**MENU**|↓ to **GPS SETUP**|**ENT**|**ENT**.

2. A message appears, telling you to move the cursor near the desired location and press **ENT**. When the message automatically clears, follow the message instructions.

3. In a moment, your present position marker arrow appears on the map in the location you selected with the cursor. The unit will consider that spot as its last known position until changed by either a live satellite lock-on or a new simulator location.

Map Auto Zoom

This unit has an auto zoom feature that eliminates much of the button pushing common with other brands of GPS receivers. It works in conjunction with the navigation features.

First, start navigation to a waypoint. (See the waypoint section for more information on navigating to a waypoint.) Then, with the auto zoom mode on, the unit zooms out until the entire course shows, from the present position to the destination waypoint. As you travel toward the destination, the unit automatically begins zooming in — one zoom range at a time — always keeping the destination on the screen.

To turn on Auto Zoom:

1. From a **MAP PAGE**, press **MENU|↓** to **AUTO ZOOM|ENT|EXIT**. Repeat these steps to turn it off.

Map Data

This menu lets you turn the map off, if desired (which turns the map screen into a GPS plotter); turn off or on the pop-up map info boxes; draw the map boundaries or boxes around the areas of high detail; or fill land areas with gray. You can also turn on or off Map Overlays, which display latitude and longitude grid lines or range rings on the map. This menu also lets you select Navionics Maps. For instructions, see the *Navionics Charts* entry in this section.

To get to Map Data:
From the Map Page, press **MENU|↓** to **MAP DATA|ENT**.
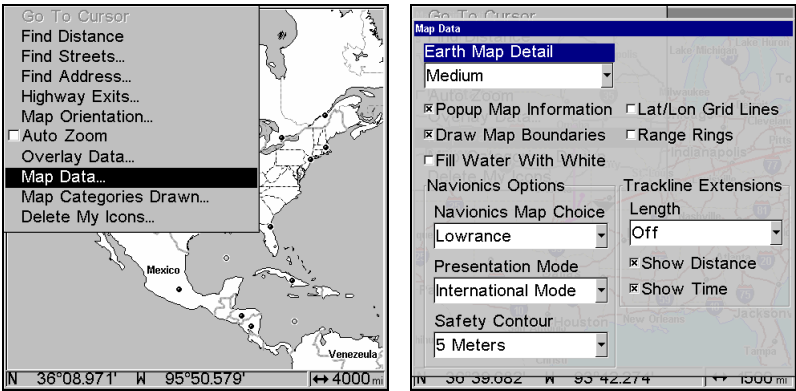
Map Menu (left). Map Data Menu (right).

To show Map Data

1. From the Map Page, press **MENU**|↓ to **MAP DATA**|**ENT**.

2. Press **ENT** to open the **EARTH MAP DETAIL** selection list, and choose how much detail you want — from Off (so the unit operates like a GPS plotter) to High.

3. After the option is set, press **EXIT** repeatedly to return to the page display.

To turn on/off Pop-up Map Information

1. From the Map Page, press **MENU**|↓ to **MAP DATA**|**ENT**.

2. Press ↓ to **POPUP MAP INFORMATION**. With the option highlighted, press **ENT** to check it (turn on) or uncheck it (turn off.)

3. After the option is set, press **EXIT**|**EXIT** to return to the page display.

To turn on/off Draw Map Boundaries

1. From the Map Page, press **MENU**|↓ to **MAP DATA**|**ENT**.

2. Press ↓ to **DRAW MAP BOUNDARIES**. With the option highlighted, press **ENT** to check it (turn on) or uncheck it (turn off.)

3. After the option is set, press **EXIT**|**EXIT** to return to the page display.

To turn on/off Fill Water With White

1. From the Map Page, press **MENU**|↓ to **MAP DATA**|**ENT**.

2. Press ↓ to **FILL WATER WITH WHITE**. With the option highlighted, press **ENT** to check it (turn on) or uncheck it (turn off.)

3. After the option is set, press **EXIT**|**EXIT** to return to the page display.

Map Overlays (Range Rings; Lat/Long Grid)

The map screen can be customized with four range rings and/or grids that divide the plotter into equal segments of latitude and longitude.

Range rings are handy for visually estimating distances on the map. The ring diameters are based on the current zoom range. For example: at the 100 mile zoom, the screen will show two rings with your current position in the center. The large ring touching the left and right sides of the screen is 100 miles in diameter (same as the zoom range). The second smaller ring is 50 miles in diameter (always 1/2 the zoom range).

The distance from your current position to the smaller ring (the ring's radius) is 25 miles (always 1/4 the zoom range). With the arrow keys and map cursor, you can scroll the map to see the third and fourth rings. In this example, the distance to the third ring is 75 miles and distance to the fourth ring is 100 miles from your current position.

To turn on/off range rings:

1. From the Map Page, press **MENU**|↓ to **MAP DATA**|**ENT**.

2. Press ↓, → to **RANGE RINGS**. With the option highlighted, press **ENT** to check it (turn on) and uncheck it (turn off.)

3. After the option is set, press **EXIT**|**EXIT** to return to the page display.

To turn on/off Lat/Long Grid lines:

1. From the Map Page, press **MENU**|↓ to **MAP DATA**|**ENT**.

2. Press ↓, to **LAT/LON GRID LINES**. With the option highlighted, press **ENT** to check it (turn on) and uncheck it (turn off.)

3. After the option is set, press **EXIT**|**EXIT** to return to the page display.

Map Datum Selection

Maps and charts are based on a survey of an area covered by the map or chart. These surveys are called Datums. Maps using different datums will show the same latitude/longitude in different locations.

All datums are named. The GPS system is based on the WGS-84 datum, which covers the entire world. Other datums may also cover the entire world, or just a small portion of it. By default, your unit uses the WGS-84 datum. It, however, can show your position using any of 191 datums. Different datums can be selected. To change the datum:

1. Press **MENU**|**MENU**|↓ to **GPS SETUP**|**ENT**|↓ to **DATUM SELECTION**|**ENT**.

2. Use ↓ ↑ to select the desired datum, then press **ENT**.

3. To return to the last page displayed, press **EXIT**|**EXIT**.

A list of the datums used by this unit is in the back of this manual.
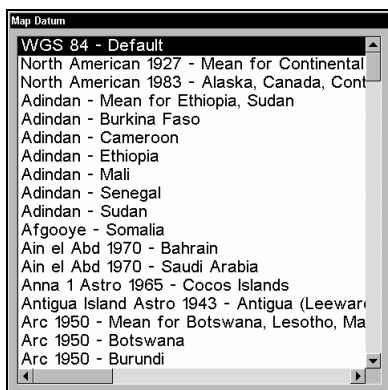
The Map Datum Menu.

Map Detail Category Selection

This menu determines which of the mapping features are shown on the screen. This includes: waypoints, trails, icons, cities, highways, etc. You can turn on or off any of these items to customize the map.

To get to Map Categories:

1. From the Map Page, press **MENU**|↓ to **MAP CATEGORIES DRAWN**|**ENT**.

2. Press ↑ ↓ to select a category or press → then press ↑ ↓ to select a subcategory. Press **ENT** to turn it off (no check) or on (checked.)
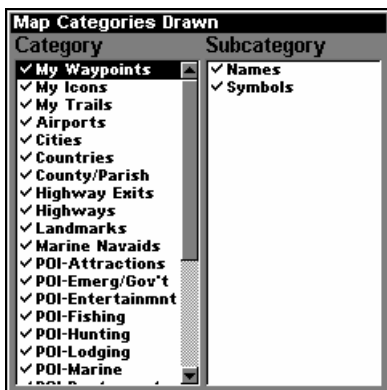
3. To return to the map display, press **EXIT**|**EXIT**.

The Map Categories Drawn Menu.

Map Orientation

By default, this receiver shows the map with north always at the top of the screen. This is the way most maps and charts are printed on paper.

This is fine if you are always traveling due north. What you see to your left corresponds to the left side of the map, to your right is shown on the right side of the map, and so on. However, if you travel any other direction, the map doesn't line up with your view of the world.

To correct this problem, a track-up mode rotates the map as you turn. Thus, what you see on the left side of the screen should always be to your left, and so on.

Another option is course-up mode, which keeps the map at the same orientation as the initial bearing to the waypoint. When either the track-up or course-up mode is on, a "N" shows on the map screen to help you see which direction is north.

In Track Up mode, map shows "N" and arrow to indicate north.
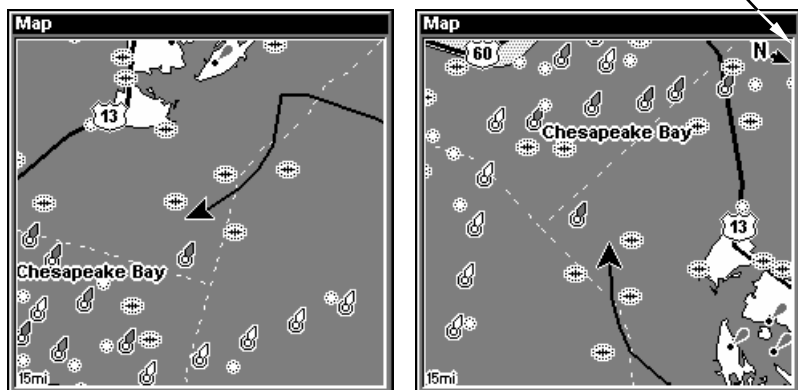
Map page shown in North Up mode (left) Map page shown in Track Up mode (right).

To change map orientation:

1. From the Map Page, press **MENU|↓** to **MAP ORIENTATION|ENT**.

2. Use **↑↓** to select the desired mode, then press **ENT**.

3. Press **EXIT|EXIT** to return to the map page display.

**Map Orientation menu with
the North Up map orientation option selected.**

NOTE

In North Up and Course Up, the present position arrow appears in the center of the map page. In Track Up, the position arrow appears centered in the lower third of the page.

NauticPath™ USA Marine Charts

Your unit can display NauticPath electronic charts on MMCs. They work just like a MapCreate custom map on a MMC.

Nautical Chart Notes

NauticPath charts contain notes or chart information, represented by circle-i Chart Note icons on the map display. An example is shown in the following figure.
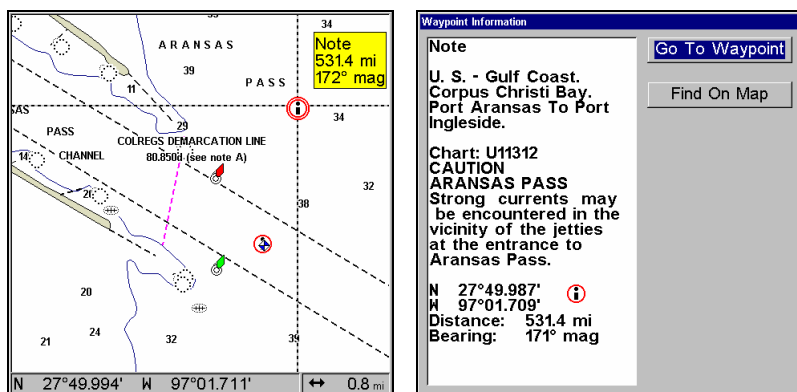
NauticPath chart showing Chart Note icon selected by cursor (left). Note information screen (right).

To view Chart Note information:

1. Use the arrow keys to move the cursor over a Chart Note icon. When it's selected, a pop-up name box appears.

2. Press **WPT** to display the Note Information screen.

3. To scroll through the Chart Note screen, use ↑↓ arrow keys to read the information. To return to the main page display, press **EXIT** repeatedly.
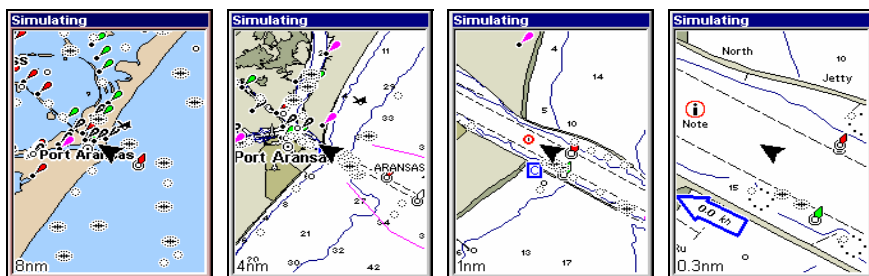
Entrance to Aransas Pass on a NauticPath chart with 8-nautical mile zoom (left). Remaining images (left to right): same position at 4-nautical mile, 1-nautical mile and 0.3- nautical mile zoom ranges.

Port Information

NauticPath charts contain Port Services information, represented by anchor icons on the map display.

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These icons will appear when you are zoomed in to a 4-nautical mile range. An example is displayed in the following figures.

To view Port Services information:
1. Use the arrow keys to move the cursor over a Port Services icon. When it is selected, a pop-up name box appears.

2. Press **WPT** to display the Port Services Information screen.
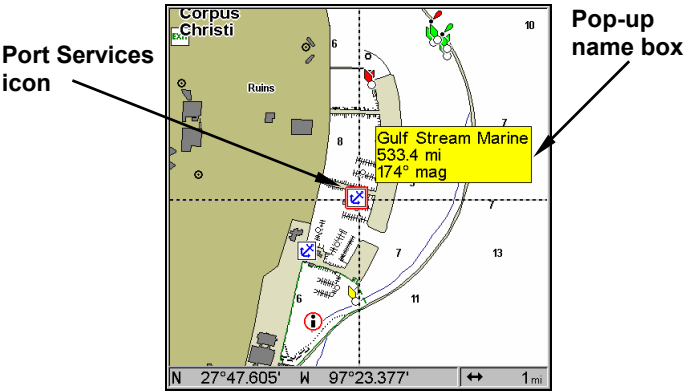
NauticPath chart showing Port Services icon selected by cursor. When first highlighted, the Pop-Up name box appears.

The Port Services information screen for a NauticPath chart contains all the service information in one window.

3. To scroll through the service information window, use ↑ ↓ to see the types of services available. To return to the main page display, press **EXIT** repeatedly.
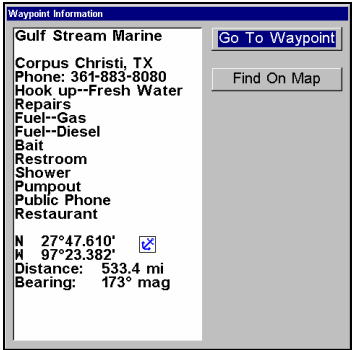
Port Services information.

Tidal Current Information
NauticPath charts contain Tidal Current information, represented at large zoom ranges by a box icon with the letter "C." These icons will appear when you are

zoomed in to a 6-mile range. The icon stands for a Tidal Current Station location. An example is displayed on the right.

When you zoom in to a sufficiently small zoom range (0.8 nautical mile), the icon becomes an animated arrow showing tidal current velocity and direction *for the selected tidal station* at the present time. At larger zoom ranges, you can select the boxed "C" icon and it becomes an animated arrow with a pop-up name box (the name box disappears after a few seconds). Examples are displayed in the following figures.

To view Tidal Current information:
1. Use the arrow keys to move the cursor over a Tidal Current Station icon. When it is selected, a pop-up name box appears.

2. Press **WPT** to display the Tidal Current Information screen.
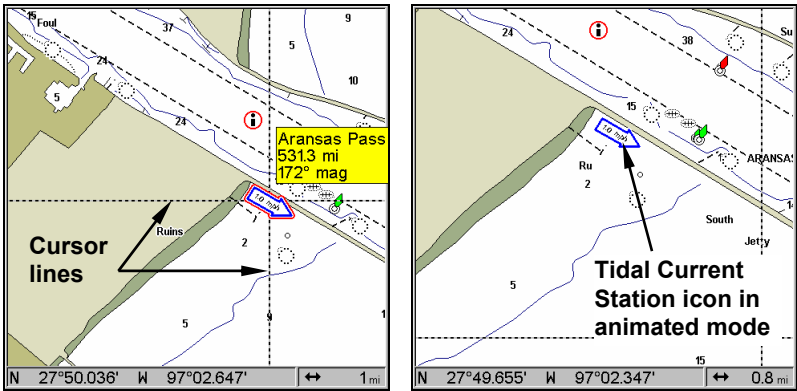
NauticPath chart showing Tidal Current Station icon selected by cursor (left). Tidal Current animated icon at .8-nautical mile range.

Current Information screen.

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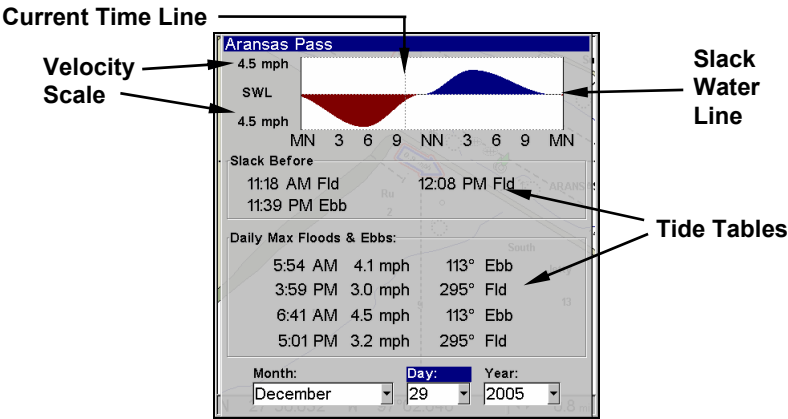
The Tidal Current Information screen displays daily tidal current data for this station on this date at the present time. The graph at the top of the screen is an approximate view of the flood and ebb pattern for the day, from midnight (MN), to noon (NN) to midnight (MN). The velocity scale at the top left side of the graph changes dynamically based upon the maximum velocity of the current for that day.

Slack water, the period of little or no current, is represented by the Slack Water Line (SWL). The flood appears above the SWL and the ebb appears below the SWL. You can look up tidal current data for other dates by changing the month, day and year selection boxes.

To select another date:

1. Use ← → to highlight month, day or year, then press **ENT**.

2. Use ↑ ↓ to select the desired month, day or year and press **ENT**.

To clear the information screen, press **EXIT**.

Tide Information

NauticPath charts contain Tidal Information, represented at large zoom ranges by a box icon with the letter "T." These icons will appear when you are zoomed in to a 6-mile range. The icon stands for a Tidal Station location. An example is displayed at right. When you zoom in to a sufficiently small zoom range (0.8 nautical mile), the icon becomes an animated gauge showing a rising or falling tidal height *for the selected station* at the present time. At larger zoom ranges, you can select the boxed "T" icon and it becomes an animated gauge with a pop-up name box. The name box disappears seconds.
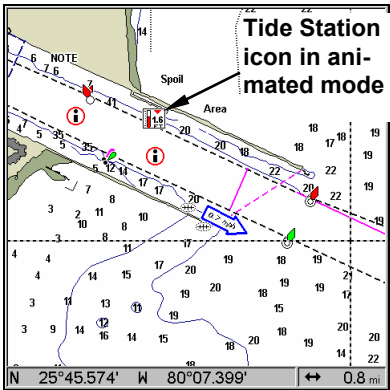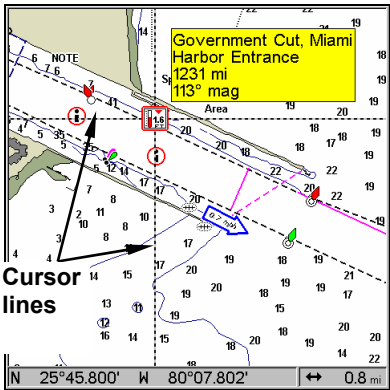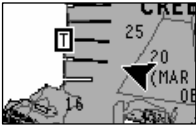
NauticPath chart showing Tide Station icon selected by cursor (left). Icon animates automatically without selection at the 0.8-mile zoom range (right). In the example above, the tide is at 0.9 feet and falling, as shown by the down arrow at the top of the icon.

To view tide information:

1. Use the arrow keys to move the cursor over a tide station icon. When it is selected, a pop-up name box appears.

2. Press **WPT** to display the Tide Information screen.

Current Time Line

MLLW Line

Height Scale

Tide Table
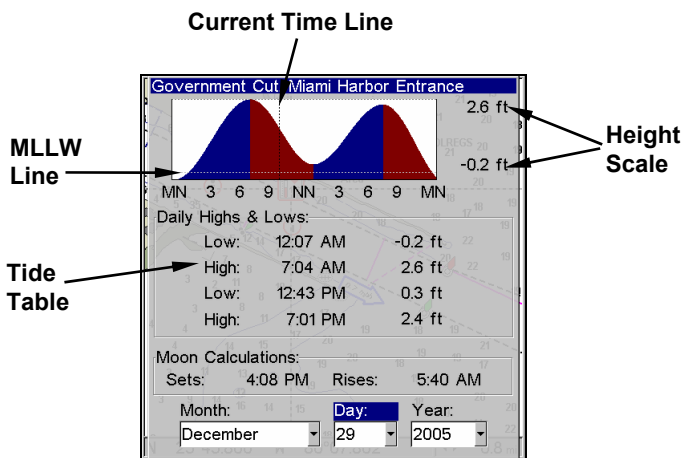
Tide Information screen.

The Tide Information screen displays daily tidal data for this station on this date at the present time. The graph at the top of the screen is an approximate view of the tidal range pattern for the day, from midnight (MN) to noon (NN) to midnight (MN). The dotted line across the graph is the Mean Lower Low Water line (MLLW).

The height scale on the top right side of the graph changes, based upon the maximum *range* of the tide for that day. The MLLW line also adjusts its position as the height scale changes.

You can look up tidal data for other dates by changing the month, day and year selection boxes. To select another date:

1. Use ← → to highlight month, day or year, then press **ENT**.

2. Use ↑ ↓ to select the desired month, day or year and press **ENT**.

To clear the information screen, press **EXIT**.

Navionics® Charts

Your unit can also display Navionics electronic charts on MMCs. Like NauticPath, Navionics charts contain tide and port service information.

NOTE:

> The primary operational difference between a NauticPath chart and a Navionics chart is the way the chart data is set up for dis-

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play. NauticPath charts are ready for display as soon as they are inserted into the unit. Navionics charts must be inserted into the unit, then selected as a Map Choice option in the Map Data menu.

To display a Navionics chart:

1. Install the Navionics MMC in the memory card compartment and turn on the unit. (For full card install instructions, see Sec. 2.)

2. From the Map Page, press **MENU|↓** to **MAP DATA|ENT|↓** to **MAP CHOICE|ENT**. Select the *Map Name*, then press **ENT|EXIT|EXIT**.
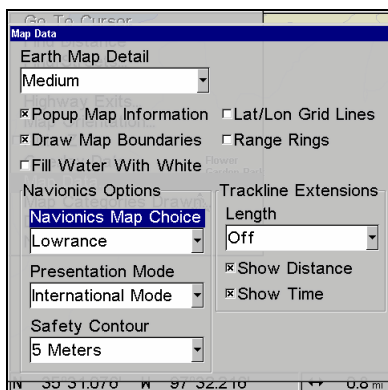
Navionics Map Choice highlighted. Press Ent to select the desired Navionics map from the Map Choice drop down box.

WARNING:

You should never format the MMC containing your Navionics chart. Formatting the MMC will permanently erase the chart from the card.

Overlay Data

On any Page display except Satellite Status, you can overlay additional GPS or navigation data on the screen with the Overlay Data command. For example, if you left your watch at home, you could display the local time on top of the map. Or, if you wanted to see details about your route and trip, you could show your bearing, course, average speed and trip distance.

The various data available from your unit are divided into categories in the Overlay Data menu. These categories include GPS Data, Navigation, Trip Calculator, Time, Sonar Data and Miscellaneous Data.

You can select items from any of these categories for display, in any combination — the category divisions are there only to help you sort through the information.
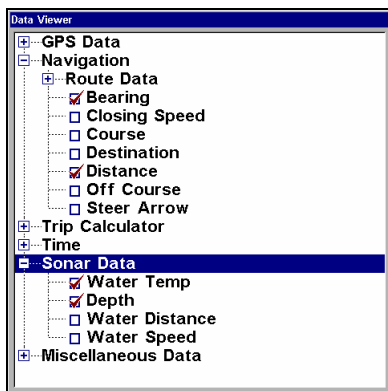
**Overlay Data with Navigation and Sonar Data
categories expanded.**

To overlay information on your screen:

1. Press **MENU**|↓ to **OVERLAY DATA**|**ENT**.

2. If you currently have any overlay data on your screen, it will be listed here. Select **(ENTER TO ADD)** and press **ENT**. The data viewer shows information categories with "+" or "–" symbols next to each category name. A category with a "+" next to it is *expandable*, meaning its contents are hidden.

Selecting the category name and pressing **ENT** will show the category's contents, so you can choose items within it. An expanded category (one with a "–" next to its name) can be collapsed to hide its contents. Just select the category name and press **ENT**.

3. Expand any categories that might contain data you want to display. Then press ↓ or ↑ to select a data option.

4. With the data option highlighted, press **ENT** to check it (turn on) and uncheck it (turn off). As you turn it on, the data will appear on top of the screen. Every Page display has a maximum number of items you can show using the Overlay Data command.

5. After the desired changes are made, press **EXIT**|**EXIT** to return to the page display.
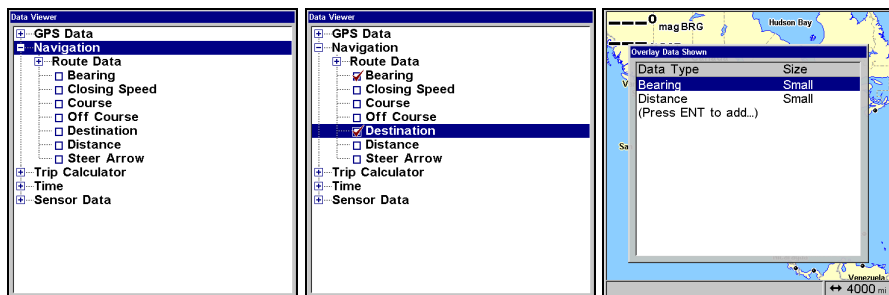
Data Viewer (left). Navigation category expanded with Bearing and Distance selected (center). Bearing and Distance displayed on Overlay Data Shown menu (right).
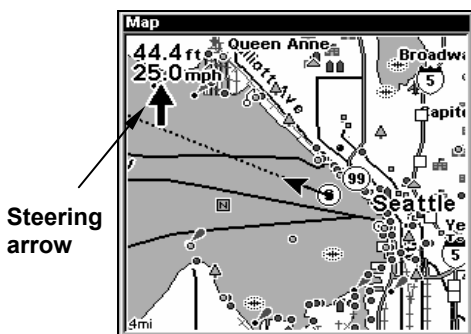
Map Page shows boat cruising Puget Sound, Washington with Overlay Data turned on (left). This example shows Depth, Ground Speed and the Steering Arrow. Note that the Steering Arrow always points directly to the destination you are navigating toward. In this case, the boater is on a northwest course of 275º. Since the helmsman is on course, the Steering Arrow is pointing straight ahead. If the helmsman veered off course, the arrow would show which direction to steer to get back on course.

To remove overlaid data:

1. While on the Page that shows the item or items you want to remove, press **MENU**|↓ to **OVERLAY DATA**|**ENT**.

2. You will see a list of the overlay data currently displayed. Select the item you want to remove from your display and press **ENT**|**ENT** to remove the data. To remove another item, highlight the item and press **ENT**|**ENT**.

3. When you have finished removing Overlay Data, press **EXIT** to return to the map page display.

NOTE:

You also can remove data directly from the Data Viewer menu by repeating the steps used to add overlay data. Highlight the overlay data currently displayed, then press **ENT**, unchecking the data option, which will remove it from the display..
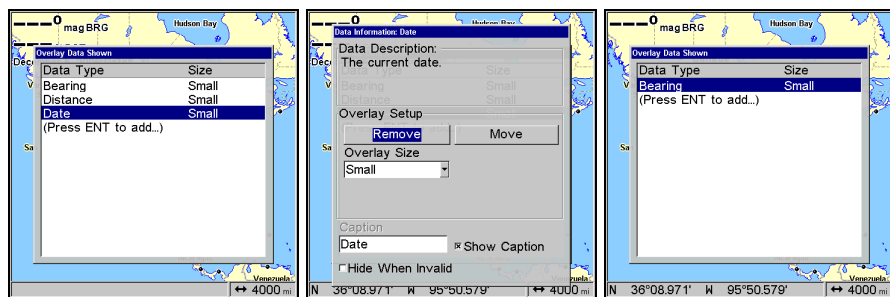
Overlay Data Shown menu with Date selected (left). Remove highlighted on Data Information menu (center). Date has been removed from the Overlay Data Shown menu (right).

To move overlaid data:

You may find it useful to move or rearrange overlay data on your display.

1. From one of the Map Pages, press **MENU**|↓ to **OVERLAY DATA**|**ENT**.

2. You will see a list of the overlay data currently displayed. Select the item you want to move and press **ENT**|→ to **MOVE**|**ENT**.

3. The data begins to flash on your screen. Use ↑ ↓, ← → to move the data to a new location on the screen.

4. Press **EXIT**|**EXIT** to return to the map display.

NOTE:

The Customize command and the Overlay Data command both use the same information categories. The difference between the two commands is that Customize changes only the data in digital data boxes, while Overlay Data changes the data on the floating freely on the screen but does not alter data in digital data boxes.
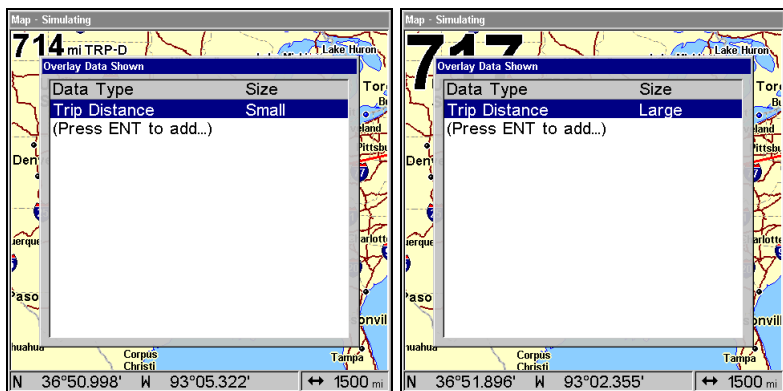
**Trip Distance set to small size in the Overlay Data Shown menu (left).
Trip Distance set to Large size (right).**

To change displayed data font size:

1. From the Map or Sonar page, press **MENU**|↓ to **OVERLAY DATA**|**ENT**.

2. Press ↓ ↑ to select the desired data type, then use ← → to enlarge or reduce the size of the overlay data on the map display.

3. Press **EXIT** to return to the map display. The selected data type will be displayed in the new size. (To change the font size for another Data Type, repeat these steps, beginning with step 2 above.)

NOTE:

> Some data types can be displayed in only one font size. If that is the case, the Data Size box will not be displayed for that data type.

Pop-up Help

Help is available for virtually all menus in this unit. By leaving a menu item or command highlighted for a few seconds, a pop-up message will appear, giving a brief description of the functions purpose. This feature is on by default.

To set up Popup Help:

1. Press **MENU**|**MENU**|↓ to **SYSTEM SETUP**|**ENT**|↓ to **POPUP HELP**.

2. With the option highlighted, press **ENT** to check it (turn on) and un-check it (turn off.)

3. After the option is set, press **EXIT**|**EXIT** to return to the page display.
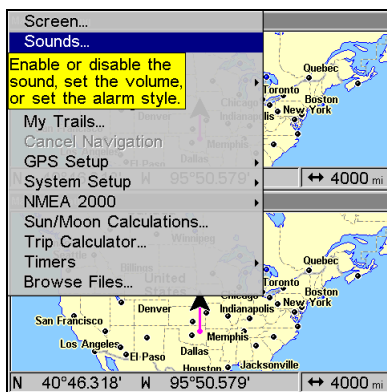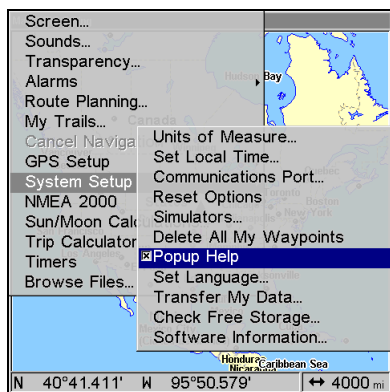
Pop-up Help command highlighted on System Setup menu (left). Pop-up Help message for Sounds (right).

Reset Options

The Reset Options command allows you to switch unit features and functions back to factory default settings.

1. Press **MENU**|**MENU**|↓ to **SYSTEM SETUP**|**ENT**|↓ to **RESET OPTIONS**|**ENT**|← to **YES**|**ENT**.

NOTE:

Reset Options does *not* erase any waypoints, routes, icons, plot trails or sonar logs.
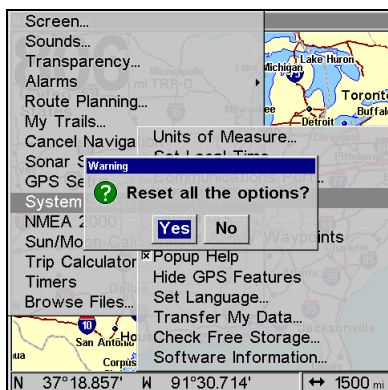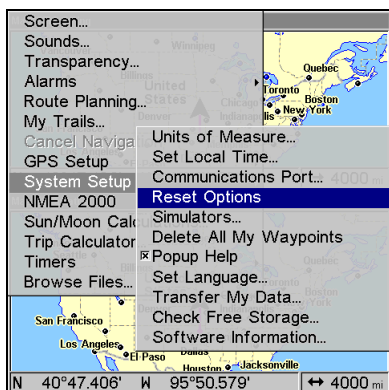
Reset Options highlighted on the System Setup menu (left). Reset Options confirmation message (right).

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Screen Contrast and Brightness

To adjust Contrast:

1. Press **MENU|MENU|ENT**.

2. Highlight **CONTRAST**, then use ← → to move the contrast adjustment bar. The left end of the scale is the lowest contrast level. The right end is the highest contrast level.
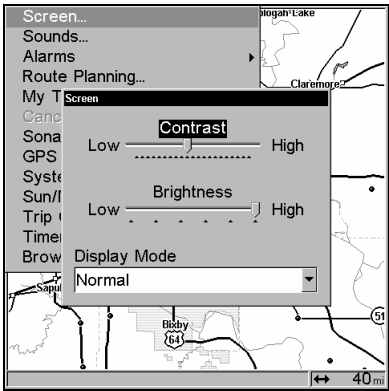
The Screen Menu with Contrast bar selected.

To adjust brightness:

1. Press **MENU|MENU|ENT**.

2. Press ↓ to **BRIGHTNESS**. Press ← → to move Brightness Control bar. The left end of the scale is the lowest brightness level. The right end of the scale is the highest brightness level.
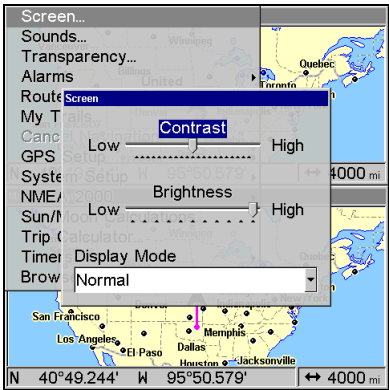
Display Mode menu.

To adjust the screen's display mode:

1. Press **MENU│MENU│ENT**.

2. Press ↓ to **DISPLAY MODE│ENT**, which will open the Display Mode menu with three options: Normal, High Contrast and Night Viewing.

3. Select the desired mode and press **ENT**. Press **EXIT│EXIT** to return to the map display.

Set Language

This unit's menus are available in 10 languages: English, French, German, Spanish, Italian, Danish, Swedish, Russian, Dutch and Finnish. To select a different language:

1. Press **MENU│MENU│↓** to **SYSTEM SETUP│ENT**.

2. Highlight **SET LANGUAGE│ENT**.

3. Use ↓↑ to select the desired language and press **ENT**. All menus now will appear in the language you selected.

Set Local Time

Using the local time setting is useful when estimating local arrival time while navigating.

1. Make sure your unit has acquired your position, then press **MENU│MENU**, highlight **SYSTEM SETUP** and **ENT**.

2. Highlight **SET LOCAL TIME** and press **ENT**.

3. Local time will be highlighted, so press **ENT**. Use ↑↓ to change the first character, then press → to move the cursor to the next character. Repeat those steps until the time has been set. Press **ENT**.

To set the Month:

1. Make sure your unit has acquired your position, then press **MENU│MENU**, highlight **SYSTEM SETUP** and **ENT**.

2. Highlight **SET LOCAL TIME** and press **ENT**.

3. Select **MONTH** and **ENT**. Use ↑↓ to select the desired month and press **ENT**.

To set the Day:

1. Make sure your unit has acquired your position, then press **MENU│MENU**, highlight **SYSTEM SETUP** and **ENT**.

2. Highlight **SET LOCAL TIME** and press **ENT**.

3. Highlight **DAY** and press **ENT**. Use ↑↓ to select the desired day and press **ENT**.

To set the Year:

1. Make sure your unit has acquired your position, then press **MENU | MENU**, highlight **SYSTEM SETUP** and **ENT**.

2. Highlight **SET LOCAL TIME** and press **ENT**.

3. Select **YEAR** and press **ENT**. Use ↑↓ to select the year and press **ENT**.

To select Time Format:

1. Make sure your unit has acquired your position, then press **MENU | MENU**, highlight **SYSTEM SETUP** and **ENT**.

2. Highlight **SET LOCAL TIME** and press **ENT**.

3. Select the desired format, 12 Hour or 24 Hour, and press **ENT**.

To select a Date Format:

1. Make sure your unit has acquired your position, then press **MENU | MENU**, highlight **SYSTEM SETUP** and **ENT**.

2. Highlight **SET LOCAL TIME** and press **ENT**.

3. Select the desired Date Format, Month/Day/Year, Day/Month/Year or Year/Month/Day and press **ENT**.

To Configure DST:

Configure DST allows your unit to automatically adjust to Daylight Saving Time. Select the country with DST rules that match your region or simply accept the default.

1. Make sure your unit has acquired your position, then press **MENU | MENU**, highlight **SYSTEM SETUP** and **ENT**.

2. Select **SET LOCAL TIME** and press **ENT**.

3. Highlight the **CONFIGURE DST** button and press **ENT**. From the Country menu, select the country with DST rules that match your region.

4. Press **EXIT** repeatedly to return to the map display.

Show WAAS Alarm

When the signal is available, your unit will automatically use WAAS to boost the accuracy of the position fix. When the WAAS signal is lost or acquired, an alarm message appears. Since the U.S. government is still developing the WAAS system, its not unusual for a GPS/WAAS receiver to frequently lose and reacquire its lock on a WAAS satellite. That can result in the alarm repeatedly going on and off. You have the option of turning off the WAAS Acquired/Lost alarm without affecting how the unit uses WAAS.

To turn on/off the WAAS Alarm:

1. Press **MENU|MENU|↓** to **GPS SETUP|ENT|↓** to **SHOW WAAS ALARM**.

2. With the option highlighted, press **ENT** to check it (turn on) or un-check it (turn off) the WAAS Alarm.

3. Press **EXIT|EXIT** to return to the map display.

To Require WAAS:

1. Press **MENU|MENU|↓** to **GPS SETUP|ENT|↓** to **REQUIRE WAAS**.

2. With the option highlighted, press **ENT** to check it (turn on) or un-check it (turn off).

3. Press **EXIT|EXIT** to return to the map display.

Software Version Information

From time to time, Lowrance updates the operating system software in some of its products. These software upgrades are usually offered to customers as free downloads from our web site, www.lowrance.com. These upgrades make the unit perform better and/or introduce a new feature or function. You can find out what software version is running in your unit by using the Software Information command.

To access Software Information:

1. Press **MENU|MENU**, highlight **SYSTEM SETUP** and press **ENT**.

2. Select **SOFTWARE INFO** and press **ENT**. Software information will be displayed on the screen.

3. Press **EXIT** repeatedly to return to the map display.

Sounds and Alarm Sound Styles

Sounds triggered by key strokes and alarms can be turned off or adjusted to a desired level.

To set Key Press Sounds:

1. Press **MENU|MENU**, select **SOUNDS** and press **ENT**.

2. Highlight **KEY PRESS SOUNDS** and press **ENT** to check it (turn on) or un-check it (turn off.

3. Press **EXIT|EXIT** to return to the map display.

To set Alarm Sounds:

1. Press **MENU|MENU**, select **SOUNDS** and press **ENT**.

2. Highlight **ALARM SOUNDS** and press **ENT** to check it (turn on) or uncheck it (turn off).

3. Press **EXIT|EXIT** to return to map page display.
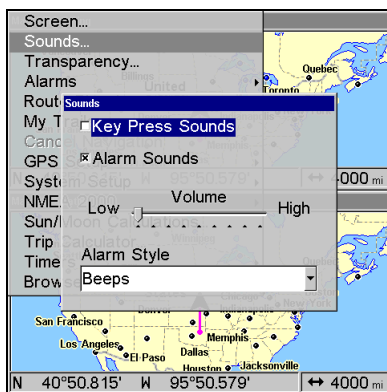
The Sounds menu.

To set Volume:

1. Press **MENU|MENU**, select **SOUNDS** and press **ENT**.

2. Highlight **VOLUME** and use ← → to move the Volume control bar. The left end of the scale is low volume. The right end of the scale is high volume.

3. Press **EXIT|EXIT** to return to map display.

To set Alarm Style:

1. Press **MENU|MENU**, select **SOUNDS** and press **ENT**.

2. Highlight **ALARM STYLE** and press **ENT**.

3. Use ↑ ↓ to select the desired style and press **ENT**.

4. Press **EXIT|EXIT** to return to the map display.
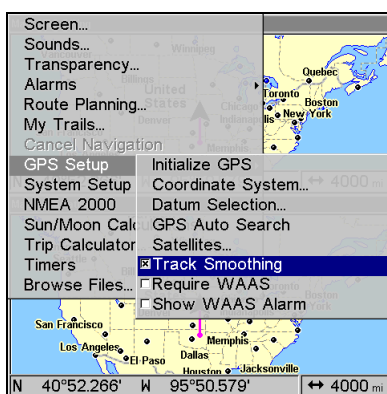
Track Smoothing highlighted on the GPS Setup menu.

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Track Smoothing

This is a factory setting on the GPS Setup menu that *should always be left on.* When stopped or traveling at slow speeds (such as walking or trolling), Track Smoothing prevents wandering of trails, the steering arrow, compass rose and a map in track-up mode.

Trail Options

There are several options you can use with trails. Some affect all trails, other options can be applied to a particular trail. You can change the way trails are updated, display or hide trails, create a new trail, delete a trail and edit a trail's name, color, pattern and visibility.
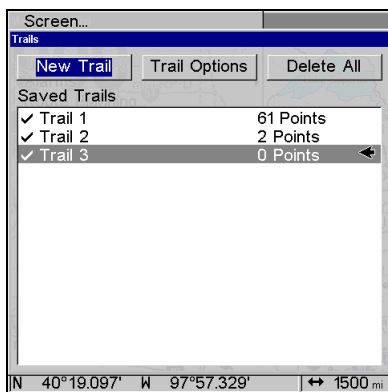
The Trails Menu.

To create a New Trail:

1. Press **MENU|MENU**, highlight **MY TRAILS** and press **ENT**.

2. Highlight **NEW TRAIL** and press **ENT**. The Edit Trail menu will appear, allowing you to Edit the trails name, color, pattern, maximum points, trail status (active or inactive) and trail visibility. You can also navigate the trail or delete the trail.
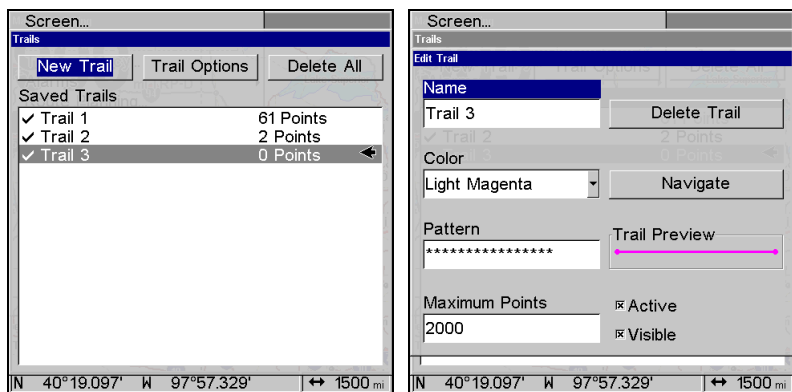
New Trail selected on the Trails menu (left). Edit Trails menu (right).

To Delete all Trails

1. Press **MENU|MENU**, select **MY TRAILS** and press **ENT**.

2. Highlight **DELETE ALL** and press **ENT**. The following Warning will appear: *Delete All Trails?*

3. Select **YES** and press **ENT**. You will be returned to the Trails screen, where all trails have been deleted.

4. Press **EXIT** repeatedly to return to the map display.

Update Trail Option

The Update Trail menu allows you to change the way trail updates occur. There are three options: Auto, Time and Distance.

In automatic mode, the unit does not update the plot trail while you are traveling in a straight line. When you deviate from a straight line, the unit places a plot point onto the trail. This conserves plot trail points. If a plot trail uses all of the available points allotted to it, the beginning points are deleted and replaced by points at the end of the trail.

Selecting Time as the method for updating a trail will automatically place trail points at a duration of your choosing. You can set the unit to place trail points placed at any duration between 1 second to 9999 seconds. The default setting is 3 seconds. Updating a trail by Distance will place trail points when you move a distance of your choosing. You can have trail points placed at any distance between 0.01 mile/nm/km to 9.99 mile/nm/km. The default setting is 0.10 mi.

WARNING:

If you *uncheck* the Update Trail option, automatic trail creation and recording will be turned *off*. You must turn it back on to record trails. The default setting is on.

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To select a Trail Update Option:

1. Press **MENU│MENU**, select **MY TRAILS** and press **ENT**.

2. Highlight the **TRAIL OPTIONS** button and press **ENT**. The Trail Options menu will appear with three update criteria: Auto, Time and Distance.

NOTE:

The Update Active Trail checkbox should be checked (turned on). If it is unchecked (turned off), your trails will not be updated. To turn it on, highlight **UPDATE ACTIVE TRAIL** and press **ENT**.

3. Highlight the desired method for updating trails and press **ENT**. If you choose Time or Distance as your update criteria, you can input the desired update rate (Time) or desired Update Distance (Distance) in the dialog box that appears at the bottom of the menu.

4. To input your Update Rate or Update Distance, highlight Update Rate or Update Distance and press **ENT**. Use ↑ ↓ , ← → to input the desired setting and press **ENT**.

5. Press **EXIT** repeatedly to return to the map display.
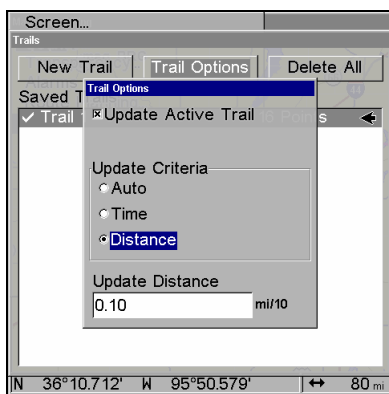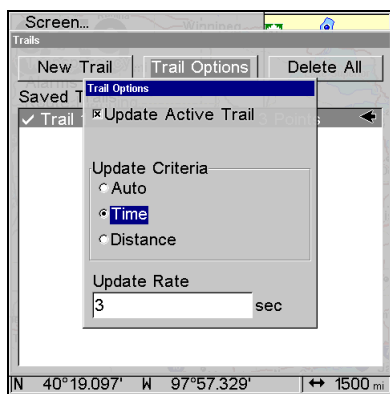
Time set as the update criteria (left). Notice the Update Rate dialog box at the bottom of the menu. Distance is set as the update criteria (right). The Update Distance dialog is at the bottom of the menu.

To delete a Trail:

1. Press **MENU│MENU**, select **MY TRAILS** and press **ENT**.

2. Select the desired trail from the Saved Trails list and press **ENT**. The Edit Trail menu will appear.

3. Highlight **DELETE TRAIL** and press **ENT**. The following message will appear: *Delete this trail?* Select **YES** and press **ENT**.

4. Press **EXIT** repeatedly to return to the map display.
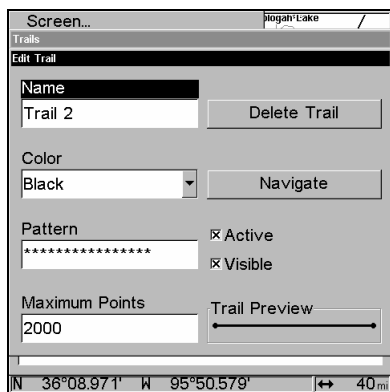
Edit Trail menu.

Trail Visible/Invisible and Other Trail Options

The name, maximum number of points in the trail, activity, and visibility are all changed on the Edit Trail menu screen. The Active setting determines whether or not the unit is recording new points for a particular trail.

On the Edit Trail menu, press ↓ ↑ to highlight the section you wish to change, then press **ENT**. Make your changes, then press **EXIT** to close the menu. Related trail functions are discussed in further detail under the Trails topic in Sec. 7, *Advanced GPS Operations*.

Transparency

Use the transparency menu to adjust the transparency of menu windows. A high transparency allows you to continue monitoring the screen's display while adjusting feature settings, though the text of the menus may fade until it is unreadable. A low transparency will usually make menu text easier to read, at the cost of watching your display.

Experiment with this feature until you find the right level of transparency for your eyes.

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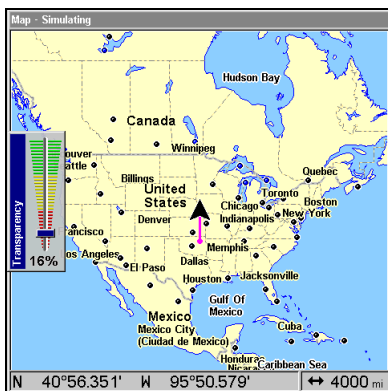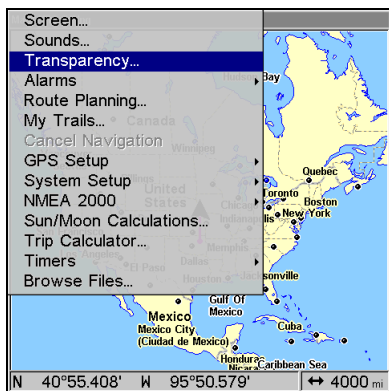
Transparency selected on main menu. Transparency slider bar (right).

To adjust Transparency level:

1. Press **MENU|MENU|↓** to **TRANSPARENCY|ENT**. The **TRANSPARENCY** slider bar appears.

2. Use **↑ ↓** to move the bar. Move the bar to the bottom of the scale to eliminate transparency. Moving the bar to the top of the scale will provide the greatest level of transparency.

3. Press **EXIT** to return to the map display.

Units of Measure

This menu sets the speed and distance (statute or nautical miles, meters), depth (feet, fathoms, or meters), temperature (degrees Fahrenheit or Celsius) and heading (true or magnetic) units.

To change Units of Measure:

To set Speed/Distance:

1. Press **MENU|MENU**, select System Setup and press **ENT**. **UNITS OF MEASURE** will be highlighted, so press **ENT**.

2. Speed/Distance will be highlighted. Press **ENT**.

3. Use **↑ ↓** to select one of the following options: Statute, Nautical or Metric. Press **ENT**.

4. Press **EXIT** repeatedly to return to the sonar display.
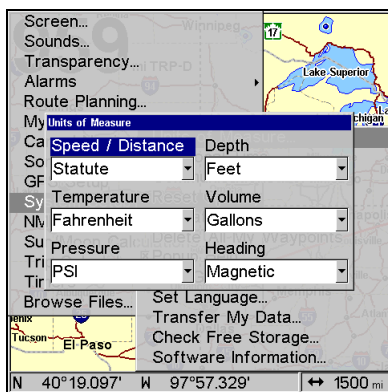
Units of Measure Menu.

To set Temperature units:

1. Press **MENU|MENU**, select System Setup and press **ENT**. **UNITS OF MEASURE** will be highlighted, so press **ENT**.

2. Highlight **TEMPERATURE** and press **ENT**.

3. Use ↑↓ to select one of the following options: Fahrenheit, Celsius or Kelvin. Press **ENT**.

4. Press **EXIT** repeatedly to return to the sonar display.

To set Pressure units:

1. Press **MENU|MENU**, select System Setup and press **ENT**. **UNITS OF MEASURE** will be highlighted, so press **ENT**.

2. Highlight **PRESSURE** and press **ENT**.

3. Use ↑↓ to select one of the following options: Millibars, Bars, PSI, Hectopascals or Kilopascals. Press **ENT**.

4. Press **EXIT** repeatedly to return to the sonar display.

To set Depth units:

1. Press **MENU|MENU**, select System Setup and press **ENT**. **UNITS OF MEASURE** will be highlighted, so press **ENT**.

2. Highlight **DEPTH** and press **ENT**.

3. Use ↑↓ to select one of the following options: Feet, Fathoms or Meters. Press **ENT**.

4. Press **EXIT** repeatedly to return to the sonar display.

To set Volume units:

1. Press **MENU|MENU**, select System Setup and press **ENT**. **UNITS OF MEASURE** will be highlighted, so press **ENT**.

2. Highlight **VOLUME** and press **ENT**.

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3. Use ↑↓ to select one of the following options: Gallons or Liters. Press **ENT**.

4. Press **EXIT** repeatedly to return to the sonar display.

To set Heading units:

1. Press **MENU|MENU**, select System Setup and press **ENT**. **UNITS OF MEAS-URE** will be highlighted, so press **ENT**.

2. Highlight **HEADING** and press **ENT**.

3. Use ↑↓ to select one of the following options: True or Magnetic. Press **ENT**.

4. Press **EXIT** repeatedly to return to the sonar display.
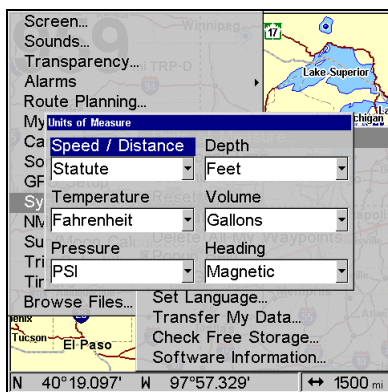
The Units of Measure Menu.

To set Speed/Distance Unit of Measure:

Press ↑ or ↓ to change the Speed/Distance, then press **ENT**. After the option is set, press **EXIT** repeatedly to return to the page display.

To set Heading:

Press ↑↓ to change the heading type, then press **ENT**. After the option is set, press **EXIT** repeatedly to return to the page display.

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Section 6: Searching

NOTE:

> The background map loaded in your unit's permanent memory lets you search for some land features, including cities and lakes. For a full set of searchable land features, including landmarks, streets, addresses, highway exits and Points of Interest, you must load your own high-detail custom map produced with our MapCreate software. Or, you can use one of our plug and play map options such as FreedomMaps, Fishing Hot Spots or NauticPath.

This unit's varied search functions all begin with either the Find Waypoint menu or the Map Page menu. Press **WPT** and the Find Waypoint menu appears for waypoints and Points of Interest (POI). From the Map Page, press **MENU** and the Map Page menu appears for streets and highway exits.
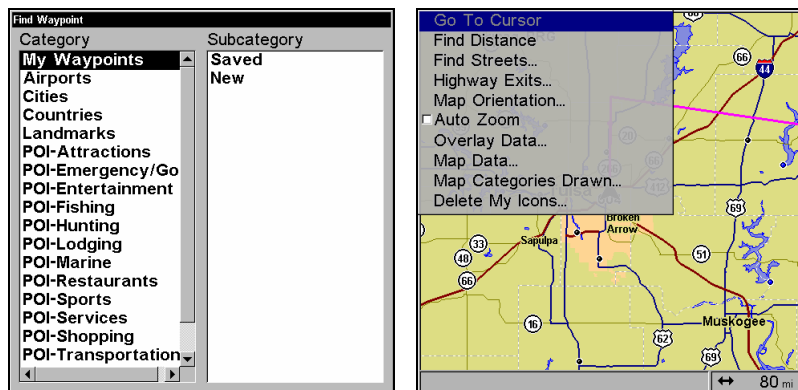
Find Waypoint menu (left). Map Page menu (right).

NOTE:

> You can search for items after the unit has acquired a position, or while using the unit in simulator mode. Distance and bearing to the selected item will be calculated from the unit's current position, or the last known position if operating in simulator mode or without a position determined). You can look up items by name or search for items nearest to you.

Find Streets

1. From a Map Page, press **MENU**|↓ to **FIND STREETS**|**ENT**.

2. Press **ENT** to search in the Street field.

3. To enter a street name, press ↓ to **STREET|ENT**. There are two options: **A.** You can spell out the name in the top selection box. Press ↑ or ↓ to change the first letter, then press → to move the cursor to the next letter and repeat until the name is correct, then press **ENT|ENT**. **B.** Jump down to the lower selection list by pressing **ENT**, then press ↓ or ↑ to select a street name from the list, then press **ENT**. The street name you selected is now in the street field.
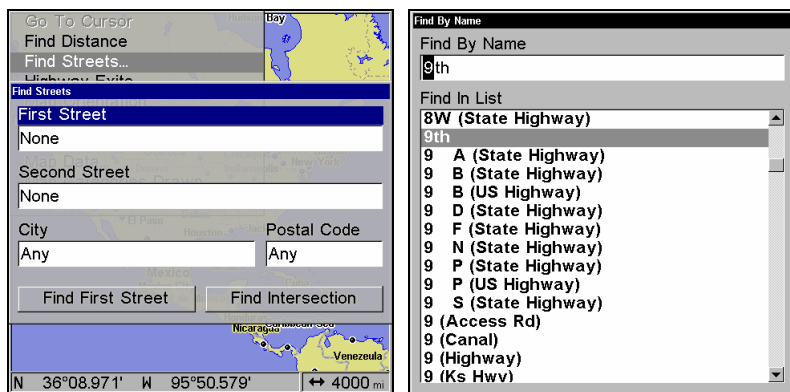
Finds Streets menu (left). Find Street by Name menu (right).

4. To enter a city name, press ↓ to **CITY|ENT**. You will be asked if you want to find streets only within a particular city. This option is designed so you can limit an address search to a single city if necessary (see the following note).

If you select yes, there are two options: **A.** You can spell out the city name in the top selection box. Press ↑ or ↓ to change the first letter, then press → to move the cursor to the next letter and repeat until the name is correct, then press **ENT|ENT**. **B.** Jump down to the lower selection list by pressing **ENT**, then press ↓ or ↑ to select a city name from the list, then press **ENT**. The city name you selected is now in the city field.

NOTE:

> We recommend that you do *not* enter a city name unless the list you are given is too large when searching without it. This unit can actually search quicker when you don't enter a city.
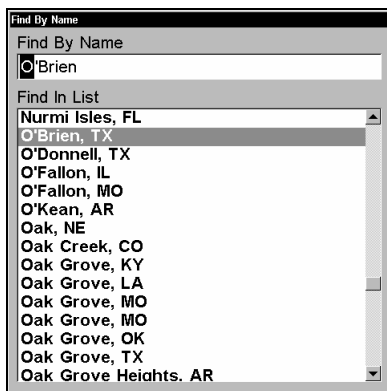
Find By Name menu with list of cities.

Find Any Item Selected by Map Cursor

With a POI or map feature selected by the cursor, press **WPT.** To return
to the previous page, press **EXIT**.
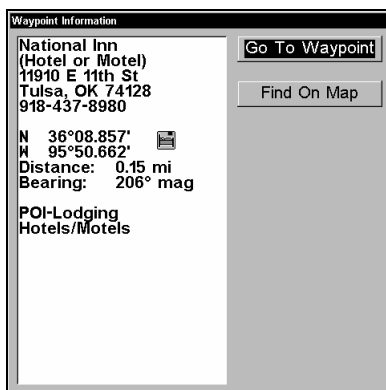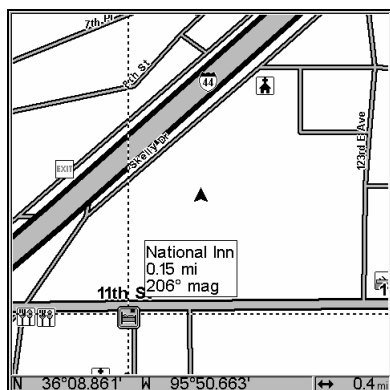
A POI selected by the cursor (left). POI information screen (right).

NOTE:

Since the Go To Waypoint command is highlighted, you can navi-
gate to the selected POI by pressing **ENT|EXIT** while in the POI
Waypoint Information screen.

Find Interstate Highway Exits

1. From the Map Page, press **MENU|↓** to **HIGHWAY EXITS|ENT**, which calls
up the Find Exit menu.
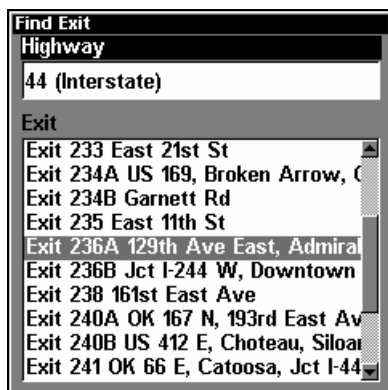
The Find Exit menu.

2. First, select a highway name by pressing **ENT**, which calls up the Find By Name menu. There are two highway search options: **A.** You can spell out the highway name in the top selection box. Press ↑ or ↓ to change the first letter, then press → to move the cursor to the next letter and repeat until the name is correct, then press **ENT|ENT**. **B.** Jump down to the lower selection list by pressing **ENT**, then press ↓ or ↑ to select a highway from the list, then press **ENT**.
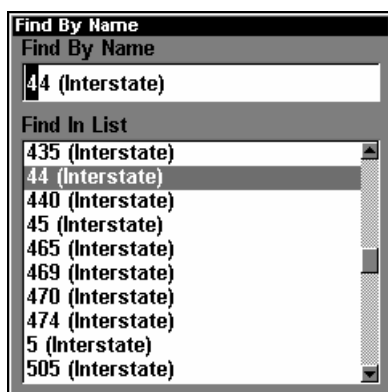
Find By Name menu.

3. Once you have selected a highway name you can then select an exit. Press ↓ to switch to the Exit List, then press ↓ or ↑ until you highlight the exit, then press **ENT.**
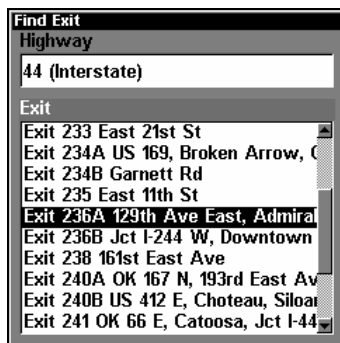
Find Exit menu with an exit selected in the Exit List.

4. In the Exit Information screen you have two choices. **A.** Press **ENT** to navigate or "go to" the exit. **B.** Press →|**ENT** to find the exit on the map.
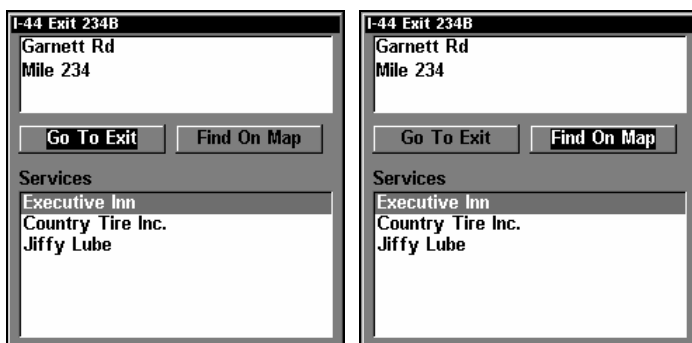
Go To Exit highlighted (left). Find On Map selected (right).

Tip:

You can also look up some additional information on the Exit Services located near this exit. Press ↓ to **Services**|press ↓↑ to select *Service Name*|**ENT**.
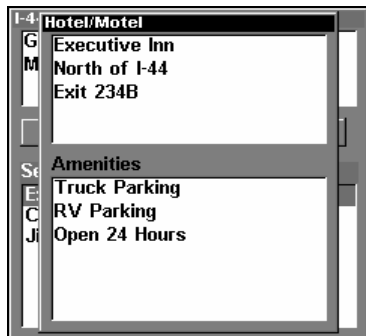
**Exit Information screen (left). General location
and amenities information (right).**

Find Map Places or Points of Interest (POI)

1. Press **WPT**, press ↓ or ↑ to select a map place or POI category, then press **ENT**. (To narrow your search, press → then press ↓ or ↑ to select a subcategory before pressing **ENT**.) You will be given two options; Search By Name or By Nearest.
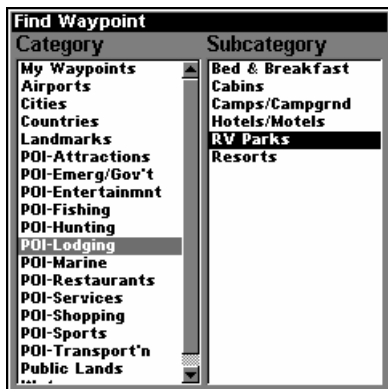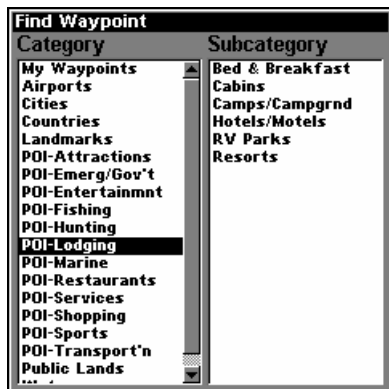
**Find Waypoint menu with Lodging POI category selected (left) and
with the RV Parks subcategory selected (right).**

2. To search by the nearest POI: press ↓|**ENT**. The find by nearest menu will show a calculating screen, then a list of the nearest POI's will appear. Press ↓ ↑ to the selected POI and press **ENT** to call up the POI's Waypoint Information screen.
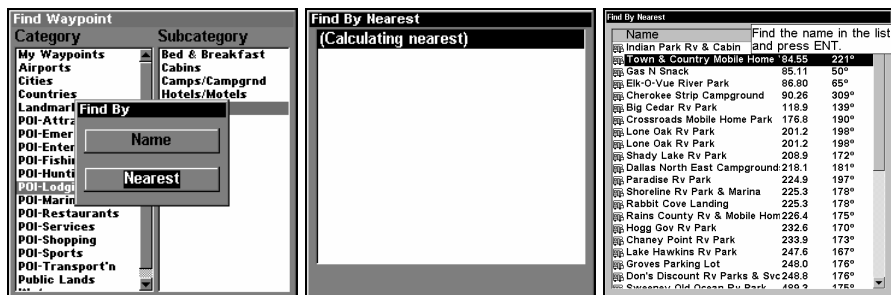
Find by Nearest option, left, Calculating screen, center, POI list, right.

3. To search by the name of a POI: press **ENT**. There are two options: **A.** You can spell out the POI in the top selection box. Press ↑ or ↓ to change the first letter, then press → to move the cursor to the next letter and repeat until the name is correct, then press **ENT│ENT**. **B.** Jump down to the lower selection list by pressing **ENT**, then press ↓ or ↑ to select a POI from the list, then press **ENT** to call up the POI's Waypoint Information screen.
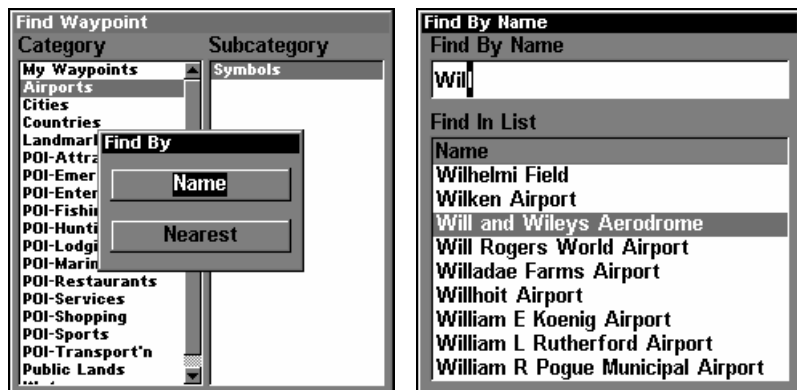
Find by Name option, left, Find by Name menu, right.

4. When the POI's Waypoint Information screen is displayed, you can choose to Go To the POI waypoint by pressing **ENT** or find it on the map by pressing→│**ENT**.
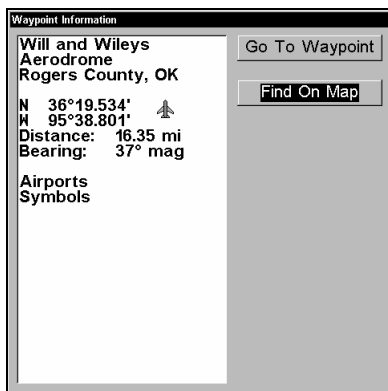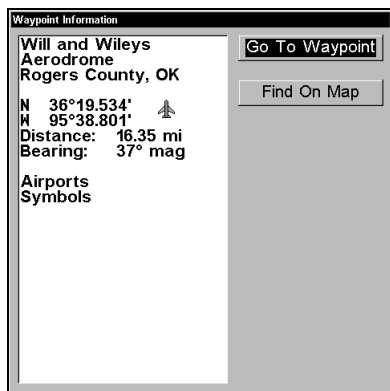
Go To Waypoint highlighted (left). Find on Map selected (right).

Find Streets or Intersections

Find a Street

1. From the Map Page, press **MENU|↓** to **FIND STREETS|ENT** and the Find Streets Menu appears.

2. You must first fill in a street name in the First Street dialog box. Press **ENT** to display the Find By Name menu. There are two options: **A.** You can spell out the street in the top selection box. Press ↑ or ↓ to change the first letter, then press → to move the cursor to the next letter and repeat until the name is correct, then press **ENT|ENT**. **B.** Or you can jump down to the lower box and pick a street from the list. Press **ENT**, then press ↓ or ↑ to select a street from the list and press **ENT**.
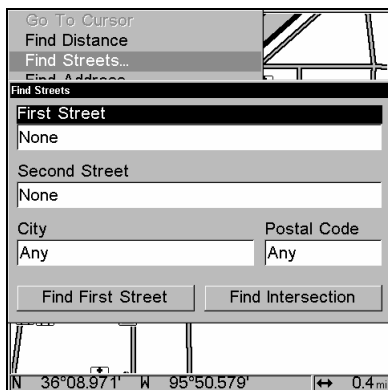
Find Streets menu (left). When finding a street by name (right), spell out the name in the top box or select it from the list in the lower box.

3. The Find Streets menu reappears with the street you're searching for in the First Street box. (In this example, it's 80th Street.) To search

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for that street, press ↓ to **FIND FIRST STREET|ENT**. A message appears asking you to wait while the unit finds the street. When the Streets Found list appears, press ↑ or ↓ to select the street you are searching for and press **ENT.**
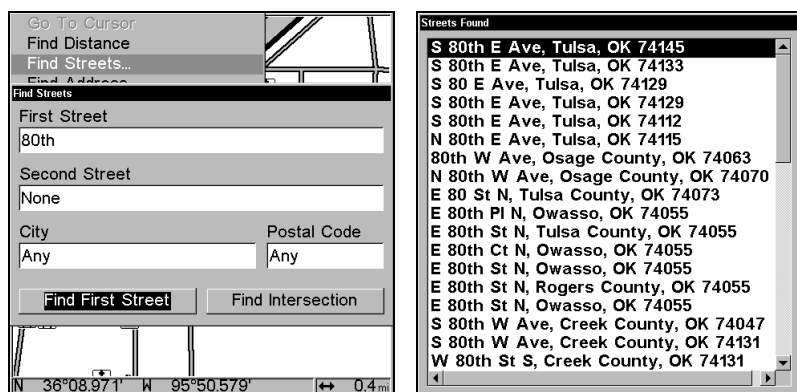
Find Streets menu with the Find First street highlighted (left). Streets Found list (right).

4. The Map Page appears, with the cursor pointing to the found street.
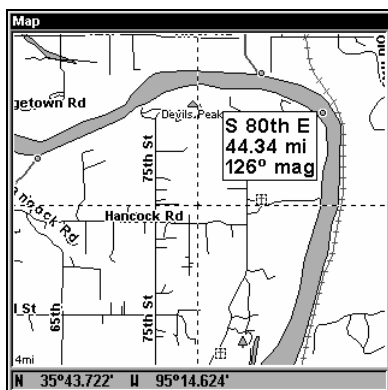
**Map Page showing results of a street search.
The cursor points to the located street.**

If you want to navigate to the found street at the cursor location, just press **MENU|ENT|EXIT**.

Find an Intersection
You must enter one street in the First Street dialog box and enter the next street in the Second Street dialog box.

1. From the Map Page, press **MENU|↓** to **FIND STREETS|ENT** and the Find Streets Menu appears.

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2. You must fill in a street name in the First Street dialog box. Press **ENT** to display the Find By Name menu. There are two options: **A.** You can spell out the street in the top selection box. Press ↑ or ↓ to change the first letter, then press → to move the cursor to the next letter and repeat until the name is correct, then press **ENT|ENT**. **B.** Or you can jump down to the lower box and pick a street from the list. Press **ENT**, then press ↓ or ↑ to select a street from the list and press **ENT**.

3. The Find Streets menu reappears with the street you're searching for in the First Street box. (In this example, it's 80th Street.)

4. Now fill in the second street. Press ↓ to **SECOND STREET|ENT** and the Find By Name menu appears again. Just like before, there are two options: **A.** You can spell out the second street in the top selection box. Press ↑ or ↓ to change the first letter, then press → to move the cursor to the next letter and repeat until the name is correct, then press **ENT|ENT**. **B.** You can also jump down to the lower box and pick the second street from the selection list. Press **ENT**, then press ↓ or ↑ to select a street from the list and press **ENT**.

5. The Find Streets menu reappears with the first and second street dialog boxes filled in. In this example, we selected 71st Avenue as our second street. You could now use similar techniques to select a city or Zip code, but your search will probably be faster if you leave those boxes blank. (You can specify a city and/or zip code when the search result list is too long.)
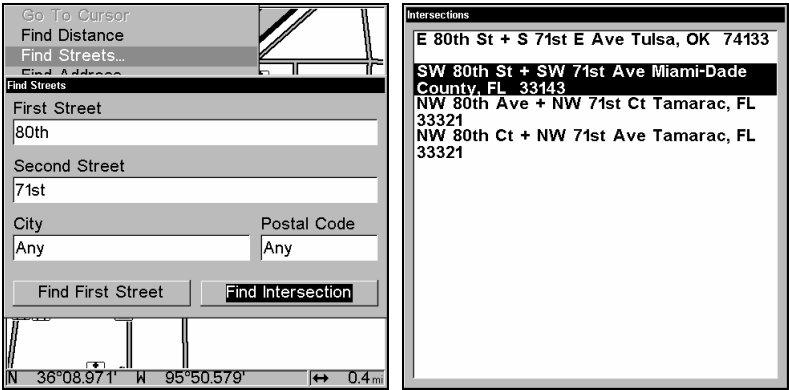
Find Intersection command highlighted (left). Intersections Found list (right).

6. To search for the intersection of the two streets, press ↓|→ to **FIND INTERSECTION|ENT**. A message appears asking you to wait while the unit finds the intersection. When the Intersections Found list appears, press

↑ or ↓ to select the intersection you are searching for and press **ENT**. (In our example, we selected the intersection of SW 80th Street and SW 71st Avenue in Miami, Fla.)

7. The Map Page appears, with the cursor pointing to the found intersection. The intersection in our example is shown in the following figure.
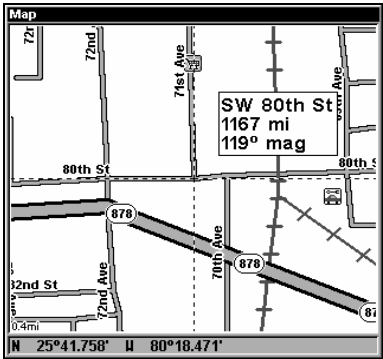
Map Page showing results of an intersection search.
The cursor points to the located intersection.

If you want to navigate to the found intersection, just press **MENU|ENT|EXIT**.

Find Waypoints

1. Press **WPT|ENT**.

2. If searching for the waypoint *By Name,* press **ENT**. If searching for the *Nearest* waypoint, press ↓ to **NEAREST|ENT**. (To search by name, jump to step 5.)
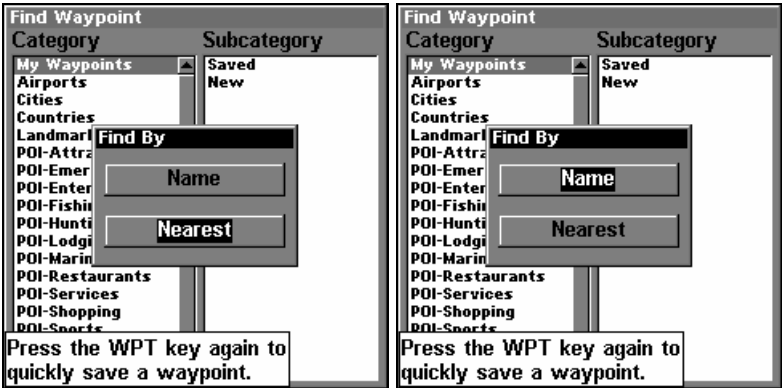
Find By Nearest command (left). Find by Name command (right).

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3. If you're looking for nearest, the unit says it is calculating, then a list of waypoints appears. The closest waypoint is highlighted at the top of the list. The waypoint furthest from you is at the bottom of the list.

4. To see location information on the closest (highlighted) waypoint, press **ENT** and the Waypoint screen appears. (If you wanted to, you could select another waypoint from the list with the ↑ or ↓ keys.)

A. *To navigate* to the waypoint, press **ENT**. (The Go To Waypoint command is already highlighted.) The unit will show navigation information to the waypoint.

B. *To find* the waypoint, press ↓ to **FIND ON MAP**|**ENT**. The Map Page appears with the cursor highlighting the found waypoint.
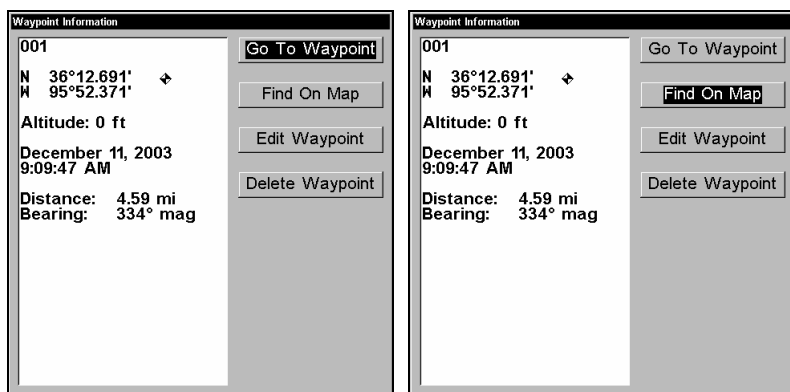
Waypoint Information screens with Go To Waypoint selected (left) and Find on Map selected (right).

To return to the previous page, press **EXIT** repeatedly.

5. If you're looking by name, there are two options: **A.** You can spell out the name in the top selection box. Press ↑ or ↓ to change the first letter, then press → to move the cursor to the next letter and repeat until the name is correct, then press **ENT**|**ENT**. **B.** Or you can jump down to the lower selection list by pressing **ENT**, then press ↓ or ↑ to select a waypoint from the list, then press **ENT**. The waypoint screen appears.
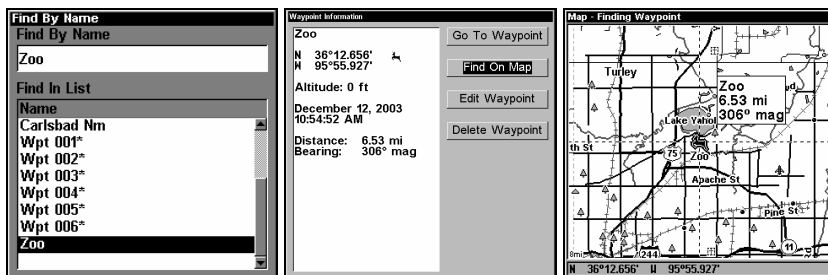
Find By Name menu (left). Waypoint Information screen (center). The found waypoint is highlighted by the cursor on the Map Page (right).

A. *To navigate* to the waypoint, press **ENT**. (Go To Waypoint command is already highlighted.) The unit will show navigation information to the waypoint.

B. *To find* the waypoint, press ↓ to **FIND ON MAP**|**ENT**. The Map Page appears with the cursor highlighting the found waypoint.

Notes

Section 7:
NMEA 2000 Device Configuration

NMEA 2000 Menu

The NMEA 2000 menu on your display unit's main menu allows you to configure, calibrate and monitor devices on a NMEA 2000 network. The NMEA 2000 menu provides access to the Bus Setup, Fuel Management and NMEA 2000 Alarms. You also can turn on/off Waypoint Sharing and Backlight Synchronization from the NMEA 2000 menu.

NOTE:

Your internal GPS receiver is a non-network device, so data from the receiver CAN NOT be transmitted across a NMEA 2000 network.

Internal GPS Receiver

GPS data from your internal GPS receiver can not be transmitted across the network to other network devices. The only way to transmit GPS data across the network is to add a LGC-2000 or LGC-3000 module to the LowranceNET.
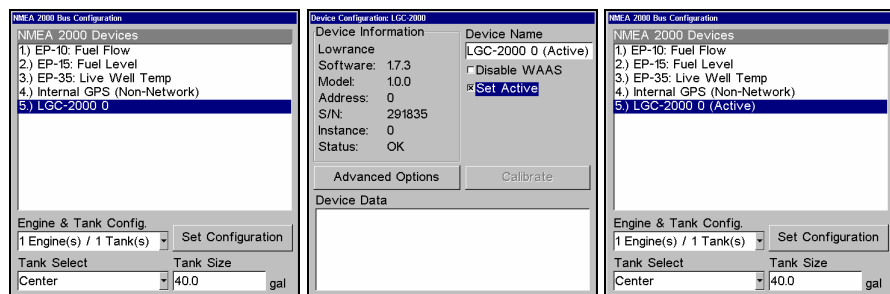
LGC-2000 highlighted on Buss Setup menu (left). LGC-2000 Device Configuration menu with the Set Active checkbox selected (center). LGC-2000 is now listed as Active on the Buss Setup menu (right).

To switch from internal GPS to LGC module

Press **MENU**, select **NMEA 2000** and press **ENT**. Choose **BUSS SETUP** and press **ENT**.

1. From the Buss Configuration list, select the LGC module and press **ENT**.

2. Press ↓ to Set Active and press **ENT**. The LGC module is now the active antenna for your unit. The Internal GPS antenna was automatically disabled when the LGC module was set to active.

NOTE:

> To switch back to the internal GPS antenna, repeat the steps above. The internal GPS will be automatically enabled when you turn off (uncheck) the LGC module Set Active box.

Bus Setup

Selecting Bus Setup from the NMEA 2000 menu gives you access to the Bus Configuration menu and the NMEA Diagnostics and Ethernet Diagnostics pages. The Bus Configuration menu allows you to choose an engine-tank configuration and manage devices on the network. When the Bus Configuration menu is accessed, a list will appear of all NMEA 2000 devices on the network.
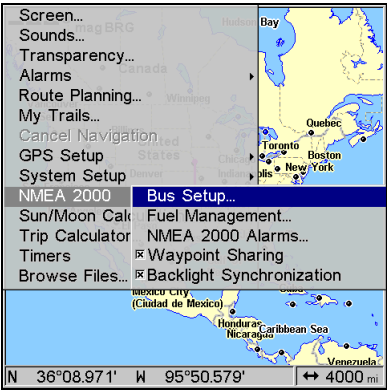
Bus Setup highlighted on the NMEA 2000 menu.
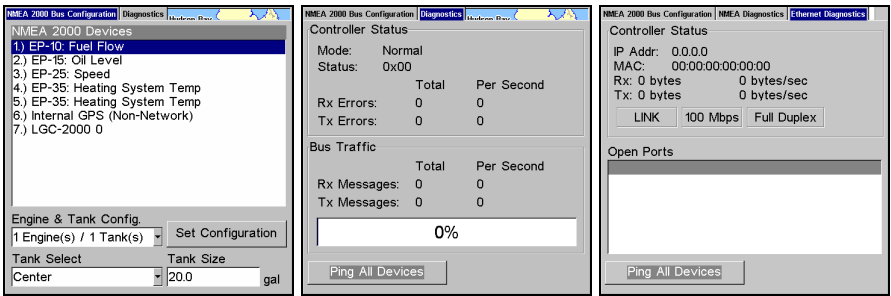
Bus Configuration menu (left). NMEA Diagnostics page (center). Ethernet Diagnostics (right)

The NMEA Diagnostics page displays information about the performance of the network bus, keeping you updated on bus status, mode, errors and bus traffic.

The Ethernet Diagnostics page keeps you updated on the performance of an Ethernet connection (if applicable) supplying information ranging

from IP Address to upload and download rates (bytes per second). To refresh either Diagnostics page, highlight the **PING ALL DEVICES** button at the bottom of the page and press **ENT**.

The network devices list is located in the top half of the Bus Configuration menu. You can configure, calibrate and set alarms for devices accessed from the Bus Configuration menu network devices list.

The Engine-Tank Configuration and Tank Select menus as well as the Tank Size dialog box are located on the bottom half of the Bus Configuration menu. The Set Configuration button — positioned next to the engine-tank configuration menu — allows you to finalize a selected configuration.

NOTE:
> If you have not used the LMF-200 or LMF-400 to choose an engine-tank configuration for your vessel, you must use your display unit to select a configuration.
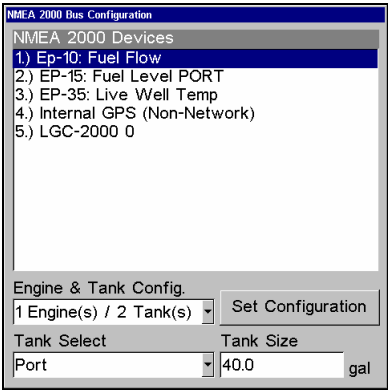
Bus Configuration menu with list of network devices. Engine-Tank Configuration and Tank Select menus are at the bottom of the screen.

Engine & Tank Configuration

The Engine-Tank configuration menu is located below the NMEA 2000 Devices list, but will only be accessible if a Suzuki engine Interface, EP-10 Fuel Flow, EP-15 Fluid Level, EP-45 Pressure Sensor or EP-50 Storage Device are on the network. When choosing an engine-tank configuration you will use the Tank Select menu, Tank Size dialog box and Set configuration button, all detailed below.

Tank Select

The Tank Select menu allows you to choose from up to three tanks (Port, Center and Starboard), depending on the Engine-tank configuration that has been selected. This allows you to set up each tank individually.

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Tank Size

The Tank Size menu allows you to input the size of a selected tank in gallons. After selecting the desired tank from the Tank Select menu, you are ready to enter the tank's size.

Set Configuration button

The Set Configuration button is used to finalize engine-tank configuration settings.

Setting Engine-Tank Configuration:

1. Press **MENU| MENU**, use ↓ ↑ to highlight **NMEA 2000** and press **ENT**.

2. The NMEA 2000 menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization. Choose **BUS SETUP** and press **ENT**.

3. Select **ENGINE & TANK CONFIG** and press **ENT**, which will open the Engine & Tank Configuration menu with the following configuration options: 1 Engine/1 Tank, 1 Engine/2 Tanks, 2 Engines/1 Tank, 2 Engines/2 Tanks, 3 Engines/1 Tank, 3 Engine/3 Tanks and Unconfigured Bus.
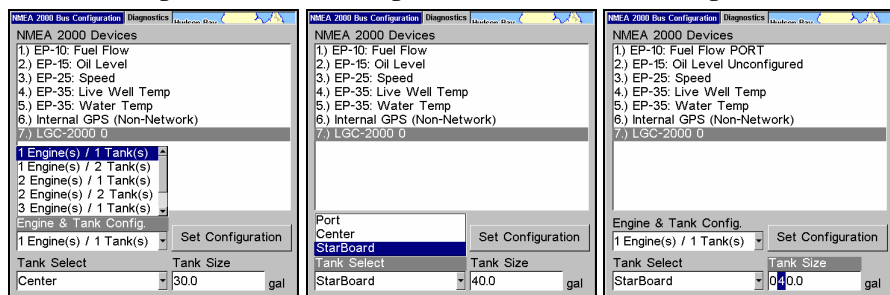
1 Engine/1Tank highlighted on Engine and Tank Configuration menu (left). Starboard highlighted on Tank Select menu (center). Tank Size set to 40 gallons (right).

4. Choose the configuration that matches the number of engines and tanks on your vessel and press **ENT**.

5. Highlight **TANK SELECT** and press **ENT**, which will open the Tank Select menu.

6. Select the tank you want to set up and press **ENT**. Press → to highlight the Tank Size dialog box and press **ENT**.

7. Use ↓ ↑, ← → to input the capacity (gallons) of the tank you chose from the Tank Select menu and press **ENT**.

8. Repeat Steps 5-7 for each remaining tank.

9. When all tanks have been configured, press the **SET CONFIGURATION** button. The following confirmation message will appear: *Are you sure you wish to change the bus configuration?* Choose **YES** and press **ENT**, Press **EXIT** to get back to the main display.

Device Configuration Menu

When a device is selected from the network devices list on the Bus Configuration menu, its Device Configuration menu will appear. Device configuration menus vary among devices. Available functions on device configuration menus allow you to change device names, tank sizes, fluid types and provide access to the Advanced Options menu. We will cover configuration and calibration later in this section.

Device Information and Device Data

The Device information panel, located to the left of the Device Configuration menu, displays information on the selected device that includes, software version, model, address, serial number, instance and current status.
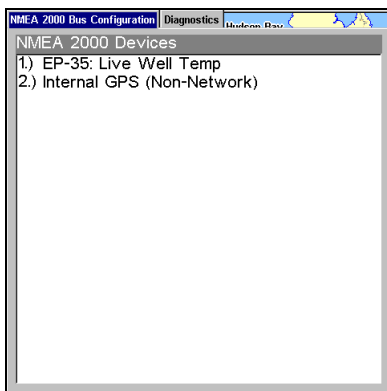
If you do not have an EP-15 Fluid Level, EP-10 Fuel Flow or EP-20 Engine Interface on the network, the Bus Configuration menu will not display the Engine-Tank Configuration menu, Tank Select menu, Tank Size menu or Set Configuration button.

Device Data is shown in the Device Data window at the bottom of the device configuration menu. The information displayed in the Device Data window will vary among devices. If, for example, you are viewing the device configuration menu for an EP-15 Fluid Level, the device data window will include tank size and the amount of fuel left in the tank. The Device Data for an EP-10 Fuel Flow includes Fuel Rate (amount of fuel burned per hour), Fuel Used, Trip Fuel Used and Seasonal Fuel Used.

NOTE:

If, as in the graphic above, you do not have a Suzuki Engine Inter-face, EP-15 Fluid Level or EP-10 Fuel Flow on the network, the Engine & Configuration menu, Tank Select menu, Tank Size dialog and Set Configuration button will not be displayed on the Bus Con-figuration menu.

Fuel Management Menu

The Fuel Management menu gives you access to the following options: Tank Location, Fuel Added, Add Fuel, Fill Tank, Engine Select, Reset Calibration, Reset Trip and Reset Seasonal. Those options allow you to configure, calibrate, reset calibration, reset trip fuel and reset seasonal fuel for select NMEA 2000 devices. We will cover configuration and cali-bration procedures later in this section.
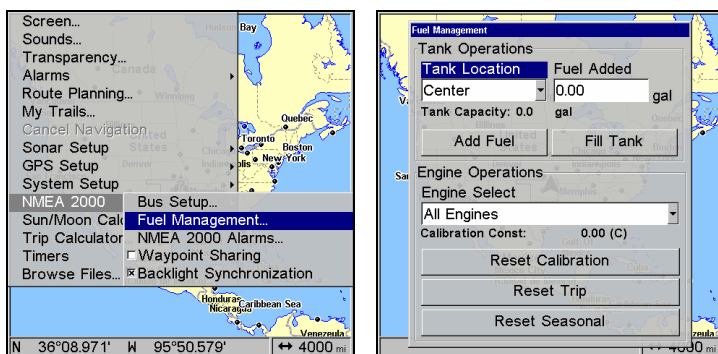
Fuel Management highlighted on the NMEA 2000 menu (left).
Fuel Management menu (right).

Tank Location

If you chose an engine-tank configuration with more than one tank, you will be able to switch the tank location (configuration) in the Tank Lo-cation menu. When fuel is added to a tank, you will select the correct tank from the Tank Location menu, then input the amount of fuel added in the Fuel Added dialog box.

Fuel Added

Used in tandem with the Add Fuel command, the Fuel Added dialog box allows you to input the amount of fuel added to the tank, when an amount of fuel is added that does not fill up the tank.

Add Fuel

After entering the amount of fuel added to a tank in the Fuel Added dialog, the Add Fuel command finalizes the entry of the data. Like the Fuel Added dialog, the Add Fuel command will only be used when an amount of fuel is added that does not fill up the tank.

Fill Tank

You will use the Fill Tank command when calibrating a fuel flow and when filling up the tank without calibration.

Adding Fuel to Tank

Tank Location, Fuel Added and Add Fuel commands work together to keep NMEA 2000 fuel data consistent with the actual amount of fuel added to the fuel tank(s).

1. Press **MENU|MENU**, select **NMEA 2000** and press **ENT**.

2. The NMEA 2000 menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization. Select **FUEL MANAGEMENT** and press **ENT**.

3. Highlight **TANK LOCATION** and press **ENT**. The Tank Location menu will appear with up to three options: Port, Center and Starboard.

4. Select the tank you added fuel to and press **ENT**.

5. Follow the steps below that apply to your tank.

If you filled up the tank:

A. Press the **FILL TANK** button and press **ENT**. The following message will appear: *Are you sure you wish to Fill Tank?* Press **ENT**. Another message will appear: *Do you wish to re-calibrate the device?* Highlight **NO** and press **ENT**.

If you did not fill up the tank:

B. Highlight **FUEL ADDED** and press **ENT** to access the **FUEL ADDED** dialog box. Use ↑↓, ←→ to input the amount of fuel added to the tank and press **ENT**. Select the **ADD FUEL** button and press **ENT**. The following message will appear: *Are you sure you wish to Add Fuel?* Highlight **YES** and press **ENT**.

6. Press **EXIT** repeatedly to get back to the main display.

Engine Operations

The lower half of the Fuel Management menu contains the following Engine Operation functions: Engine Select, Reset Calibration, Reset Trip and Reset Seasonal.

Engine Select

Engine Select allows you to choose the desired engine when resetting calibration, resetting trip fuel and resetting seasonal fuel.

To Reset Calibration:

Choosing the Reset Calibration command will switch fuel flow calibration settings back to factory defaults.

1. Press **MENU|MENU**, select **NMEA 2000** and press **ENT**.

2. Highlight **FUEL MANAGEMENT** and press **ENT**. The Fuel Management menu will appear.

3. Highlight to **ENGINE SELECT** and press **ENT**. Select the desired engine — the engine attached to the desired fuel flow — and press **ENT**.

4. Highlight **RESET CALIBRATION** and press **ENT**. The following confirmation message will appear: *Are you sure you wish to Reset Calibration?* Select **YES** and press **ENT**. Calibration settings for the selected fuel have been returned to factory defaults.

To Reset Trip:

The Reset Trip function allows you to reset to zero the running total of fuel used on a particular trip.

1. Press **MENU|MENU**, select **NMEA 2000** and press **ENT**.

2. Highlight **FUEL MANAGEMENT** and press **ENT**. The Fuel Management menu will appear.

3. Select **RESET TRIP** and press **ENT**. The following confirmation message will appear: *Are you sure you wish to Reset Trip?* Highlight **YES** and press **ENT**. The Trip Fuel Used figure has been reset to zero.

To Reset Seasonal:

Your unit can track fuel usage not only for trips, but also for entire seasons. The reset seasonal command allows you to reset to zero the running total of fuel used during a season.

1. 1. Press **MENU|MENU**, select **NMEA 2000** and press **ENT**.

2. Highlight **FUEL MANAGEMENT** and press **ENT**. The Fuel Management menu will appear.

3. Select **RESET SEASONAL** and press **ENT**. The following confirmation message will appear: *Are you sure you wish to Reset Seasonal?*

Highlight **YES** and press **ENT**. The Seasonal Fuel Used figure has been reset to zero.

NMEA 2000 Alarms

The NMEA 2000 Alarms menu allows you to set Full and Empty fuel alarms for the EP-10 Fuel Flow, EP-15 Fluid Level, EP-50 Storage Device and the Suzuki Engine Interface. The alarms may be set to a percentage (0-100%) of tank capacity.

The second tab at the top of the NMEA 2000 Alarms page is the Alarm Status Tab. When an alarm has been set for a device, the alarm and its current status will be shown on the Alarm Status window. To view the Alarm Status window, highlight the Alarm Status tab and press **ENT**.

To set NMEA 2000 Alarm:

1. Press **MENU|MENU**, select **NMEA 2000** and press **ENT**.

2. Highlight **NMEA 2000 ALARMS** and press **ENT**.

3. Highlight **FLUID LEVEL DEVICE** and press **ENT**. Use ↑ ↓ to select the device you want to set an alarm for and press **ENT**.

4. Highlight the **ENABLED** box next to the desired alarm (Full Alarm or Empty Alarm) and press **ENT** to turn on the alarm.

5. To set the alarm percentage, press → to highlight **PERCENT** and press **ENT**.

6. Use ↑ ↓, ← → to input the desired percentage and press **ENT**. Repeat Steps 3-4 to set the other alarm.

7. Highlight **SET CONFIGURATION** and press **ENT** to finalize alarm settings. Press **EXIT** repeatedly to get back to the main display.

NOTE:

To turn off (uncheck) an alarm, highlight its **ENABLED box** and press **ENTER**.

Waypoint Sharing

Waypoint Sharing allows you to share a waypoint from one display unit with display units across the network.

To turn on/off Waypoint Sharing:

1. Press **MENU|MENU**, select **NMEA 2000** and press **ENT**.

2. Highlight **WAYPOINT SHARING** and press **ENT** which will turn on/off waypoint sharing.

3. Press **EXIT** repeatedly to get return to the main display.

Backlight Synchronization

The Backlight Synchronization command will keep all display unit backlight levels consistent across the NMEA 2000 network. So, if you set the backlight level to 75% on one display unit, all other units on the network will automatically switch to the same setting.

To turn on/off Backlight Synchronization:

1. Press **MENU|MENU**, select **NMEA 2000** and press **ENT**.

2. Highlight **BACKLIGHT SYNCHRONIZATION** and press **ENT**, which will turn on/off Backlight Synchronization.

3. Press **EXIT** repeatedly to get back to the main display.

Configuring EP Sensors

All configurable devices are configured through their Device Configuration menus, which may be accessed through the network devices list on the Bus Configuration menu.

EP-35 Temperature Configuration
To input Device Name:
1. Press **MENU|MENU**, use ↑↓ to select **NMEA 2000** and press **ENT**. The NMEA 2000 menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **BUS SETUP** and press **ENT**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select the temp sensor you want to rename and press **ENT**. The Device Configuration menu will appear with the Device Name dialog box highlighted.

4. Press **ENT** and use ↑↓, ←→ to input the desired name for the temp sensor. Press **ENT**. Press **EXIT** repeatedly to get back to the main display.

To select Temp Type:
1. Press **MENU|MENU**, use ↑↓ to select **NMEA 2000** and press **ENT**. The NMEA 2000 menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **BUS SETUP** and press **ENT**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select the desired temp sensor and press **ENT**. The Device Configuration menu will appear.

4. Highlight **TEMP TYPE** and press **ENT**. The following list of Temp Types will appear: Water, Outside, Inside, Engine Room, Cabin, Live Well, Bait Well, Refigeration, Heating System and Unknown.

5. Highlight the desired Temp Type and press **ENT**. The following confirmation message will appear: *Are you sure you wish to change this device's configuration?*

6. Highlight **YES** and press **ENT**. Press **EXIT** repeatedly to get back to the main display.

Advanced Options menu
The Temp sensor Advanced Options menu contains two categories: Instance and Restore Defaults.

Instance
The Instance command is intended for use *only* by experienced NMEA 2000 network technicians. Instance allows network technicians to resolve certain electronic probe conflicts. This is most likely to occur if the network includes LMF-200 or LMF-400 digital gauges, which support the display of fewer electronic probes than your GPS or sonar/GPS unit.

If you want to use your unit in a network including one of these digital gauges, you may need to consult customer service.

You should never need this command if you are connecting your unit to a network with similar display units and/or a series of electronic probes.

Restore Defaults

The Restore Defaults command allows you to reset an individual EP-35 Temp Sensor's settings to factory defaults. If, for example, you execute the Restore Defaults command from your Water Temp's Advanced Options menu, only the settings for the Water Temp will be reset to factory defaults. Other temps on the network will not be affected.

To restore default settings:

1. Press **MENU| MENU**, use ↑ ↓ to select **NMEA 2000** and press **ENT**. The NMEA 2000 menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **BUS SETUP** and press **ENT**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select the desired temp sensor and press **ENT**. The Device Configuration menu will appear.

4. Highlight **ADVANCED OPTIONS** and press **ENT**.

5. Select **RESTORE DEFAULTS** and press **ENT**. The following message will appear: *Are you sure you wish to change this device's configuration?*

6. Highlight **YES** and press **ENT**. Press **EXIT** repeatedly to get back to the main display.

EP-10 Fuel Flow Configuration

To input Device Name:

1. Press **MENU| MENU**, use ↑ ↓ to select **NMEA 2000** and press **ENT**. The NMEA 2000 menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **BUS SETUP** and press **ENT**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select the fuel flow you want to rename and press **ENT**. The Device Configuration menu will appear with the Device Name dialog box highlighted.

4. Press **ENTER** and use ↑ ↓, ← → to input the desired name for the fuel flow. Press **ENT**. Press **EXIT** repeatedly to get back to the main display.

To select a Location:

1. Press **MENU| MENU**, use ↑↓ to select **NMEA 2000** and press **ENT**. The NMEA 2000 menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **BUS SETUP** and press **ENT**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select the desired fuel flow and press **ENT**. The Device Configuration menu will appear.

4. Select **LOCATION** and press **ENT**, which will open the Location menu with following options: Port, Center, Starboard and Unknown.

5. Highlight the desired location and press **ENT**. The following message will appear: *Are you sure you wish to change this device's configuration?*

5. Select **YES** and press **ENT**. Press **EXIT** repeatedly to get back to the main display.

Advanced Options menu

The Fuel Flow sensor Advanced Options menu contains two categories: Instance and Restore Defaults.

Instance

The Instance command is intended for use *only* by experienced NMEA 2000 network technicians. Instance allows network technicians to resolve certain electronic probe conflicts. This is most likely to occur if the network includes LMF-200 or LMF-400 digital gauges, which support the display of fewer electronic probes than your GPS or sonar/GPS unit.

If you want to use your unit in a network including one of these digital gauges, you may need to consult customer service.

You should never need this command if you are connecting your unit to a network with similar display units and/or a series of electronic probes.

Restore Defaults

The Restore Defaults command allows you to reset an individual EP-10 Fuel Flow Sensor's settings to factory defaults. If, for example, you execute the Restore Defaults command from your Port Fuel Flow Advanced Options menu, only the settings for the Port Fuel Flow will be reset to factory defaults. Other fuel flows on the network will not be affected.

To restore default settings:

1. Press **MENU| MENU**, use ↑↓ to select **NMEA 2000** and press **ENT**. The NMEA 2000 menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **Bus Setup** and press **ENT**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Use ↑↓ to select the desired fuel flow and press **ENT**. The Device Configuration menu will appear.

4. Highlight **Advanced Options** and press **ENT**.

5. Select **Restore Defaults** and press **ENT**. The following message will appear: *Are you sure you wish to change this device's configuration?*

6. Highlight **Yes** and press **ENT**. Press **EXIT** repeatedly to get back to the main display.

EP-15 Fluid Level Configuration

To input Device Name:

1. Press **MENU| MENU**, use ↑↓ to select **NMEA 2000** and press **ENT**. The NMEA 2000 menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **Bus Setup** and press **ENT**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select a fluid level you want to rename and press **ENT**. The Device Configuration menu will appear with the Device Name dialog box highlighted.

4. Press **ENT** and use ↑↓, ←→ to input the desired name for the fluid level. Press **ENTER**. Press **EXIT** repeatedly to get back to the main display.

To select Tank Instance (Location):

1. Press **MENU| MENU**, use ↑↓ to select **NMEA 2000** and press **ENT**. The NMEA 2000 menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **Bus Setup** and press **ENT**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select the desired fluid level and press **ENT**. The Device Configuration menu will appear.

4. Highlight **Tank Instance** and press **ENT**, which will open the Tank Instance menu with the following options: Tank 1, Tank 2, Tank 3 and Unknown.

5. Select the desired Tank Instance (location) and press **ENT**. The following confirmation message will appear: *Are you sure you wish to change this device's configuration?*

6. Highlight **Yes** and press **ENT**. Press **EXIT** repeatedly to get back to the main display.

To select Fluid Type:

1. Press **MENU| MENU**, use ↑↓ to select **NMEA 2000** and press **ENT**. The NMEA 2000 menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **BUS SETUP** and press **ENT**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select the desired fluid level and press **ENT**. The Fluid Level Device Configuration menu will appear.

4. Press ↓ to **FLUID TYPE** and press **ENT**, which will open the Fluid Type menu with the following options: Fuel, Water, Gray Water, Live Well, Oil, Black Water and Unknown.

5. Select the desired fluid type and press **ENT**. The following message will appear: *Are you sure you wish to change this device's configuration?*

6. Highlight **YES** and press **ENT**. Press **EXIT** repeatedly to get back to the main display.

To input Tank Size:

1. Press **MENU| MENU**, use ↑↓ to select **NMEA 2000** and press **ENT**. The NMEA 2000 menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **BUS SETUP** and press **ENT**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select the desired fluid level and press **ENT**. The Fluid Level Device Configuration menu will appear.

4. Highlight **TANK SIZE** and press **ENT**. Use ↑↓ ,←→ to input the size of the tank and press Enter. The following message will appear: *Are you sure you wish to change this device's configuration?*

5. Select **YES** and press **ENT**. Press **EXIT** repeatedly to get back to the main display.

Advanced Options menu

The Fuel Flow sensor Advanced Options menu contains two categories: Instance and Restore Defaults.

Instance

The Instance command is intended for use *only* by experienced NMEA 2000 network technicians. Instance allows network technicians to resolve certain electronic probe conflicts. This is most likely to occur if the network includes LMF-200 or LMF-400 digital gauges, which support the display of fewer electronic probes than your GPS or sonar/GPS unit.

If you want to use your unit in a network including one of these digital gauges, you may need to consult customer service.

You should never need this command if you are connecting your unit to a network with similar display units and/or a series of electronic probes.

Restore Defaults

The Restore Defaults command allows you to reset an individual EP-15 Fluid Level Sensor's settings to factory defaults. If, for example, you execute the Restore Defaults command from your Gray Water Fluid Level Advanced Options menu, only the settings for the Gray Water Fluid Level will be reset to factory defaults. Other fluid levels on the network will not be affected.

To restore default settings:

1. Press **MENU| MENU**, use ↑↓ to select **NMEA 2000** and press **ENT**. The NMEA 2000 menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **BUS SETUP** and press **ENT**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select the desired fluid level and press **ENT**. The Device Configuration menu will appear.

4. Highlight **ADVANCED OPTIONS** and press **ENT**.

5. Select **RESTORE DEFAULTS** and press **ENT**. The following message will appear: *Are you sure you wish to change this device's configuration?*

6. Highlight **YES** and press **ENT**. Press **EXIT** repeatedly to get back to the main display.

NOTE:

The Fluid Level Device Configuration menu also contains the Calibrate button, but we will address that later in the segment covering Calibration.

Suzuki Engine Interface Configuration

To input Device Name:

1. Press **MENU| MENU**, use ↑↓ to select **NMEA 2000** and press **ENT**. The NMEA 2000 menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **BUS SETUP** and press **ENT**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Use ↑↓ to select the engine interface you want to rename and press **ENT**. The Device Configuration menu will appear with the Device Name dialog box highlighted.

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4. Press **ENT** and use ↑ ↓, ← → to input a name for the interface. Press **ENT**. Press **EXIT** repeatedly to return to the main display.

To select a Location:

1. Press **MENU| MENU**, use ↑ ↓ to select **NMEA 2000** and press **ENT**. The NMEA 2000 menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **BUS SETUP** and press **ENT**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select the desired engine interface and press **ENT**. The Device Configuration menu will appear.

4. Highlight **LOCATION** and press **ENT**, which will open the Location menu with the following options: Port, Center, Starboard and Unknown.

5. Select the desired location and press **ENT**. The following confirmation message will appear: *Are you sure you wish to change this device's configuration?*

6. Press **ENT**. Press **EXIT** repeatedly to get back to the main display.

To select Engine Type:

1. Press **MENU| MENU**, use ↑ ↓ to select **NMEA 2000** and press **ENT**. The NMEA 2000 menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **BUS SETUP** and press **ENT**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Use ↑ ↓ to select the desired engine interface and press **ENT**. The Device Configuration menu will appear.

4. Highlight **ENGINE TYPE** and press **ENT**, which will open the Engine Type menu with the following options: DF40, DF50, DF60, DF70, DF90/115, DF140, DF150, DF175, DF200/225, DF250 and DF300.

5. Select your engine type and press **ENT**. The following message will appear*: Are you sure you wish to change this device's configuration?*

6. Highlight **YES** and press **ENT**. Press **EXIT** repeatedly to get back to the main display.

Advanced Options menu

The Engine Interface Advanced Options menu contains three categories: Instance, Restore Defaults and Reset Trim Calibration.

Instance

The Instance command is intended for use *only* by experienced NMEA 2000 network technicians. Instance allows network technicians to resolve certain electronic probe conflicts. This is most likely to occur if the

network includes LMF-200 or LMF-400 digital gauges, which support the display of fewer electronic probes than your GPS or sonar/GPS unit. If you want to use your unit in a network including one of these digital gauges, you may need to consult customer service. You should never need this command if you are connecting your unit to a network with similar display units and/or a series of electronic probes.

Restore Defaults

The Restore Defaults command allows you to reset an individual engine interface's settings to factory defaults. If, for example, you execute the Restore Defaults command from your Port Engine Interface Advanced Options menu, only the settings for the Port Engine Interface will be reset to factory defaults. Other engine interfaces on the network will not be affected.

To restore default settings:

1. Press **MENU| MENU**, use ↑↓ to select **NMEA 2000** and press **ENT**. The NMEA 2000 menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **BUS SETUP** and press **ENT**.

3. Use ↑↓ to select the desired fluid level and press **ENT**. The Device Configuration menu will appear.

4. Highlight **ADVANCED OPTIONS** and press **ENT**.

5. Select **RESTORE DEFAULTS** and press **ENT**. The following message will appear: *Are you sure you wish to change this device's configuration?*

6. Highlight **YES** and press **ENT**. Press **EXIT** repeatedly to get back to the main display.

NOTE:

The Suzuki Engine Interface Device Configuration menu contains two Engine Trim calibration commands, which will be addressed in the next segment of this section, Calibrating EP Sensors.

Calibrating EP Sensors

The factory calibration settings for the EP-10 Fuel Flow, EP-15 Fluid Level and Suzuki Engine Interface should be adequate for the majority of applications, so calibration will not be necessary in most cases.

EP-10 Fuel Flow Calibration

The default calibration for the EP-10 Fuel Flow is adequate in most cases, but if Fuel Used readings are off by more than 3 percent, calibration is recommended.

To check fuel flow accuracy:

Select Fuel Used to be shown as Overlay Data on your unit's main display. Refer to the Overlay Data segment of this manual for instructions on how to select Fuel Used data as Overlay Data.

1. After selecting Fuel Used as overlay data, fill up your tank and press **MENU|MENU**.

2. Select **NMEA 2000** and press **ENT**.

3. Highlight **FUEL MANAGEMENT** and press **ENT**. Select **TANK LOCATION** and press **ENT**.

4. Use ↑↓ to select the location (Port, Center or Starboard) of the fuel flow you want to calibrate and press **ENT**.

5. Highlight **FILL TANK** and press **ENT**. The following confirmation message will appear: *Are you sure you wish to Fill Tank?*

6. Select **YES** and press **ENT**. The following confirmation message will appear: *Do you wish to re-calibrate the device?*

7. Highlight **NO** and press **ENT**.

8. Take your vessel out on the water and burn at least five gallons of fuel. **Be sure you run only ONE engine — the engine connected to your fuel flow.**

9. Fill up your tank again, noting how much fuel you added to the tank. Compare that number to the Fuel Used figure displayed on the page you customized. If the amount of fuel you added to the tank and the fuel used figure are off by more than 3 percent, we recommend the fuel flow be calibrated.

NOTE:

> You must use the gauge's Fill Tank command when filling your fuel tank to keep the fuel flow updated with correct information on the amount of fuel in the tank.

To calibrate an EP-10 Fuel Flow:

10. If calibration is necessary, press **MENU|MENU**, select **NMEA 2000** and press **ENT**.

11. Highlight **FUEL MANAGEMENT** and press **ENT**.

12. Select **TANK LOCATION** and press **ENT** to choose the location of the tank connected to selected fuel flow. Press **ENT**.

13. Highlight **FILL TANK** and press **ENT**. The following message will appear: *Are you sure you wish to Fill Tank?* Select **YES** and press **ENT**.

14. The following message will appear: *Do you wish to re-calibrate the device?* Select **YES** and press **ENT**.

15. Repeat these steps for each EP-10 Fuel Flow you want to calibrate.

To Reset Calibration:

1. Press **MENU│MENU**, select **NMEA 2000** and press **ENT**.

2. Highlight **FUEL MANAGEMENT** and press **ENT**.

3. Highlight **ENGINE SELECT** and press **ENT**. The Engine Select menu will appear with up to four options: All Engines, Port, Center and Starboard. Selecting All Engines will reset calibration for all engines back to factory defaults.

4. Select All Engines or the engine connected to the desired device and press **ENT**.

5. Highlight **RESET CALIBRATION** and press **ENT**. The following message will appear: *Are you sure you wish to Reset Calibration?*

6. Highlight **YES** and press **ENT**. Press **EXIT** repeatedly to get back to the main display.

EP-15 Fluid Level Calibration

The default calibration for the EP-15 Fluid Level is just as accurate as standard fluid level gauges. If, however, the tank has an irregular shape or greater accuracy is needed, calibration is recommended. There are three calibration options: 2-Point, 3-Point and 5-Point.

2-Point Calibration

A 2-point calibration is best suited for rectangular or square-shaped tanks, where the capacity of the top half of the tank matches the capacity in the lower half of the tank. In a two-point calibration, you will set two points, one each for empty and full levels. You can begin calibration at either of the two points, but we recommend starting with an empty tank. You will fill the tank to complete calibration.

1. Press **MENU│ MENU**, use ↓↑ to select **NMEA 2000** and press **ENT**.

2. Highlight **BUS SETUP** and press **ENT**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select the EP-15 Fluid Level and press **ENT**.

4. Press ↓ to select **CALIBRATE** and press **ENT**. The Device Calibration menu will appear. Instructions on Calibration will be listed at the top of the menu.

5. Highlight **NUM PTS**, press **ENT** and select **2.** Press **ENT**.

6. Select **FLUID LEVEL**, press **ENT**, then select **EMPTY LEVEL** and press **ENT**.

7. Make sure the fuel tank is empty, highlight **C**ALIBRATE and press **ENT**. The following message will appear: *Empty Level Calibration Completed.* Press **ENT**.

8. Fill up your tank, highlight **FLUID LEVEL** and press **ENT**.

9. Select **FULL LEVEL** and press **ENT**. Highlight **CALIBRATE** and press **ENT**.

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10. The following message will appear: *Full level Calibration Completed*. Press **ENT**, then press **EXIT** repeatedly to get back to the main display.
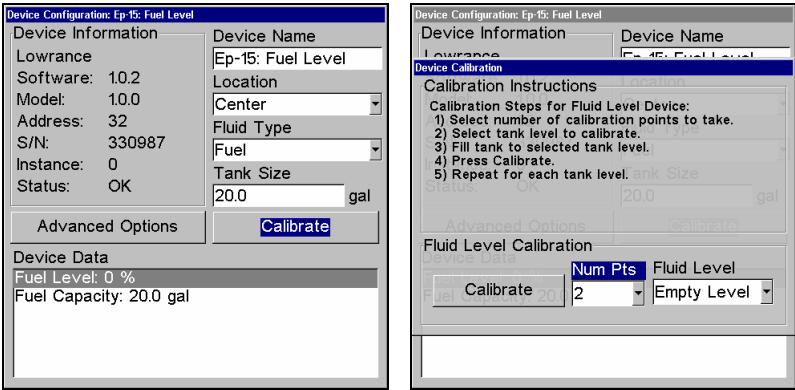
Calibrate is highlighted on the device configuration menu (left). Calibration menu (right) with calibration instructions listed at the top.

3-Point Calibration

3-point calibration is designed for tanks that vary in shape from the top to the bottom. You can begin calibration at any point in the 3-point process, but we recommend starting calibration with an empty tank.

In a 3-point calibration, you will set three points, one each for empty, half and full levels.

1. Press **MENU| MENU**, use ↓↑ to select **NMEA 2000** and press **ENT**.

2. Highlight **BUS SETUP** and press **ENT**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page. 3. Select the EP-15 Fluid Level and press **ENT**.

4. Press ↓ to select **CALIBRATE** and press **ENT**. The Device Calibration menu will appear.

5. Highlight **NUM PTS**, press **ENT** and select **3**. Press **ENT**.

6. Make sure your tank is empty, then highlight **FLUID LEVEL** and press **ENT**. Select **EMPTY LEVEL** and press **ENT**.

7. Select **CALIBRATE** and press **ENT**. The following message will appear: *Empty Level Calibration Completed*. Press **ENTER**.

8. Add half a tank of fuel, highlight **FLUID LEVEL** and press **ENT**. Select **HALF LEVEL** and press **ENT**.

9. Select **CALIBRATE** and press **ENT**. The following message will appear: *Half Level Calibration Completed*. Press **ENT**.

10. Fill up the tank, then highlight **FLUID LEVEL** and press **ENT**. Select **FULL LEVEL** and press **ENT**.

11. Highlight **CALIBRATE** and press **ENT**. The following message will appear: *Full Level Calibration Completed*. Press **ENT**, then press **EXIT** repeatedly to get back to the main display.

Num Pts menu with 5-point calibration selected (left). Half level selected on Fluid Level menu (center). Calibration Done window (right).
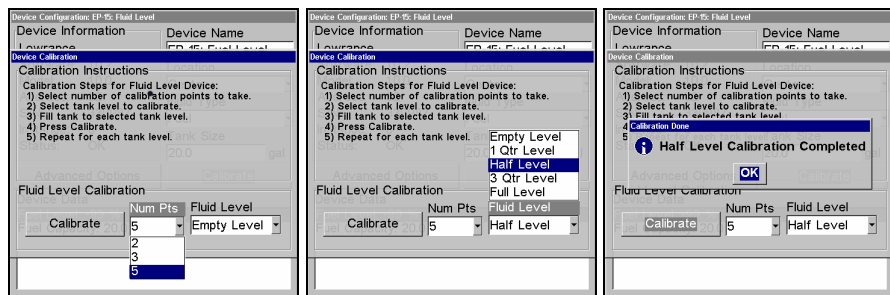
5-Point Calibration

5-point calibration is best suited tanks that vary greatly in shape from top to bottom. You can begin calibration at any point in the 5-point calibration process. We recommend starting calibration with an empty tank. In a five-point calibration you will set five points: Empty Level, 1 Qtr Level, Half Level, 3 Qtr Level and Full Level.

In a 5-point calibration, you will have four calibration points left after calibrating your tank's Empty Level. To figure out how much fuel you should add for the remaining steps of the calibration process, divide the total capacity of you tank by four. So, if you have a 40-gallon tank, each quarter tank will equate to 10 gallons.

1. Press **MENU| MENU**, use ↓ ↑ to select **NMEA 2000** and press **ENT**.

2. Highlight **BUS SETUP** and press **ENT**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.   3. Select the desired EP-15 Fluid Level and press **ENT**.

4. Press ↓ to select **CALIBRATE** and press **ENT**. The Device Calibration menu will appear.

5. Highlight **NUM PTS**, press **ENT** and select **5**. Press **ENT**.

6. Make sure your tank is empty, then highlight **FLUID LEVEL** and press **ENT**. Select **EMPTY LEVEL** and press **ENT**.

7. Select **CALIBRATE** and press **ENT**. The following message will appear: *Empty Level Calibration Completed*. Press **ENT**.

8. Add 1 quarter tank of fuel, highlight **FLUID LEVEL** and press **ENT**. Select **1 QTR LEVEL** and press **ENT**.

9. Select **CALIBRATE** and press **ENT**. The following message will appear: *1 Qtr Level Calibration Completed*. Press **ENT**.

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10. Add another quarter tank of fuel, which should raise the fuel level to half a tank. Highlight **FLUID LEVEL** and press **ENT**. Select **HALF LEVEL** and press **ENT**.

11. Highlight **CALIBRATE** and press **ENT**. The following message will appear: *Half Level Calibration Completed*. Press **ENT**.

12. Add another quarter tank of fuel, which should raise the fuel level to 3 quarters of a tank. Highlight **FLUID LEVEL** and press **ENT**. Select **3 QTR LEVEL** and press **ENT**.

13. Select **CALIBRATE** and press **ENT**. The following message will appear: *3 Qtr Level Calibration Completed*. Press **ENT**.

14. Top off the tank, highlight **FLUID LEVEL** and press **ENT**. Select **FULL LEVEL** and press **ENT**.

15. Select **CALIBRATE** and press **ENT**. The following message will appear: *Full Level Calibration Completed*. Press **ENT**, then press **EXIT** repeatedly to get back to the main display.

Fuel Flow Calibration in a Suzuki Engine Interface

The default calibration for the Suzuki Engine Interface is adequate in most cases, but if Fuel Used readings are off by more than 3 percent, calibration is recommended.

To check engine interface accuracy:

Select Fuel Used to be shown as Overlay Data on your unit's main display. Refer to the Overlay Data segment of this manual for instructions on how to select Fuel Used data as Overlay Data.

1. After selecting Fuel Used as overlay data, fill up your tank and press **MENU | MENU**.

2. Select **NMEA 2000** and press **ENT**.

3. Highlight **FUEL MANAGEMENT** and press **ENT**. Select **TANK LOCATION** and press **ENT**.

4. Use ↑ ↓ to select the location (Port, Center or Starboard) of the engine interface you want to calibrate and press **ENT**.

5. Highlight **FILL TANK** and press **ENT**. The following confirmation message will appear: *Are you sure you wish to Fill Tank?*

6. Select **YES** and press **ENTER**. The following confirmation message will appear: *Do you wish to re-calibrate the device?*

7. Highlight **NO** and press **ENT**. Take your vessel out on the water and burn at least five gallons of fuel. **Be sure you run only ONE engine — the engine connected to your engine interface.**

9. Fill up your tank again, noting how much fuel you added to the tank. Compare that number to the Fuel Used figure displayed on the page you customized.

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If the amount of fuel you added to the tank and the fuel used figure are off by more than 3 percent, we recommend the engine interface be calibrated.

NOTE:

You must use the gauge's Fill Tank command when filling your fuel tank to keep the engine interface updated with correct information on the amount of fuel in the tank.

To calibrate a Suzuki Engine Interface:

10. If calibration is necessary, press **MENU|MENU**, select **NMEA 2000** and press **ENT**.

11. Highlight **FUEL MANAGEMENT** and press **ENT**.

12. Select **TANK LOCATION** and press **ENT** to choose the location of the tank connected to the selected engine interface. Press **ENT**.

13. Highlight **FILL TANK** and press **ENT**. The following message will appear: *Are you sure you wish to Fill Tank?* Select **YES** and press **ENT**.

14. The following message will appear: *Do you wish to re-calibrate the device? S*elect **YES** and press **ENT**.

15. Repeat these steps for each engine interface you want to calibrate.

Engine Trim Calibration

Engine Trim is calibrated through the Suzuki Engine Interface Device Configuration menu.

1. Press **MENU|MENU**, select **NMEA 2000** and press **ENT**.

2. Choose **BUS SETUP** and press **ENTER**. Select the Suzuki Engine Interface connected to the desired engine and press **ENT**.

3. Highlight **CALIBRATE TRIM** and press **ENT**. The Device Calibration window will appear with a list of Calibration Instructions.

4. Highlight **START CALIBRATION** and press **ENT**. The following message will appear: *Please fully raise the Engine Trim.*

5. After engine trim has been fully raised, press **ENT**. The following message will appear: *Please fully lower the Engine trim.*

6. After engine trim has been fully lowered, press **ENT**. A Calibration Completed message will appear. Press **ENT**.

7. Repeat these instructions to adjust the engine trim for each engine connected to a Suzuki Engine Interface. Press **EXIT** repeatedly to return to the main display.

Reset Trim Calibration

If you are not satisfied with your engine trim calibration, you can reset engine trim calibration from the Suzuki Engine Interface Advanced Options menu.

1. Press **MENU|MENU**, select **NMEA 2000** and press **ENT**.

2. Choose **BUS SETUP** and press **ENT**. Select the Suzuki Engine Interface connected to the desired engine and press **ENT**.

3. Highlight **ADVANCED OPTIONS** and press **ENT**. Select Reset **TRIM CALIBRATION** and press **ENT**. The following message will appear: *Do you wish to re-calibrate the device?*

4. Highlight **YES** and press **ENT**. Press **EXIT** repeatedly to get back to the main display.

Bennett Trim Tabs Calibration

Trim Tabs will be calibrated through their Device Configuration menu.

To calibrate Trim Tabs:

1. Press **MENU|MENU**, select **BUS SETUP** and press **ENT**. A list of network devices will appear.

2. Select **BENNETT TRIM TABS** from the list and press **ENT**, which will open the Trim Tab Device Configuration menu.

3. Highlight **CALIBRATE** and press **ENT**. The Device Calibration window will appear with a list of calibration instructions.

4. Select **START CALIBRATION** and press **ENT**. The following message will appear: *Please fully raise Trim Tabs.*

5. After fully raising the trims tabs, press **ENT**. The following message will appear: *Please fully lower trim tabs.*

6. After fully lowering the trim tabs, press **ENT**. A Calibration Complete message will appear. Press **ENT**. Press **EXIT** repeatedly to return to the main display.

To Reset Calibration:

1. Press **MENU|MENU**, select **NMEA 2000** and press **ENT**.

2. Highlight **FUEL MANAGEMENT** and press **ENT**.

3. Highlight **ENGINE SELECT** and press **ENT**. The Engine Select menu will appear with up to four options: All Engines, Port, Center and Starboard. Selecting All Engines will reset calibration for all engines back to factory defaults.

4. Select All Engines or the engine connected to the desired device and press **ENT**.

Reset Calibration highlighted (left). Reset Calibration confirmation window (right).

5. Highlight **RESET CALIBRATION** and press **ENT**. The following message will appear: *Are you sure you wish to Reset Calibration?*

6. Highlight **YES** and press **ENT**. Press **EXIT** repeatedly to get back to the main display.

Notes

Section 8: Supplemental Material
Datums Used by This Unit

WGS 1984
Default

Adindan
Mean for Ethiopia,
Sudan

Adindan
Burkina Faso

Adindan
Cameroon

Adindan
Ethiopia

Adindan
Mali

Adindan
Senegal

Adindan
Sudan

Afgooye
Somalia

Ain el Abd 1970
Bahrain

Ain el Abd 1970
Saudi Arabia

Anna 1 Astro 1965
Cocos Islands

Antigua Island Astro
1943; Antigua (Lee-
ward Islands)

Arc 1950; Mean for
Botswana, Lesotho,
Malawi, Swaziland,

Zaire, Zambia and
Zimbabwe

Arc 1950 - Botswana

Arc 1950 - Burundi

Arc 1950 - Lesotho

Arc 1950 - Malawi

Arc 1950 - Swaziland

Arc 1950 - Zaire

Arc 1950 - Zambia

Arc 1950 - Zimbabwe

Arc 1960 - Mean for
Kenya, Tanzania

Ascension Island
1958 - Ascension
Island

Astro Beacon E 1945
- Iwo Jima

Astro DOS 71/4 - St.
Helena Island

Astro Tern Island
(FRIG) 1961 - Tern
Island

Astronomical Station
1952 - Marcus Island

Australian Geodetic
1966 - Australia &
Tasmania

Australian Geodetic
1984 - Australia &
Tasmania

Ayabelle Lighthouse -
Djibouti

Bellevue (IGN) - Efa-
te & Erromango I-
slands

Bermuda 1957 -
Bermuda

Bissau - Guinea-
Bissau
Bogota Observatory -
Colombia

Bukit Rimpah - Indo-
nesia (Bangka & Beli-
tung Islands)

Camp Area Astro -
Antarctica (McMurdo
Camp Area)

Campo Inchauspe -
Argentina

Canton Astro 1966 -
Phoenix Islands

Cape - South Africa

Cape Canaveral -
Bahamas, Florida

Carthage - Tunisia

Switzerland

Chatham Island Astro
1971; New Zealand
(Chatham Island)

Chua Astro
Paraguay

Corrego Alegre
Brazil

Dabola
Guinea

Djakarta (Batavia)
Indonesia (Sumatra)

DOS 1968
New Georgia Islands
(Gizo Island)

Easter Island 1967
Easter Island

European 1950
Mean for Austria,
Belgium, Denmark,
Finland, France,
West Germany, Gi-
braltar, Greece, Italy,
Luxembourg, Nether-
lands, Norway, Por-
tugal, Spain, Swe-
den, Switzerland

European 1950
Mean for Austria,
Denmark, France,
West Germany,
Netherlands, Switzer-
land

European 1950
Mean for Iraq, Israel,
Jordan, Lebanon,
Kuwait, Saudi Arabia,
Syria

European 1950
Cyprus

European 1950
Egypt

European 1950
England, Channel
Islands, Ireland,
Scotland, Shetland
Islands

European 1950
Finland, Norway

European 1950
Greece

European 1950
Iran

European 1950
Italy (Sardinia)

European 1950
(Sicily)

European 1950
Malta

Ireland 1965
Ireland

ISTS 061 Astro 1968
South Georgia Is-
lands

ISTS 073 Astro 1969
Diego Garcia

Johnston Island 1961
Johnston Island

Kandawala
Sri Lanka

Kerguelen Island
1949
Kerguelen Island

Kertau 1948
West Malaysia &
Singapore

Kusaie Astro 1951
Caroline Islands

L.C. 5 Astro 1961
Cayman Brac Island

Leigon
Ghana

Liberia 1964
Liberia

Luzon
Philippines (Exclud-
ing Mindanao)

Luzon
Philippines (Min-
danao)

Mahe 1971
Mahe Island

Massawa
Ethiopia (Eritrea)

Merchich
Morocco

Midway Astro 1961
Midway Islands

Minna
Cameroon

Minna
Nigeria

Montserrat Island
Astro 1958; Montser-
rat (Leeward Islands)

M'Poraloko
Gabon, Nahrwan,
Oman (Masirah Is-
land)

Nahrwan
Saudi Arabia

Nahrwan
United Arab Emirates

Naparima BWI
Trinidad & Tobago

North American 1927
Mean for Antigua,
Barbados, Barbuda,
Caicos Islands,
Cuba, Dominican
Republic, Grand
Cayman, Jamaica,
Turks Islands

North American 1927
Mean for Belize, Cos-
ta Rica, El Salvador,
Guatemala, Hondu-
ras, Nicaragua

North American 1927
Mean for Canada

North American 1927
Mean for CONUS
(Continental United
States)
North American 1927
Mean for CONUS
(East of Mississippi
River) including Lou-
isiana, Missouri, Min-
nesota

North American 1927
Mean for CONUS
(West of Mississippi
River)

North American 1927
Alaska

North American 1927
Bahamas (Except
San Salvador Island)

North American 1927
Bahamas (San Sal-
vador Island)

North American 1927
Canada (Alberta,
British Columbia)

North American 1927
Canada (Manitoba,
Ontario)

North American 1927
Canada (New
Brunswick, New-
foundland, Nova Sco-
tia, Quebec)

North American 1927
Canada (Northwest
Territories, Sas-
katchewan)

North American 1927
Canada (Yukon)

North American 1927
Canal Zone

North American 1927
Cuba

North American 1927
Greenland (Hayes
Peninsula)

North American 1927
Mexico

North American 1983
Alaska, Canada,
CONUS

North American 1983
Central America,
Mexico

Observaorio Metereo
1939; Azores (Corvo
& Flores Islands)

Old Egyptian 1907
Egypt

Old Hawaiian
Mean for Hawaii,
Kauai, Maui, Oahu

Old Hawaiian
Hawaii

Old Hawaiian
Kauai

Old Hawaiian
Maui

Old Hawaiian
Oahu

Oman
Oman

Ordinance Survey
Great Britain 1936 -
Mean for England,
Isle of Man, Scotland,
Shetland Islands,
Wales

Ordinance Survey
Great Britain 1936 -
England

Ordinance Survey
Great Britain 1936 -
England, Isle of Man,
Wales

Ordinance Survey
Great Britain 1936 -
Scotland, Shetland
Islands

Ordinance Survey
Great Britain 1936 -
Wales

Pico de las Nieves
Canary Islands

Pitcairn Astro 1967
Pitcairn Island

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Point 58

Sweden

Santo (DOS)
1965 Espirito Santo
Island

Sao Braz
Azores (Sao Miguel,
Santa Maria Islands)

Sapper Hill 1943
East Falkland Island

Schwarzeck
Nambia

Selvagem Grande
Salvage Islands

SGS 85
Soviet Geodetic System 1985

South American 1969
Mean for Argentina,
Bolivia, Brazil, Chile,
Colombia, Ecuador,
Guyana, Paraguay,
Peru, Trinidad & Tobago, and Venezuela

South American 1969
Argentina

South American 1969
Bolivia

South American 1969
Brazil

South American 1969
Chile

South American 1969
Colombia

South American 1969
Ecuador

South American 1969
Ecuador (Baltra, Galapagos)

South American 1969
Guyana

South American 1969
Paraguay

South American 1969
Peru

South American 1969
Trinidad & Tobago

South American 1969
Venezuela

South Asia

Singapore

Tananarive Observatory 1925; Madagascar

Timbalai 1948
Brunei, East Malaysia
(Sabah, Sarawak)

Tokyo
Mean for Japan, Korea, Okinawa

Tokyo
Japan

Tokyo
Korea

Tokyo

Okinawa

Tristan Astro 1968
Tristan da Cunha

Viti Levu 1916
Fiji (Viti Levu Island)

Wake

Eniwetok 1960

Marshall Islands

Wake Island Astro
1952
Wake Atoll

WGS 1972
Global Definition

Yacare
Uruguay

Zanderij
Suriname

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Notes

Notes

FCC Compliance

This device complies with Part 15 of the U.S. Federal Communications Commission (FCC) Rules. Operation is subject to the following two 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.

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the factory customer service department for help.

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"We", "our", or "us" refers to Lowrance Electronics, Inc., the manufacturer of this product. "You" or "your" refers to the first person who purchases the product as a consumer item for personal, family, or household use. The Databases Limited Warranty applies to the one or more databases that your product may contain. We refer to each of these as a "Database" or together as the "Databases." Your product may thus include the "WBS Database" which contains worldwide background surface mapping data, the "SmartMap Database" which contains inland mapping data, or other Databases.

We warrant to you that we have accurately compiled, processed, and reproduced the portions of the source material on which the Databases are based. However, we are under no obligation to provide updates to the Databases, and the data contained in the Databases may be incomplete when compared to the source material. WE MAKE NO EXPRESS OR IMPLIED WARRANTY OF ANY KIND ABOUT THE ACCURACY OF THE SOURCE MATERIAL ITSELF, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MER-CHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

If there is a defect in any Database, your exclusive remedy shall be, at our option, either a refund of the price you paid for the product containing the defective Database or a replacement of such product. WE WILL NOT UNDER ANY CIRCUMSTANCES BE LIABLE TO ANYONE FOR ANY SPECIAL, CONSE-QUENTIAL, INCIDENTAL, OR OTHER INDIRECT DAMAGE OF ANY KIND.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

This warranty does NOT apply in the following circumstances: (1) when the product has been serviced or repaired by anyone other than us; (2) when the product has been connected, installed, combined, altered, adjusted, or handled in a manner other than according to the instructions furnished with the product; (3) when any serial number has been effaced, altered, or removed; or (4) when any defect, problem, loss, or damage has resulted from any accident, misuse, negligence, or carelessness, or from any failure to provide reasonable and necessary maintenance in accordance with the instructions of the owner's manual for the product.

We reserve the right to make changes or improvements in our products from time to time without incurring the obligation to install such improvements or changes on equipment or items previously manufactured.

This warranty gives you specific legal rights and you may also have other rights which may vary from state to state.

Your remedies under this warranty will be available so long as you can show in a reasonable manner that the defect occurred within one (1) year from the date of your original purchase, and we must receive your warranty claim no later than 30 days after such 1-year period expires. Your claim must be substantiated by a dated sales receipt or sales slip.

LOWRANCE ELECTRONICS
FULL ONE-YEAR WARRANTY

"We," "our," or "us" refers to LOWRANCE ELECTRONICS, INC., the manufacturer of this product. "You" or "your" refers to the first person who purchases this product as a consumer item for personal, family or household use.

We warrant this product against defects or malfunctions in materials and workmanship, and against failure to conform to this product's written specifications, all for one (1) year from the date of original purchase by you. WE MAKE NO OTHER EXPRESS WARRANTY OR REPRESENTATION OF ANY KIND WHATSOEVER CONCERNING THIS PRODUCT. Your remedies under this warranty will be available so long as you can show in a reasonable manner that any defect or malfunction in materials or workmanship, or any non-conformity with the product's written specifications, occurred within one year from the date of your original purchase, which must be substantiated by a dated sales receipt or sales slip. Any such defect, malfunction, or non-conformity which occurs within one year from your original purchase date will either be repaired without charge or be replaced with a new product identical or reasonably equivalent to this product, at our option, within a reasonable time after our receipt of the product. If such defect, malfunction, or non-conformity remains after a reasonable number of attempts to repair by us, you may elect to obtain without charge a replacement of the product or a refund for the product. THIS REPAIR, OR REPLACEMENT OR REFUND (AS JUST DESCRIBED) IS THE EXCLUSIVE REMEDY AVAILABLE TO YOU AGAINST US FOR ANY DEFECT, MALFUNCTION, OR NON-CONFORMITY CONCERNING THE PRODUCT OR FOR ANY LOSS OR DAMAGE RESULTING FROM ANY OTHER CAUSE WHATSOEVER. WE WILL NOT UNDER ANY CIRCUMSTANCES BE LIABLE TO ANYONE FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, OR OTHER INDIRECT DAMAGE OF ANY KIND.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

This warranty does NOT apply in the following circumstances: (1) when the product has been serviced or repaired by anyone other than us; (2) when the product has been connected, installed, combined, altered, adjusted, or handled in a manner other than according to the instructions furnished with the product; (3) when any serial number has been effaced, altered, or removed; or (4) when any defect, problem, loss, or damage has resulted from any accident, misuse, negligence, or carelessness, or from any failure to provide reasonable and necessary maintenance in accordance with the instructions of the owner's manual for the product.

We reserve the right to make changes or improvements in our products from time to time without incurring the obligation to install such improvements or changes on equipment or items previously manufactured.

This warranty gives you specific legal rights and you may also have other rights which may vary from state to state.

REMINDER: You must retain the sales slip or sales receipt proving the date of your original purchase in case warranty service is ever required.

LOWRANCE ELECTRONICS
12000 E. SKELLY DRIVE, TULSA, OK 74128
(800) 324-1356

How to Obtain Service...
...in the USA:

We back your investment in quality products with quick, expert service and genuine Lowrance parts. If you're in the United States and you have technical, return or repair questions, please contact the Factory Customer Service Department. Before any product can be returned, you must call customer service to determine if a return is necessary. Many times, customer service can resolve your problem over the phone without sending your product to the factory. To call us, use the following toll-free number:

800-324-1356
8 a.m. to 5 p.m. Central Standard Time, M-F

Lowrance Electronics may find it necessary to change or end our shipping policies, regulations, and special offers at any time. We reserve the right to do so without notice.

...in Canada:

If you're in Canada and you have technical, return or repair questions, please contact the Factory Customer Service Department. Before any product can be returned, you must call customer service to determine if a return is necessary. Many times, customer service can resolve your problem over the phone without sending your product to the factory. To call us, use the following toll-free number:

800-661-3983
905-629-1614 (not toll-free)
8 a.m. to 5 p.m. Eastern Standard Time, M-F

...outside Canada and the USA:

If you have technical, return or repair questions, contact the dealer in the country where you purchased your unit. To locate a dealer near you, visit our web site, **www.lowrance.com** and look for the Dealer Locator.

Accessory Ordering Information for all countries

To order Lowrance GPS accessories such as power cables or MMC cards, please contact:

1) Your local marine dealer, sporting goods or consumer electronics store. Most quality dealers that handle marine electronic equipment or other consumer electronics should be able to assist you with these items.

To locate a Lowrance dealer near you, visit our web site, www.lowrance.com and click on Support and then click Dealer Locator. Or, you can consult your telephone directory for listings.

2) U.S. customers: LEI Extras Inc., PO Box 129, Catoosa, OK 74015-0129

Call 1-800-324-0045 or visit our web site www.lei-extras.com.

3) Canadian customers can write:

Lowrance/Eagle Canada, 919 Matheson Blvd. E. Mississauga, Ontario L4W2R7 or fax 905-629-3118.

Shipping Information

If it becomes necessary to send a product for repair or replacement, you must first receive a return authorization number from Customer Service. Products shipped without a return authorization will not be accepted. When shipping, we recommend you do the following:

1. Please do not ship knobs or mounting brackets with gimbal units.

2. If your unit saves sonar logs or GPS data files to memory cards, make sure you have saved the data to a memory card and that the card has been removed from the unit, otherwise your data will be lost.

3. If you are sending a check for repair, please place your check in an envelope and tape it to the unit.

4. For proper testing, include a brief note with the product describing the problem. Be sure to include your name, return shipping address and a daytime telephone number. An e-mail address is optional but useful.

5. Pack the unit in a suitable size box with packing material to prevent any damage during shipping.

6. Write the Return Authorization (RA) number on the outside of the box underneath your return address.

7. For your security, you may want to insure the package through your shipping courier. Lowrance does not assume responsibility for goods lost or damaged in transit.

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