AirMap® 500
Handheld Mapping GPS Receiver
Operation Instructions

**For free owner's manuals and other information,
visit our web site:**
www.lowrance.com

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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.

Section 1: Read Me First!
How this manual can get you flying, fast!

Welcome to the exciting world of GPS! We know you're anxious to take off and begin navigating, but we have a favor to ask. Before you grab the batteries and head for the plane, please give us a moment or two to show you how to skip around our manual for the information you need. (Tips start on page 2.) We want to help you get the best performance from this versatile little GPS unit — in the air, on the ground and on the sea!

Before we go any further, we want to thank you for buying an AirMap® 500. Whether you're a first time GPS user or a professional navigator, you'll find that the AirMap 500 includes a complete set of powerful aeronautical mapping and navigation features, yet is easy to use. How easy? **Well, if you've already figured out how to load the card and batteries yourself, and you just *can't* wait any longer, turn to the Quick Reference on page 31 and head outside with your AirMap! You can be practicing touch-and-goes at a nearby airport in only 12 steps.**

Not in *that* big of a hurry? Good, because we *really* recommend you practice a bit before taking your AirMap aloft. The AirMap 500 is a true pocket-sized GPS+WAAS receiver, but its slim silhouette is crammed with lots of extra features and value. You don't need to learn them all right away, but a little practice on the ground *will* help you become familiar with AirMap's capabilities — and make you a safer pilot. Flying, of course, is why you bought an AirMap, but it's like having three different GPS receivers in one. Here are the other two reasons why.

Need business or pleasure travel directions or phone numbers after landing? You don't need another GPS — when you leave the cockpit, just slip your AirMap into pocket or purse and take advantage of the fully-functional Land Navigation Mode. With your own custom-built MapCreate™ 6 map, your AirMap can use a massive *searchable* Point of Interest database of businesses and attractions to lead you to your final destination. (Land Mode Operation is described in Section 4; Searching is covered in Section 6.)

And AirMap performance doesn't stop at the water's edge. If your destination is a boating or fishing adventure, your AirMap will help you safely navigate the Great Lakes and coastal U.S. waters with our 70,000 item database of marine navigation aids, wrecks and obstructions. (This also requires a MapCreate map; functions are discussed in Section 4. The MapCreate manual has an Easy Mode Quick Reference of its own; it'll help you make a map in just 6 steps.)

Whether your AirMap 500 is the only GPS in the cockpit or backing up an in-panel display, you're using the most versatile and most affordable hand-held GPS receiver in the aviation market today.

Our goal for this book is to get you in the air (or out on the road) fast, with a minimum of fuss. Like you, we'd rather spend more time flying, 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.

You may be the button-pushing type who just likes to play with the GPS first, before peeking inside the manual. That's fine, because Air-Map menus have a pop-up Help feature that will answer many of your questions. If this is your learning style, turn to the installation instructions in Section 2, then step outdoors with your unit. When you come to a menu command you want to learn more about, jut turn to the Table of Contents or the Index and look it up.

The manual is organized into six sections. If you're new to GPS, prefer a tutorial approach to learning or just want to explore more of the awesome features in your AirMap, we suggest you skim some of these sections more closely.

This first section is an introduction to AirMap, GPS and WAAS. It tells you the basics you need to know before you can make AirMap look around and tell you where you are.

Section 2, *Installation*, will help you get the batteries and MultiMedia Card (MMC) correctly installed in your AirMap. (The card contains the Jeppesen® Americas and Lowrance Obstructions aeronautical databases.) We'll also show you how to install the RAM® mounting bracket on a yoke and the RAA-3 remote active antenna in an aircraft window or on top of the instrument panel.

Section 3 is really the heart of our book, *Aviation Mode Operation*. It will introduce you to the *basic* airborne GPS functions. This section includes the one-page Aviation Mode Quick Reference we mentioned earlier. The rest of Section 3 contains short, easy-to-scan lessons that follow one another in chronological order. They're all you'll need to know to get in the air quickly.

Aviation Mode instructions are only 28 pages long, and these lessons will meet the navigation needs of many pilots. But, after you've learned

the basics (or if you already have some GPS experience), you may want to try out some of AirMap's many advanced features. That brings us to Section Four, *Land Mode Operation*, which also includes its own one-page quick reference. After we introduce the Land Mode menus and submenus, the rest of the section contains AirMap's more advanced command functions.

Your AirMap 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 them in Section 5, *System Setup and GPS Setup Options*. This section covers both Aviation Mode and Land Mode options.

Finally, in Section 6, we go into more detail on one of AirMap's most remarkable capabilities — Searching. We'll introduce a couple of search examples in both the Aviation and Land mode sections, but there are so many map and aeronautical items you can search for, we had to give this function its own section in the manual! For example, we mentioned telephone numbers earlier. Your AirMap can function as a virtual Yellow Pages, and we'll show you how in Section 6.

Now, if you're into the fine details, glance over the next segment on specifications to see just how much GPS power you hold in your hand. It's important to *us* (and our power users), but, if *you* don't care how many waypoints AirMap can store or how long the batteries last, skip ahead to important information on how AirMap works, on page 5.

Capabilities and Specifications

Display:............................ 3" (7.3 cm) diagonal high contrast Film SuperTwist.

Resolution:...................... 240 pixel x 180 pixel resolution; 43,200 total pixels.

Backlighting:.................. White LED screen backlighting for night and low-light viewing.

Input power:...................... 3 volts DC (two 1.5v AA batteries); operates up to 12 hours on batteries when using one-second position updates (longer update rates and optional power saving settings further extend battery life, but will reduce GPS accuracy). Cigarette lighter power adapter included.

Case size:......................... 5.6" H x 2.5" W x 0.9" D (142 x 65 x 25 mm); water resistant to IPX-2 standards.

Weight:............................. 7.68 ounces (219 grams) with batteries.

Receiver: .... Internal, 12 parallel channel GPS+WAAS; advanced active remote external antenna included.

Recording: .... Removable MMC or SD memory cards for recording GPS trip details, displaying custom maps, upgrading operating system software and transferring trip data to personal computer without a slow serial connection. USB card reader included with unit.

MMC slots: .... One, inside battery compartment. Accepts non-proprietary MMC or SD memory cards.

Aeronautical map: .... Jeppesen® Americas database with airports, VORs, NDBs, intersections and airspaces (including Class D). Lowrance Obstructions database displays ground obstructions in AGL or MSL heights.

Background map: .... Built-in custom, detailed Lowrance map. Contains: low-detail maps of the whole world (containing cities, major lakes, major rivers, political boundaries); and medium-detail maps of the United States (containing all incorporated cities; Interstate, U.S. and state highways; Interstate highway exits and exit services information; large- and medium-sized lakes and streams.)

Custom mapping: .... Accepts custom, higher-detail MapCreate™ 6 mapping on memory cards, with searchable Points-of Interest database of hotels, restaurants, shopping, services and more. Navionics® charts (XL charts or HotMaps™) on MMC cards optional.

Mapping memory: .... Up to 256 MB on one MMC (MultiMedia Card) or SD (Secure Digital Card.)

Position updates: .... Every one second.

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

Graphic symbols for waypoints or event marker icons: .... 42.

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

Plot Trails: .... 99 savable; up to 9,999 points per trail.

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Nearest Airport: .... Quickly locates an airfield closest to your current position. (Aviation Mode only.)

Man Overboard:............. MOB feature precisely marks man overboard location with special icon, then automatically displays navigation data to that position. (Land Mode only.)

Com Port:........................ One serial communications port, NMEA 0183 version 2.0 compatible. Allows exchange of position data with another device, such as an autopilot or personal computer. Optional combination serial/power cable available.

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

NOTE:

The above memory capacities refer only to AirMap's on-board memory. The amount of GPS data you can record and save for recall later is only limited by the number of MMC cards you carry with you.

How AirMap Works

You'll navigate faster and easier if you understand how AirMap 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 AirMap as a small but powerful computer. (But don't worry — we made AirMap so easy to use, you don't need to be a computer expert to find your way!) The unit includes a keypad and a screen with menus so you can tell AirMap what to do. The screen also lets AirMap show your location on a moving map, as well as point the way to your destination.

This pocket-sized computer also contains an antenna and specialized scanning receiver, something like your car radio. But instead of your favorite dance tunes or VOR signals, this receiver tunes in to a couple of dozen GPS satellites circling the earth. (WAAS satellites, too, but more about them later.)

AirMap 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 AirMap figures its latitude and longitude, it plots that position on the map shown on the screen. While the screen is updated once a second the internal calculations are done several times a second.

The performance doesn't stop there. Stored in the permanent memory of each AirMap is a basic background map of the *entire* world. (For just what's in the map, see the preceding segment on specifications.) We lock it in here at the factory — you can't change or erase this map.

The background map, along with the Jeppesen and Lowrance aeronautical databases, are all you need for aerial navigation. (Your unit reads these databases automatically from the MMC card included in the package.)

The background map is also suitable for many land and marine navigation chores, but for maximum surface accuracy and much more detail, you need a custom map from MapCreate 6. Some AirMap features — such as searching for businesses and addresses — won't work without a custom MapCreate Map. There is so much detail in our background map (and even more in MapCreate) that we'll compare their contents and differences in Section 3, *Aviation Mode Operation*.

Another portion of AirMap's onboard memory is devoted to *recording* GPS navigation information, which includes waypoints, event marker icons, trails and routes. This lets you plan a route for a flight or look back the way you came. Think of this data storage like the hard drive memory in a computer. You can save several different GPS data files, erase 'em and record new ones, over and over and over again. Like any computer file, these **GPS Data Files** (file format *.usr) can be shared between AirMaps, other Lowrance GPS or sonar/GPS units, even personal computers.

AirMap has one more thing in common with a personal computer. Just as computers have a floppy disk drive for storing and exchanging files, AirMap has a slot for an MMC (MultiMedia Card) or SD card (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 256 MB in size. (Compare that to a floppy disk's 1.44 MB capacity!) AirMap uses all that MMC space for two key 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 video 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 handy.) 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 AirMap's memory. (**NOTE:** No matter where they come from, GPS Data Files *must* be loaded from the MMC into memory before AirMap can use them.)

As we mentioned earlier, the other key use for MMCs is storage of the aeronautical databases and high-detail maps from MapCreate. These

Custom Map Files (file format ***.lcm**) can also be shared between Air-Maps, other Lowrance GPS or sonar/GPS units and personal computers.

You make your own Custom Map Files with our MapCreate software, but you don't have to. We also sell ready-to-use FreedomMaps™. These custom maps are pre-loaded on MMCs. (No computer work required!).

Introduction to GPS and WAAS

Well, now you know the basics of how AirMap does its work. You might be ready to jump ahead to Section 2, *Installation & Accessories,* on page 11, so you can install the batteries. 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 9. 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.

First of all, why are pilots so excited about GPS navigation? GPS is more accurate than other navaids, such as VOR and NDB. GPS is free of environmental limitations that affect other navigation systems and it's available worldwide. GPS receivers like your AirMap are highly affordable, easy to use and not confined to your cockpit! GPS frees a pilot to accurately navigate to or from virtually any map place on earth — navigation is no longer limited to the aeronautical navaid network. With a mapping GPS, a pilot always knows exactly where he is. A GPS receiver makes it easier for a pilot to apply wind correction angles and fly true headings, as well as determine true ground speed.

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.
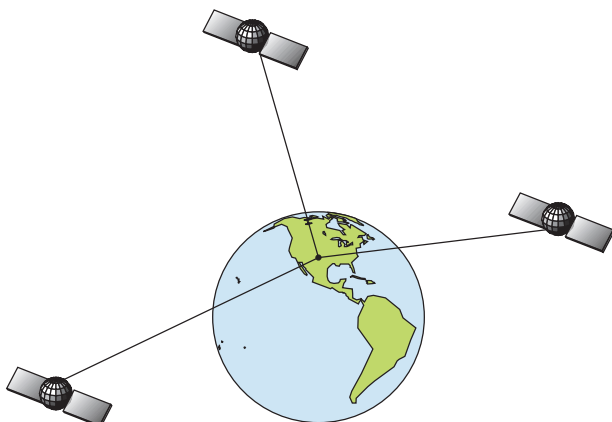
A minimum of three satellites are required to determine a 2D fix.

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, a wing, even your body.

Like most GPS receivers, AirMap 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 AirMap 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 boat trolling speeds — it will. There will simply be more "wandering" of the data shown on the display.

GPS is plenty accurate for route navigation, but the U.S. Federal Aviation Administration has special needs for aircraft traffic control that go beyond basic GPS. The FAA has a plan under way to boost GPS performance even further with its Wide Area Augmentation System, or WAAS. This GPS add-on will include a time control element that will help airliners fly closer together while avoiding collisions. In addition to carefully spacing airplanes along travel corridors, WAAS will eventually make instrument landings and takeoffs more accurate as it replaces existing aviation navigation systems.

WAAS signals make your GPS navigation even more accurate. Your AirMap automatically receives both GPS and WAAS signals. However, WAAS has some limits you should know about.

First, the U.S. government has not completed construction of the WAAS system, so it is not yet fully operational. The ground stations are in place, but only a few of the needed WAAS satellites have been launched.

WAAS *can* boost the accuracy of land and marine GPS navigation, but the system is designed for aircraft. The satellites are in a fixed orbit above 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 frequently block the WAAS signal from ground receivers.

You'll find that using your GPS+WAAS receiver is both easy and amazingly accurate. It's easily the most accurate method of electronic navigation available to the general public today. Remember, however, that this receiver is only a tool. As this manual goes to press, the FAA has not yet certified any hand-held GPS+WAAS receivers for use as the sole navigation aid for VFR pilots. Always have another method of navigation available, such as a sectional chart and your aircraft's magnetic and gyro compasses, or a conventional nav/com radio.

Also remember that this unit will always show navigation information in the shortest line from your present position to an airport, VOR or other waypoint, regardless of obstacles and 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 and rising terrain, no matter how you're using this product.

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 paragraphs below 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 also help you move around the AirMap 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/Save" 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: **SYSTEM SETUP**. 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 AirMap are described as a sequence of keystrokes and selecting menu commands. We've written them in a condensed manner for quick and easy reading.

For example, instructions for deleting all icons from memory would look like this:

1. Press **MENU** | ↓ to **DELETE MY ICONS** | **ENT** | **ENT**.
2. Press ← to **YES** | **ENT**.
3. Press **EXIT**.

Translated into complete English, step 1 means: "Press the Menu key. Next, press the down arrow key to scroll down the menu and select (highlight) the Delete My Icons menu command. Finally, press the Enter key twice."

Step 2 means: "Press the left arrow key to select Yes, then press Enter."

Step 3 means: "Press the Exit key to clear the menu and return to the Map Page."

Important Keyboard Shortcut Tip:

There are often three ways to move around an AirMap menu. For simplicity, we've written our instructions using the Enter key (**ENT**) to complete a move from one menu to the next. However, many commands have shortcuts that will help your fingers fly across the keys. Almost every page menu command lets you press ← or → *instead of* **ENT**. This is always true for commands with an ellipses (**MAP DATA…**) or an arrow (**GPS SETUP ▶**). Our menus also "wrap around;" that is, they form a circular loop. This means when you open a menu and need to reach the bottom command, you can get there by pressing ↑ one time *instead of* holding or repeatedly pressing ↓. A cockpit can be a busy place; practice with these shortcuts and you can run AirMap commands faster, with less finger movement from key to key.

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Section 2:
Installation & Accessories

Power

The AirMap operates from AA batteries or on 3 volts DC using an optional external power cable with a cigarette lighter adapter. If the power cable is used, the AirMap automatically switches to it if the external power is greater than the battery voltage. If the external power fails, the unit automatically switches to the batteries.

NOTE:

Some pilots like to keep fresh batteries in their units, even when using the external power. If the power fails, the unit will automatically switch to the batteries, thus keeping the unit on without interruption.

Warning!

With earlier Lowrance Aviation units, some pilots liked to remove the cigarette lighter plug from the adapter cable and splice the exposed wires directly to their dash consoles. However, the AirMap 500 cigarette lighter adapter contains *in the plug* a voltage regulator to convert 12 volts down to about 3. Without this regulator, connecting your unit to a 12-volt power source will destroy the unit – and this damage will not be covered by your warranty.

Flash memory and an internal lithium battery will keep your stored data safe and accessible for the life of the product.

Batteries

The unit requires two, 1.5 volt AA batteries. We recommend that you use alkaline batteries for the best trade-off between battery life and cost. We recommend DURACELL® brand, but other brands will work. If you're looking for an extended-life battery, the Duracell® ULTRA battery has performed well in our tests.

You can also use rechargeable AA alkaline batteries, such as those made by RAYOVAC®, or rechargeable AA nickel metal hydride (NiMH) batteries. We do not recommend nickel cadmium (NiCd) rechargeable batteries because you will get poor battery life.

Rechargeable alkaline batteries will not last as long as standard alkaline batteries. NiMH batteries are rechargeable and should also give you suitable battery life.

Do not mix different battery types. Mixing battery types may cause leakage. (For example, don't use both alkaline and NiMH batteries at the same time, and don't use standard alkalines with rechargeable alkalines.)

Battery Installation

Turn the unit over so that the back is facing you. Place your thumb on the large arrowhead on the battery compartment cover. Press in and down, toward the bottom of the unit (in the direction indicated by the arrow). The battery cover will snap off.

Remove AirMap battery cover.

Install the batteries according to the decal in the battery compartment, which shows the correct polarity. Point the positive pole of the upper battery to the left; point the positive pole of the bottom battery to the right.

Replace the battery compartment cover. Align the cover latch tab with the slot inside the case. With a finger, press the bottom of the cover in and then up, toward the top of the unit

**Replace battery compartment cover. Align
tab with slot, left. Press in cover bottom, right**

Cigarette Lighter Power Adapter

To use external DC power: Plug the power cable's cigarette lighter adapter into a cigarette lighter receptacle. Next, slide the other connector over the power contacts on the bottom of the AirMap case.

Attach external power cable to AirMap.

MMC or SD Memory Card Installation

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

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 were available in storage capacities of 8 MB, 16 MB, 32 MB and 64 MB. SD cards were available in capacities of 8 MB, 16 MB, 32 MB, 64 MB, 128 MB, 256 MB and up. We have tested SD cards up to 256 MB.

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 consumer electronics stores.

The MMC slot is located in the battery compartment, behind the batteries on the right side of the unit. The battery compartment decal points out the slot, which is also marked by small white letters on the circuit board.

To remove an MMC

1. Remove battery compartment cover.

2. Remove batteries, if present.

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3. Hold unit upright in left hand. Use a thumbnail or fingernail to grab the groove in the bottom of the MMC.

4. Drag the MMC from the slot into the battery compartment.

5. Hold AirMap face up and give it a shake to dump the MMC into your hand or onto a work surface.

To add an MMC or SD Card

1. Remove battery compartment cover.

2. Remove batteries, if present.

3. Hold unit upside down in left hand. Grasp the bottom corner of the MMC with your other hand. The MMC label should be toward you.

4. Use the white lines and text on the circuit board as a guide and drop the MMC into the slot.

5. Gently shake the unit or use your finger to nudge the MMC into vertical alignment. Then, gently push the card into the slot with your finger.

6. Replace the batteries and battery cover.

Aquabag Waterproof Travel Pouch Installation

The waterproof travel pouch keeps your GPS dry when the going gets wet. An adjustable neck strap on the pouch keeps your unit within reach. The pouch is made of a transparent material that is rugged, yet easy to see through. The pouch is flexible enough for you to operate the AirMap's keys with the unit inside. To use it, open the closure flap and unroll the anti-moisture baffle to open the bag. Slip the unit inside. Roll up the baffle and close the outer flap.

Insert AirMap into bag upside down, left. That makes it easier to read when wearing the unit around your neck, right.

External Active Antenna

A GPS antenna requires a clear view of the sky for optimum operation. Inside the cockpit, your AirMap can sometimes maintain satellite lock while sitting on the seat beside you, but we don't recommend this for optimum performance.

Since the "view" is restricted to what can be seen through the window, this operating mode will reduce position accuracy and will increase the chance of losing satellite lock. Inside a plane, the unit operates best with an external antenna mounted on the windshield or dash.

Attach AirMap antenna to windshield bracket with two screws.

You may achieve good results by simply placing the external antenna on the top of the dash, at the base of the windshield. Many pilots like to attach the antenna to the top of their instrument panel glare shields. Depending on the surface, a strip of adhesive Velcro® or a piece of the rubber non-skid shelf liner material available in recreational vehicle supply stores will help hold the antenna in place.

We recommend attaching the antenna to your windshield or other window. For this reason, the remote active antenna packaged with your AirMap includes a suction-cup mount. Be sure to mount the antenna in a location where it will not obstruct *your* view.

Press suction cup plate firmly against a window with unobstructed view.

Wherever you mount the antenna, make sure it is in a location with an unobstructed view of the sky. If you're sticking it to a window, moisten the suction cups on the mounting plate and press firmly against the window. Route the cable so that it won't interfere with flying. Then, simply plug the connector into the unit's antenna socket, located on the back, in the upper left corner of the case. The AM500 will automatically switch to use the RAA-3 remote antenna when plugged in.

R-A-M® Bracket Mounting System

A R-A-M® mounting bracket is shipped with your AirMap. The mounting arm and cradle can swivel on a ball for easy viewing in any type of vehicle.

Attach the mounting bracket to the stem of the yoke. Then, tighten the knob at the bracket's base to keep the bracket from sliding around on the yoke stem. Next, angle the arm so that the unit will be held in front of the yoke. When you are satisfied with the bracket position, tighten all the knobs to keep the bracket from shifting.

Find a good position for the R-A-M mounting bracket. Then, slide the AirMap into the bracket, inserting the bottom of the unit first.

Section 3:
Aviation Operation

This section addresses AirMap's main aviation GPS functions. The principles are the same in both operating modes, so this discussion also serves as a good introduction to Land Mode work.

Before you turn on AirMap and find where you are, it's a good idea to learn about the different keys, the five Page screens and how they all work together. BUT, if you just can't wait to get outside, grab the batteries and turn to the one-page *Quick Reference* on page 31.

Keypad

AirMap 500 keypad.

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

2. **PAGES** – Pressing this key switches the unit between the five different page screens in Aviation Mode. (Satellite, Position, HSI navigation, Map and Airport Orientation.) Each page represents one of the unit's major modes of operation.

3. **MENU** – Press this key to show the menus, which allow you to select or adjust a feature from a list.

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

5. **ENT/SAVE** (Enter & Save) – This key allows you to save data, to accept values or to execute menu commands. Also use it to quickly create waypoints or icons.

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

7. **FIND** ♣ (Direct To) – The Find key launches the AirMap search menus. It also allows you to go Direct To items shown in search lists.

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

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

Power/lights on and off

To turn on the unit, press **PWR**. To turn on the backlight, press **PWR** again. Pressing **PWR** once again will turn off the backlight. (Press **EXIT** to clear any message or alarm displays.)

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

Main Menu

Aviation Mode has a single Main Menu, which contains some function commands and some setup option commands. The tutorials in this section will deal only with primary functions, the basic commands that make Air-Map do something. These lessons are designed for use with the unit's options set at their factory defaults. But, if you want to learn more about the various option settings, see Sec. 5, *System Setup and GPS Setup Options*.

To access the Main Menu from any Page: press **MENU|MENU**. To clear the menu screen and return to the page display, press **EXIT**.

Main Menu, Aviation Mode.

The Main Menu commands and their functions are:

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

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

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Alarms command: turns arrival, off course and anchor GPS alarms on or off and changes alarm thresholds.

Aviation Alarms command: turns distance, time, near and inside airspace alarms on or off and changes alarm thresholds.

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

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

Cancel Navigation command: turns off the various navigation commands. Used to stop navigating after you have reached your destination navaid, waypoint, Point of Interest or map cursor location; or after you reach the end of a route or trail.

GPS Setup command: sets various GPS receiver options and runs the GPS Simulator.

System Setup command: sets general configuration options.

Utilities command: controls several aeronautical calculators and other time-related utilities. These include: E6B flight computer functions (true air speed, wind speed, etc.); sun/moon rise calculator; trip status and statistics, alarm clock, up timer and down timer.

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

Pages

Aviation Mode has five Page displays that represent the five major operating modes. They are the Satellite Status Page, the Position Page, the HSI Navigation Page, the Map Page and the Airport Orientation Page. They are accessed by pressing the **PAGES** key. Pressing **PAGES** repeatedly scrolls among the five screens in an endless circular loop.

Each Page has a submenu screen associated with it. You access a Page Submenu by pressing the **MENU** key one time while the page is displayed. (Pressing the **MENU** key twice takes you to the Main Menu.)

Satellite Status Page
This Page, shown in the following image, provides detailed information on the status of AirMap's satellite lock-on and position acquisition. To get to the Satellite Status Page: press **PAGES** repeatedly until the page you want appears.

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. This 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!**
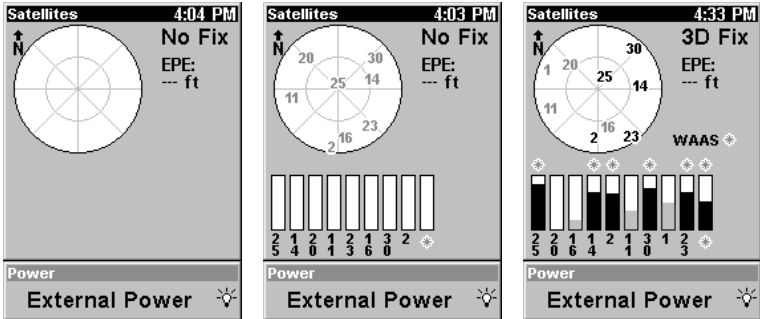
Satellite Page. Left view indicates unit has not locked on to any satellites and does not have a fix on its position. Center view shows satellites being scanned. Right view shows satellite-lock on with a 3D position acquired (latitude, longitude and altitude) and WAAS corrections. The bottom of the screen shows a battery power indicator with "E" for empty and "F" for full. The light bulb indicates the backlight is on.

This screen shows 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 you hold the unit facing north.

The GPS receiver is tracking 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 solve the position.

Beneath the circular graph are the 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.

The EPE, "Estimated Position Error" (horizontal position error) shown in the upper right corner of the screen is the expected error from a benchmark location. In other words, if the EPE 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.

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

Position Page

This page provides detailed textual information on your present position and the status of your trip. For example, it can display information such as your current latitude, longitude, travel time to destination and more. To get to the Position Page: press **PAGE** repeatedly until the page you want appears.

Position Page, left, Position Page Customize Menu, right.

The Position Page can be fully customized. The lower window can display ten of 22 types of navigation information. For customization instructions see the Customize Page Displays topic in Sec. 5, *System and GPS Setup Options*. Some of the popular information displays include:

Altitude is height above sea level, not ground level. **Speed** (ground speed) is the velocity you are making over the ground. **Closing Speed** is also known as velocity made good. It's the speed that you're making toward a destination.

Distance shows how far it is to the next waypoint you're navigating toward. **Total Distance** tells how far to a final destination when navigating a route or trail. If your route has multiple legs, this option will total them for you.

Travel Time (ETE) is the time it will take to reach your destination at your present closing speed. **Arrival Time (ETA)** is the local time that it will be when you arrive at the destination, based upon your present closing speed and track. **Total Travel** time tells how long it will take to reach a final destination when navigating a route or trail.

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 a destination. No matter what direction you are steering, the Bearing

shows the compass direction straight to the destination from your location at the moment. **Off Course** tells you how far you are to the left or right of the intended direction or line of travel toward a destination. Most of the unit's displays show Off Course as "Cross Track" or "XTK."

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

HSI Navigation Page

The HSI (Horizontal Situation Indicator) Navigation Page has a compass rose. It shows your direction of travel and the direction to a recalled waypoint or other destination, such as an airport or VOR. It can also show your intended course and whether or not you are on course or off course. To get to the HSI Page: press **PAGE** repeatedly until the page you want appears.

The navigation screen looks like the one in the following image when you're *not* navigating to a waypoint or other destination. No graphic course information is displayed. Your position is shown by an airplane symbol in the center of the screen. The arrow pointing down at the top of the compass rose indicates the current track (direction of travel) over the ground.

Track or compass heading indicator, showing direction of travel
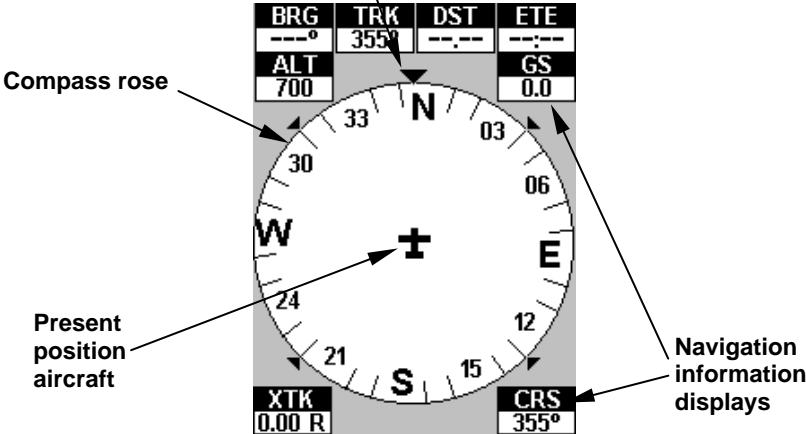
HSI Navigation Page, traveling north. Page looks like this when AirMap is not navigating to a waypoint, following a route, or backtracking a trail.
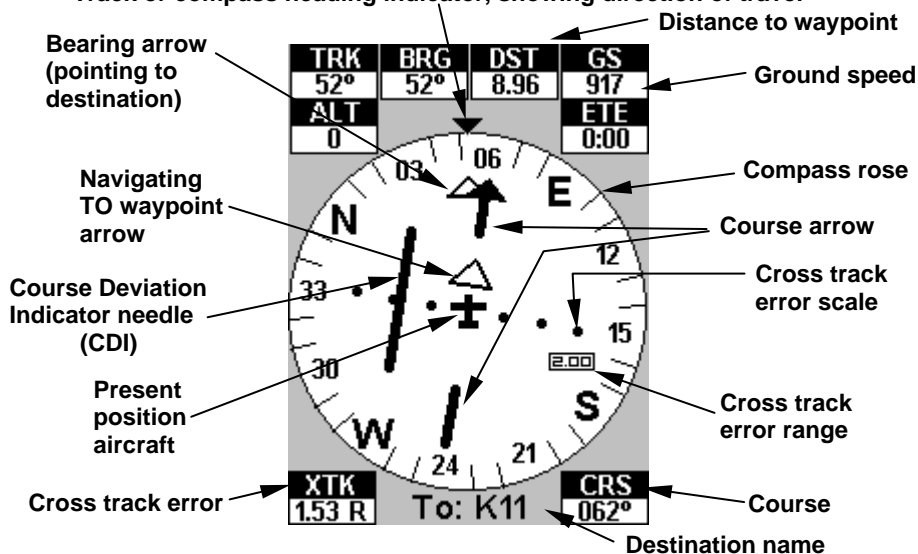
When navigating to a waypoint or following a route, the HSI screen looks like the one shown in the next image. Navigation information such as bearing, track and course can be shown in text displays.

Tip:

> You can fully customize the upper text displays, and there are 26 types of information to select from. For customization instructions see the Customize Page Displays topic in Sec. 5, *System and GPS Setup Options.*

The heart of this page is the Course Arrow with its Course Deviation Indicator (CDI) needle. It gives you a quick, easy to read visual indicator of the relationship between your current direction (track) and desired direction (course). Pilots familiar with "fly to the needle" VOR instruments or large in-panel GPS screens will quickly feel comfortable with this HSI feature.


HSI Navigation Page, flying TO K11 on a course of 62º. The pilot needs to turn left to "center the needle" and get on course. The plane is currently 1.53 nautical miles to the right of the course. The cross track error range is set at 2.00 nautical miles. The flight is 8.96 nautical miles from the target waypoint.

The course line is an imaginary line drawn from your position when you started navigating to the destination waypoint. It's shown on the HSI screen as a segmented course arrow. The cross track error is the distance you are off-course to the side of the desired course line. The current cross track error is shown in a text box (XTK), and graphically by the CDI needle, which is the middle segment of the course arrow.

Dots on either side of the course arrow show the current cross track error scale, which is a graphic depiction of the cross track error range.

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The default for the cross track error range is 2.0 nautical miles, which is shown in a floating text box under the scale. If you veer 2 nautical miles to the left or right of the course, the off course alarm will appear.

If you are off course to the right, the range box floats to the right of the course line. If you are off to the left, the range box appears to the left of the course arrow. You can use the **ZIN** or **ZOUT** keys to change the cross track error range.
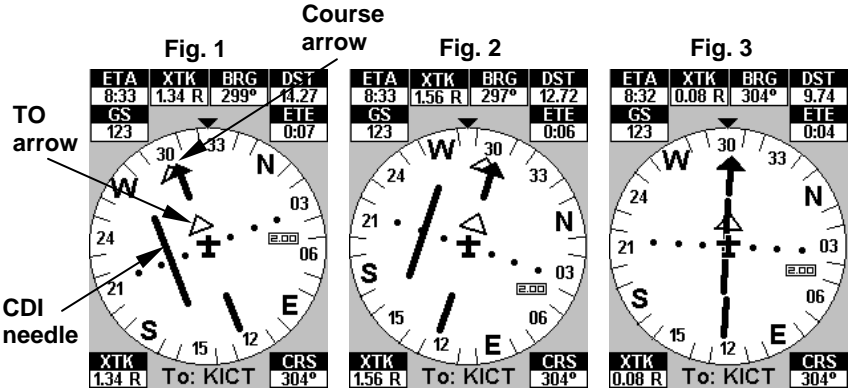
Following a course by "chasing the needle." Fig. 1, plane has veered off course to the right by 1.34 nautical miles, away from the needle. Fig. 2, pilot turns on heading of 297º, steering left toward CDI needle to intersect intended course. Fig. 3, pilot has intercepted his route and is virtually on course.

The most important graphic element, however, is the CDI needle. The CDI and the cross track error scale instantly show you the distance to the course line, as well as the direction to steer to get back on course. In the example above, fig. 1 shows the pilot off course to the *right*, so the CDI needle appears to the *left* of the plane symbol. Fig. 3 shows the pilot back on course, so the CDI needle appears to line up with the course arrow. If you steer toward the CDI needle line, you'll always be heading in the correct direction to get back on course.

NOTE:

The examples above all show navigation *to* a waypoint, the most common method of GPS navigation. To show navigation *from* a waypoint, see the instructions on the OBS Hold feature later in this section.

The HSI 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 HSI Page Menu: from the HSI Page, press **MENU**.

Navigating with OBS Hold

AirMap contains an OBS Hold feature to help you navigate along a radial *from* a location. You must first turn on navigation *to* a location before you can access OBS Hold. While running a route or navigating to a waypoint, you launch OBS Hold from the HSI Page; just press the right or left arrow to initiate it.
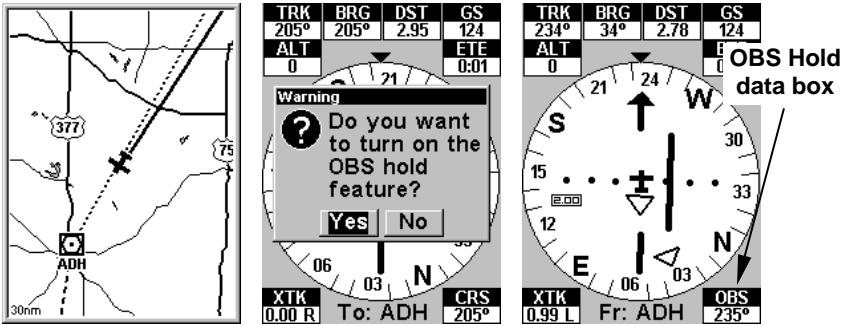
NOTE:

> You *must* be navigating *to* some destination to begin using OBS Hold. Usually this will be a VOR, or some other Aviation Waypoint in the Jeppesen database. See the entry *Searching* later in this section if you need help finding and setting up navigation to a waypoint.

In the example below, Air Traffic Control contacts the pilot flying south across Oklahoma and warns him of a dangerous storm ahead. To avoid it, they instruct him to fly out on a radial of 235° from the nearby VOR "ADH."

To use OBS Hold:

1. From the HSI Page, while navigating to something, press ← or →.

2. A window will pop up asking you if you want to activate OBS Hold. Press ←|**ENT**. Use ← or → to change the OBS Hold radial until it reaches the angle you need. Press ← to decrease the angle, press → to increase it.

Left, pilot navigating *to* VOR. Center, HSI Page with OBS Hold menu. Right, HSI Page with OBS Hold activated. Note data box in the bottom right corner showing OBS direction instead of Course. This image shows the pilot has passed the VOR and is flying from it.

The navigation data will now begin showing directions along the OBS radial instead of toward your original destination. The white arrow behind the airplane icon indicates you are navigating FROM a waypoint. Remember that you can change the radial of OBS Hold using the right and left arrow keys. Press ← to decrease the angle, press → to increase it.
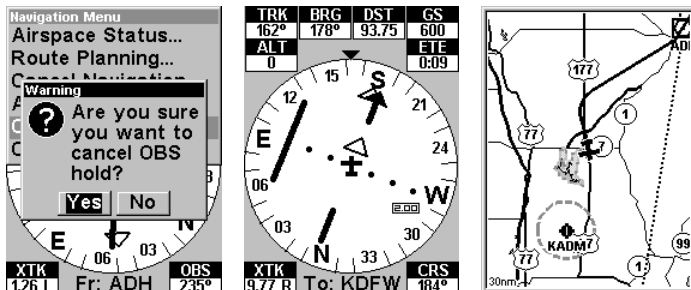
Use the Clear OBS Hold command to resume navigation. The HSI Navigation displays will point to your original destination again. At right, you can see the pilot's diversion in his trail on the map page.

You can turn off OBS Hold at any time using the HSI Page menu. Press **MENU|↓** to **CLEAR OBS HOLD|ENT**. The navigation data will once again direct you to your destination, or the next waypoint in the route you're navigating. Beginning navigation to a new destination will automatically clear OBS Hold, as well.

Map Page

The map screens (including the Airport Orientation Page) show your course and track from a "bird's-eye" view. By default, this unit shows the Map Page map with north always at the top of the screen. (This can be changed using options described in the topic *Map Orientation*, in Sec. 5.) If you're navigating to a waypoint, the map also shows your starting location, present position, course line and destination.

NOTE:

> When our text says "navigating to a waypoint," we really mean navigation to *any* selected item, whether it is a waypoint you made, a map feature or an item (like a VOR) from the Jeppesen database.

Using the map is as simple as pressing the **PAGES** key. A screen similar to those in the following images appears. The aircraft in the center of the screen is your present position. It points in the direction you're traveling. A solid line extending from the plane's tail is your plot trail, or path you've taken. (Remember, a flashing question mark on you plane symbol or flashing text displays means AirMap has not yet calculated a position.)

The map zoom range is the distance across the screen. This number shows in the lower left corner of the screen. In the first example below left, the range is 4,000 nautical miles from the left edge of the map to the right edge of the map.
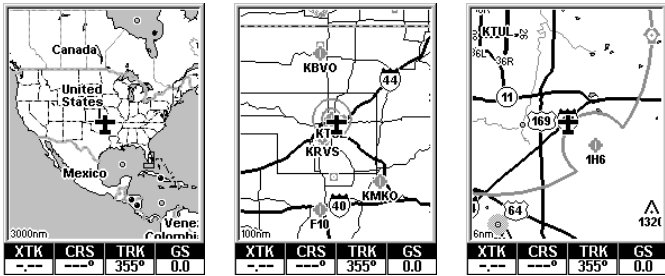
Far left, Map Page opening screen. Center, zoomed to 100 nautical miles and right, zoomed to 6 nautical miles. (Note that the four data boxes appearing in the bottom of these images are *on* by default. They have been turned off in most of the following images for the sake of clarity.)

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 nautical miles to 4,000 nautical miles.

AirMap's high resolution screen makes it possible to display aeronautical chart features that look like the "real thing." If you're familiar with sectional charts, you will instantly recognize items such as obstacles, VORs, special airspaces, paved and unpaved airports and more. As you zoom in closer, you'll see Class B airports appear at a fairly wide zoom. Zoom in closer and Class C and D airports appear, as well as restricted airspaces. At closer zooms still you can even see Class C airspace borders around airports.

If you're using only the factory-loaded background map, the maximum zoom range for showing *additional* land map detail is 6 nautical 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, and you can zoom in to 0.02 nautical miles with massive amounts of accurate map detail.
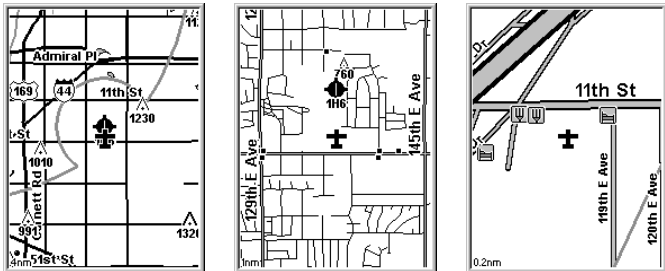
Map Pages with high-detail map of an urban area loaded on the MMC. At left, arterial streets appear at the 4 nautical mile zoom range. At 1 nautical mile, minor streets appear, along with square dots representing Points of Interest. Right, at the 0.4 nautical mile zoom, you can see an interstate highway with an exit, major and minor streets as well as Point of Interest icons for two hotels and two restaurants.

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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; county boundaries; some major city streets; Interstate, U.S. and state highways; Interstate highway exits and exit services information; large- and medium-sized lakes and streams; and more than 60,000 navigation aids and 10,000 wrecks and obstructions in U.S. coastal and Great Lakes waters.

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, of course, in MapCreate.
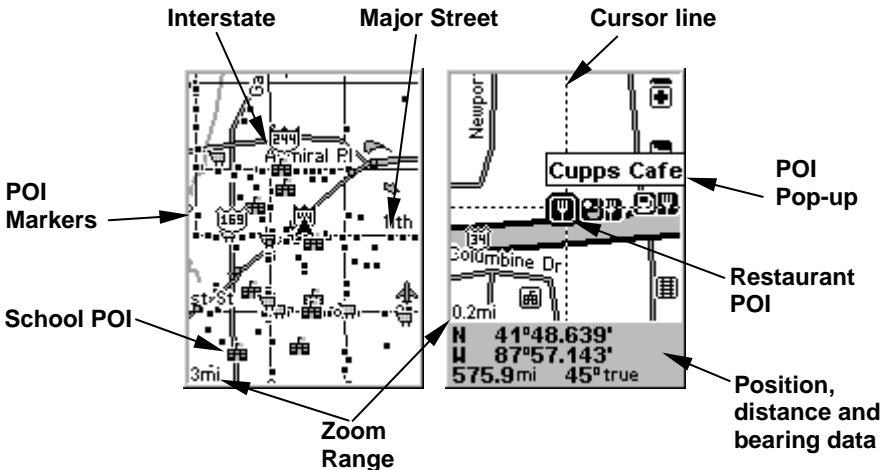
When the map is zoomed out far enough, most POIs appear as square dots. As you zoom in closer, the symbols become readable icons. In the 0.2 nautical mile zoom example at right, the cursor has selected the Cupps Café POI, which triggers a pop-up box with the POI name. This pop-up box works on POIs at 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. In the preceding figure, you can see a packed string of POIs all along the west half of 11th. 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, in Sec. 5. 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.

NOTE:

On the Map Page, the screen shows an indicator of what AirMap's microprocessor is doing behind the scenes. In the lower right corner of the screen, an MMC icon will flash when the AirMap is reading information from the MMC.

1. To get to Map Page: Map page is the default when AirMap is turned on. To switch from another page to the Map Page, press **PAGE** repeatedly until the page you want appears.

2. To get to Map Page Menu: press **MENU**.

Map Menu.

Map Page Menu

The map menu has many options. It allows you to get information on the airspace you're in with the Airspace Status command. You can also find distances, change the orientation of your map, view map data, and other helpful map functions. Read more about these functions in Sec. 5, *System Setup and GPS Setup Options*.
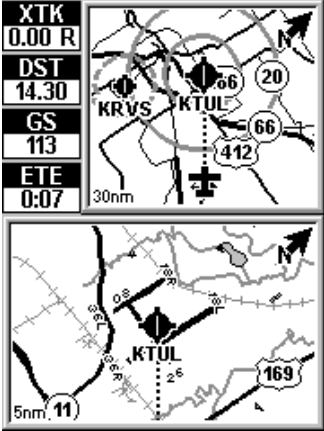
Airport Orientation Page

The Airport Orientation Page is a special version of the Map Page. This page only appears when you are navigating to an airport that has run-

way position information listed in our database. Then, when you press **PAGE** from the Map Page, it will switch to a split map, showing your current position in the top map, and a zoomed view of the destination airport in the bottom map. Both maps are always in "Track Up" mode.

There are several unique features built into the Airport Orientation Page. You will notice in the following image that we have added four customizable information displays on the left side of your position map. The default options are intended to help in navigating to a landing.

In fact, everything about this page is intended to help you navigate to a landing. The top position map is locked so that it will always show your location relative to the destination airport. It is permanently in auto zoom, so it will zoom in or out to keep you and the airport both on the screen.

The bottom airport map is not locked. You can scroll the cursor to look for obstructions or known landmarks on the map. You can zoom it in or out to get better detail or wider perspective. And, like the Map Page, pressing **EXIT** will snap the map back to its starting point – but now it returns to center on the airport, so you can always easily check your approach.

The Airport Orientation Page, showing an approach to Tulsa International Airport.

We've done everything we could with AirMap to make it a powerful navigation tool, but also to keep it simple to use. Sometimes describing all of the options AirMap contains can make it sound hard to use, but it's really not!

The following page contains a 12-step quick reference for the most basic aviation GPS operations. If for some reason you don't want to carry the manual with you as you practice with the AirMap, you might consider photocopying this quick reference page and tucking it into your pocket or flight bag.

Aviation GPS Quick Reference

Start outdoors, with a clear view of open sky. Imagine you're flying to a nearby airport to practice landings. (If you're practicing on foot or by car, substitute a restaurant for an airport. Pick one a few blocks away. While learning, navigation in too small an area constantly triggers alarms.

1. Insert the MMC and batteries. Mount AirMap on the yoke. Connect to electric power and the active antenna. (See install details on page 11.)

2. Turn on the AirMap: press and release **PWR** key. Press **EXIT** to clear each of the two warning and copyright message screens.

3. Opening screen– displays map of North America at the 4,000 nautical mile zoom range. Rotate through four main Page screens (Map Page, Satellite Status Page, Position Page and HSI Navigation Page) by repeatedly pressing **PAGES** key. Switch pages to display Satellite Status Page.

4. <u>Wait</u> while unit locates satellites and calculates current position. Process is visible on Satellite Page. This takes an average of 1 minute or less with sky unobstructed by terrain or structures. When the unit acquires position, a tone sounds and a position acquired message appears.

5. With position acquired, press **PAGES** key to display Map Page, which shows a bird's eye view of the earth. You can move around 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.

6. At the airport, set a waypoint (*Wpt 001*) at your current position so you can navigate back here: press **ENT|ENT**. Waypoint symbol and "001" appears.

7. Zoom/scroll map to find a nearby airport to go to. Use arrow keys to center cursor cross-hair over the airport symbol or wherever you want to enter the pattern.

8. Navigate to airport: press **MENU|↓** to **Go To Cursor|ENT|EXIT**, and take off. Follow dotted course line on Map Page or Course Arrow on HSI Navigation Page. (Remember to "steer to the needle.")

9. At airport, Arrival Alarm goes off; to clear it, press **EXIT**. Enter pattern and land. Cancel navigation: press **MENU|MENU|↓** to **Cancel Navigation|ENT|←** to **Yes|ENT**.

10. Return to Wpt 1 by Navigate To Waypoint: press **FIND|↓** to **My Waypoints|ENT|ENT**. Use ↑ or ↓ to select *Wpt 001*, press **ENT|ENT**; follow navigation displays.

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

12. To turn off AirMap, press and hold **PWR** key for three seconds.

Find Your Current Position

Finding your current position is as simple as turning AirMap on. Under clear sky conditions, the unit automatically searches for satellites and calculates its position in approximately one minute or less.

NOTE:

> "Clear sky" means open sky, unobstructed by terrain, dense foliage or structures. Clouds do not restrict GPS signal reception.

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 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 perspective. 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 walking or riding in a vehicle, 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 launches the crosshair map cursor. This allows you to look at map places other than your current position. To clear the cursor, press **EXIT**, which jumps the map back to the current position or the last known position.
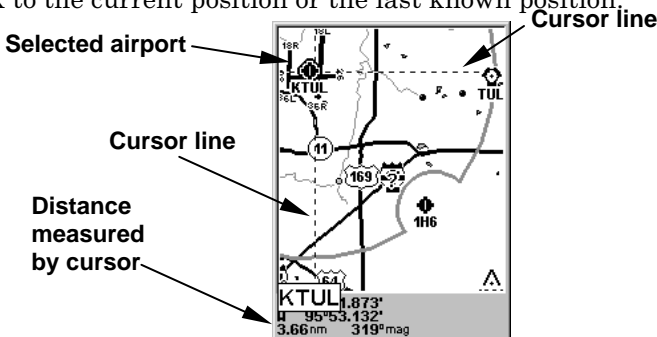
The selected airport to the northwest is 3.66 nautical miles away.

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

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object or place. The distance, measured in a straight line, appears in the data box at the bottom of the map. Press **EXIT** to clear the cursor.

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 cross-hair on the desired object. On most items, a pop-up box will give the name of the selected item.

You will also notice a black ring surrounds the item as it becomes selected. Once that happens, if you press **FIND** the Find Menu will pop up with an extra option at the top of the list: **SELECTED ITEM**. Press **ENT** to see the Information screen for the selected item.

Searching

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

In this example, we'll look for the *nearest* VOR. For more information on different types of searches, refer to *Sec. 6, Searching*.

NOTE:

This example requires the Jeppesen database included with your Air-Map.

After AirMap has acquired a position:

1. Press **FIND** | ↓ to **FIND VORS** | **ENT**.

2. You could search the VOR category by any of these four criteria (by Nearest, by Name, by Identifier or by City), but in this example we will just search for nearest. When the Find By menu pops up, press **ENT**.

3. AirMap says it is calculating, then a list of VORs appears, with the closest at the top of the list, and the farthest at the bottom of the list. The nearest is highlighted.
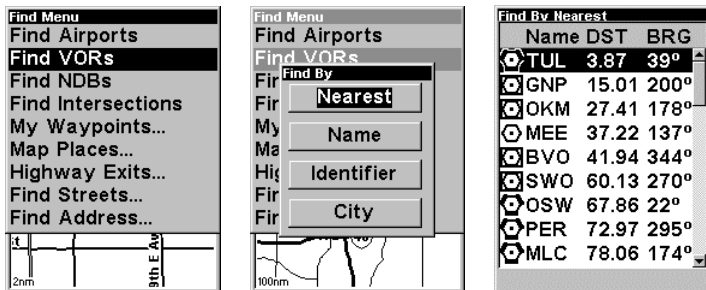
Find VORs Menu, left; Search Criteria menu, center; and list of the nearest VORs, right.

4. If you wish, you could scroll ↑ or ↓ here to select another VOR, but for now we will just accept the nearest one. Press **ENT**.

5. The waypoint information screen appears. If you wanted to navigate there, you press **ENT**, since the **Go To** command is highlighted. But we just want to see it on the map, so press → to **FIND ON MAP | ENT**.
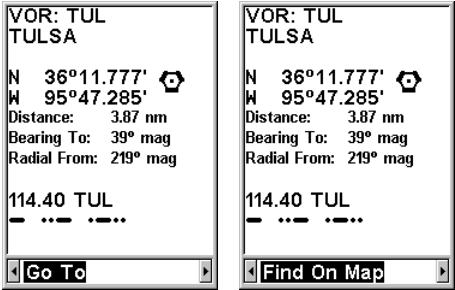
Waypoint information screen on VOR nearest this position. Screen shows name, identifier, city, radio frequency, latitude/longitude and its compass bearing. It also shows both distance to the VOR and your "Radial From" – information ready at your fingertips when Air Traffic Control wants a position report! The figure at left shows Go To command; right figure shows Find On Map command.

6. AirMap's map appears, with the cross-hair cursor highlighting the VOR's symbol. A pop-up name box identifies the VOR. A data box at the bottom of the screen continues to display the location's latitude and longitude, distance and bearing.
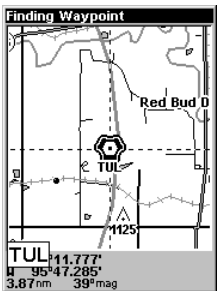
**Map screen showing Finding Waypoint,
the result of a VOR search.**

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

NOTE:

Search works from mapping data loaded in AirMap. Aviation Navigation searches also use information from a Jeppesen database, and

General Navigation searches use POI information available with a MapCreate custom map. If you do not have a high-detailed Jeppesen map (or a custom map containing POI data) for the area you are searching loaded on the MMC, you may not find anything.

Find Nearest Airport (shortcut)

One of flying's most terrifying events is having to make an emergency landing. This situation can be deadly at any time. It's particularly dangerous when you're flying over unfamiliar territory, with no idea where you can safely stop. Of course, the first thing to do is remain calm and follow all standard emergency procedures. Naturally, no instrument by itself can get you through an emergency situation, but we have done our best to provide you with the tools you need as a pilot.

One of these emergency tools in the AirMap is a Find Nearest Airport feature that automatically locates, selects, and shows navigation data to the airport nearest the location where the feature was activated. To activate Find Nearest Airport, press the **ZOUT** and **ZIN** keys at the same time. A Find By Nearest screen appears, showing a list of the closest airports. Use ↑ or ↓ to select the best airport for your situation. Then you can press **ENT** to get detailed information about the airport, or press ⮕ to begin navigating to the selected location.

Navigating to Nearest Airport with the AirMap

Find your way to the selected airport with the HSI Navigation Page or Map Page. Any time navigation is activated, the HSI Navigation Page shows the compass rose with its bearing arrow pointing toward the desired destination position, and the destination name shown below. The Map Page displays a dotted line from your start point to the desired airport, and the Airport Orientation Page shows your position in the top map, and the position and orientation of the selected airport in the bottom map.

Tip:

You don't need to have an emergency to use the Find Nearest Airport feature. You can also use it to maintain positional awareness by finding the nearest landing strip at any time.

To cancel navigation to Nearest Airport, press **MENU**|**MENU**|↓ to **CANCEL NAVIGATION**|**ENT**|← to **YES**|**ENT**. AirMap stops showing navigation information.

Setting a Waypoint

A waypoint is simply an electronic "address," based on the latitude and longitude of a position on the earth. Both the Aviation and the Land mode allow you to save waypoints to mark specific locations you'd like to

return to (or maybe send a friend to, or even specifically *avoid*). To save a waypoint: 1. Press and release **ENT**. 2. The **CREATE WAYPOINT** menu appears, with the **QUICK SAVE** method selected. To place a waypoint at your current cursor position, press **ENT**. The waypoint icon appears on the map, and a pop-up box tells you the waypoint's name (in this case, "001."
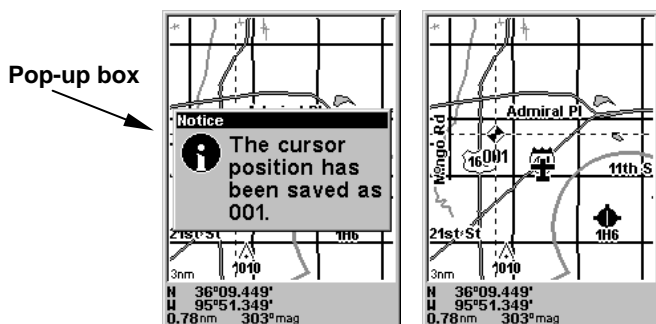
Create a waypoint. The pop-up box with waypoint name is shown at left. At right, you can see Waypoint 001, with the default waypoint symbol.

This example shows a waypoint set at the cursor location. If the cursor was not active, the point would be placed at the current position.

Navigate Back to a Waypoint
To navigate to a waypoint that you've created:

1. Press **FIND|↓** to **MY WAYPOINTS|ENT|ENT**. Press **↑** or **↓** to select from the list the waypoint you want to navigate to, then press **ENT**. Use the navigation arrows on the Map Page or the compass rose on the HSI Navigation Page to make your way to the selected waypoint.

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

Navigate to Cursor Position on Map
The **Go To Cursor** command navigates to the current cursor position on the map.

To navigate to a particular location on the map, find location, then select the location with cursor. Use the Go To Cursor command to lead you there:

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. If you have selected a location that contains navigation information, the icon you're pointing at will be highlighted, indicating it's selected. See the example below.
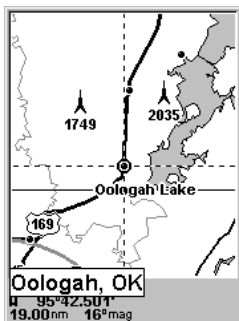
Navigate to cursor. In this example, the cursor has selected the town of Oologah, Oklahoma.

3. Press **MENU|↓** to **GO TO CURSOR|ENT** and AirMap will begin navigating to the cursor location.

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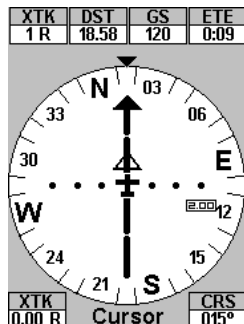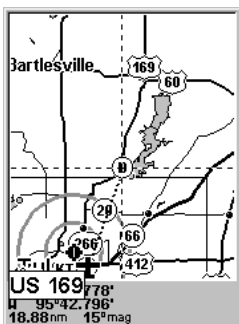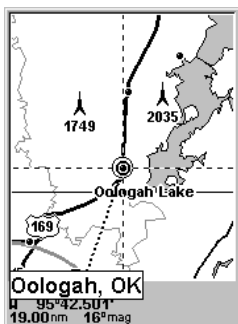
The 15- nautical mile zoom figure at left clearly shows the dotted course line connecting your current position to your destination. The 40- nautical mile zoom, center, shows both current position and destination on screen. The HSI Navigation Page, right, will also show navigation information.

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

Navigate to a Point of Interest

AirMap can navigate to any Point of Interest (POI) you can look up with the **FIND** key. (For help with **FIND**'s searching capabilities, see the entry on Searching earlier in this section, or turn to *Sec. 6, Searching*, for detailed instructions.)

After you have looked up an item with the find command, use the ← to make sure the **Go To** command is highlighted at the bottom of the screen, then press **ENT**. AirMap begins showing navigation information to the item.

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

Go "Direct To" (Using the Direct To Button)
You will notice a symbol on your **FIND** button that looks something like this: **Ɗ➧**. In addition to launching searches, the Find/Direct To button also serves several other purposes, depending on when it is used.

For instance, you can use the Direct To shortcut in searches. Let's say you've done a search for nearest VOR, and a long list of VORs appears. You scroll through the list and select the one you want to navigate to. Instead of pressing **ENT** (which would bring up an information screen), if you press **Ɗ➧** it will automatically begin navigating to the selected item in the list.

You can also use Direct To when navigating a route, to force AirMap to navigate toward a particular waypoint in the route. To do this (from the Map Page), press **MENU|MENU|↓** to **ROUTE PLANNING|ENT|↓** to *route*|**ENT**. Now press ↓ to select the waypoint you want from the list, and then hit **Ɗ➧**. The AirMap will automatically begin navigating to the selected waypoint, and on arrival will continue navigating the route from there.

Airspace Status
The AirMap can show you information about any airspace contained in its database. While you are in motion, you can press **MENU|ENT** to run the **AIRSPACE STATUS** command. (You can also press **ENT** whenever an Aviation Alarm goes off to see this screen for the airspace that triggered the alarm.) A screen like the one in the following image appears, showing you information about any controlled airspaces that you are currently approaching.

**Airspace Status page, showing information about
DFW International Airport.**

Press ← or → to cycle through the various information pages. Press **EXIT** to clear the Airspace Status page and return to the previous page.

Airport Information

We've already mentioned the waypoint information screen – this screen pops up whenever you view the details of a selected item from the map, or when you select an item from a search list. Different information appears on the information screen depending on what kind of map object you have selected. Earlier, we had an example of a VOR information screen, complete with radio frequency and Morse identifier.

In the AirMap, airports have information screens *packed* with useful information. They include much of the same information as a VOR information screen. In addition, airport information screens contain a line drawing showing the general layout of the airport's runways. Also, note that the radio frequencies listed at the bottom make a much longer list. You can press ↓ at the information screen to scroll down and see all of these frequencies.

When you first open the airport information screen, you'll see "Go To" highlighted at the bottom. You already know how to use GO TO AND FIND ON MAP, but airports have two more options: RUNWAYS and SERVICES.
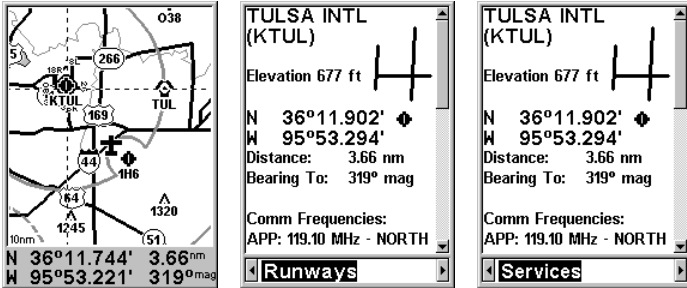
Airport information screen. Runways selected center, and Services at right.

Runways

The Runways screen shows you everything AirMap knows about the runways at the selected airport. Display boxes contain the runway surface type, its length, its width and the light available.
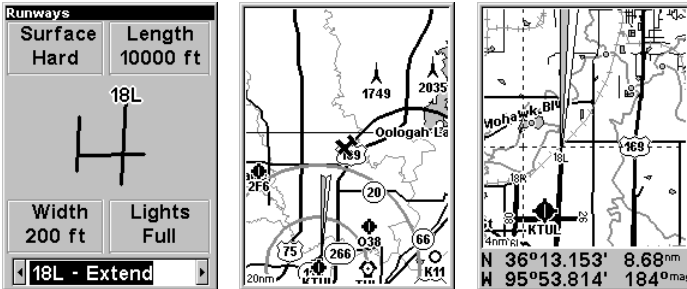
Runways screen at left, with Extend option select. Center, map shows the fan-shaped Runway Extension north of the airport. At right, you can see where the runway extension begins at the very end of runway 18L.

At the runways screen you can press ← or → to cycle through the airport's runways. In the previous image, you can see we've selected 18L, so all of the information shown refers to that particular runway.

The previous images show not only the information available on this screen, but also the Runway Extension feature. To turn on a runway extension, use ← or → to select the desired runway, then make sure the box at the bottom of the screen says "Extend" next to the runway name. (As long as we have sufficient information about it in our database, AirMap can display a runway extension for any runway.) Press **ENT** and the runways screen will go away, returning you to the airport information screen. Now you can press **EXIT** to see the runway extension on the map.

Runway extensions are meant to serve as visual references to help you orient the plane as you approach an airport for a landing. The extension appears as a fan-shape, with its tip pointing directly to the foot of the runway you're approaching. This allows you to navigate toward the wider end of the fan, so once you turn down the extension you can easily judge how far you've got to touch-down.

To turn off an airport extension, press **MENU**|↓ to **CLEAR RUNWAY EXT.**

Services
The Services screen shows you all of the published services available at the selected airport. You can press ↑ or ↓ to scroll through the listed items, in case the list runs past the bottom of the screen.

Airport Services screen for KTUL (Tulsa International).

Transfer Custom Maps and GPS Data Files
Custom maps work only from the MMC card or SDC card. When a card containing a Custom Map File is loaded into the unit, AirMap 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 6 software. For instructions on inserting an MMC into AirMap, *see Sec. 2, Installation/Accessories.*

GPS Data files, containing waypoints, routes, trails and event marker icons, must be copied from an MMC to AirMap's internal memory before AirMap can read them. Here's how:

1. Press **MENU|↓** to **TRANSFER MY DATA|ENT** and the screen in the following image appears.
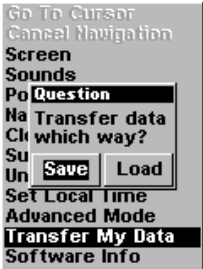
The Transfer My Data submenu asks if you want to save data to the MMC or load data from the MMC into AirMap's memory.

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 AirMap in order to activate the Load or Save commands.

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

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

3. **Saving**: To accept the default name "Data" for the GPS Data File, press ↓ to **SAVE|ENT**. If you wish to rename the file (as in the example below), 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|ENT**.
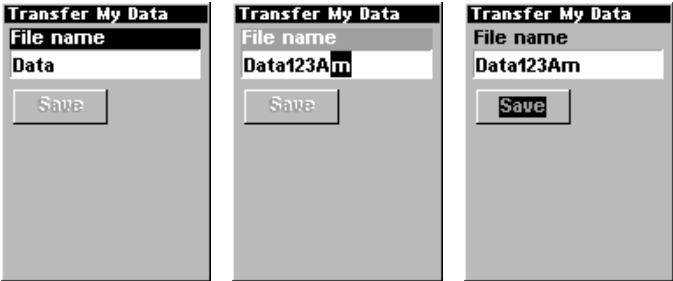
From left to right, these figures show the menu sequence for naming and saving a GPS Data File from an MMC into AirMap's memory.

The unit will display first a progress then a completion message when the data transfer is finished. To return to the Page view, press **EXIT|EXIT**.

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4. **Loading**: 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|ENT**. The unit will display a completion message when the data transfer is finished. To return to the Page view, press **EXIT|EXIT**.
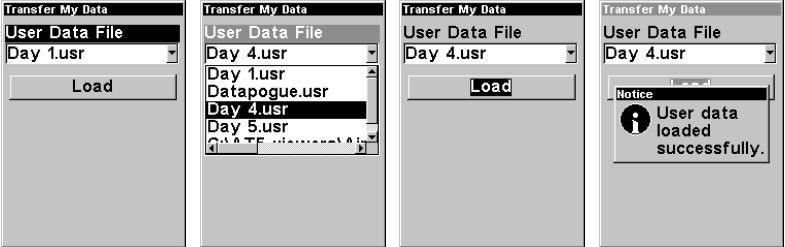
From left to right, these figures show the menu sequence for loading a GPS Data File from an MMC into AirMap's memory.

Switch to Land Mode
To leave Aviation Mode and switch to Land Mode:

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

2. Unit asks, "Are you sure you want to turn on land navigation mode?"

3. Press ←|**ENT** and the unit switches to Land Mode.

Switch Back to Aviation Mode from Land Mode
To leave Land Mode and switch back to Aviation Mode:

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

2. Unit asks, "Are you sure you want to turn on aviation mode?"

3. Press ←|**ENT** and the unit switches to Aviation Mode.

Aviation Utilities
To help you with flight planning, this unit has four aviation utilities built into it that let you calculate density altitude, true airspeed, wind speed and direction, plus vertical navigation.

NOTE:
   AirMap also includes a set of five general-purpose utilities. These are discussed in Sec. 4, *Utilities*.

E6B Altitude/Airspeed Calculator
The Altitude/Airspeed Calculator lets you calculate density altitude or true airspeed. The screen in the following image appears.

For each item in the top portion of the screen, press the enter key, use ↑ and ↓ to enter the field value, and then press **EXIT** when you're done. You'll need to enter indicated altitude (**ALTITUDE**), barometric pressure (**BARO**) in inches of mercury, outside air temperature (**TEMP**), and calibrated airspeed (**CAS**).

In the example shown, the indicated altitude is 5000 feet, barometric pressure is 30.02", outside air temperature is 59° Fahrenheit, and the calibrated airspeed is 129 knots. This gives us a pressure altitude of 4908 feet, a density altitude of 5740 feet, and a true airspeed of 140.4 knots. Obviously, you don't need airspeed to calculate density altitude, this was done for illustration purposes.
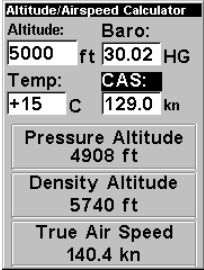
E6B Altitude/Airspeed Calculator

To get to the altitude/airspeed calculator menu: while in Aviation Mode, press **MENU**|**MENU**|↓ to **UTILITIES**|**ENT**|↓ to **E6B ALT/AIRSPEED**|**ENT**.

E6B Wind Speed/Direction Calculator

To determine the wind speed and direction, first find true airspeed using the Altitude/Airspeed Calculator. Once you have that, open the Wind Speed/Direction Calculator.

A screen similar to the one in the following image appears. The current true airspeed is automatically used, and you only need to enter your heading. Use the arrow keys to change the heading in the box at the top of the screen.

In the example shown, the heading is 39° magnetic. This gives us a wind speed of 11.4 knots on a bearing of 42° magnetic, for an 11.4 knot headwind.

E6B Wind Speed/Direction Calculator

To get to the wind speed/direction calculator menu: while in Aviation Mode, press **MENU**|**MENU**|↓ to **UTILITIES**|**ENT**|↓ to **E6B WIND SPEED/DIR**|**ENT**.

Vertical Navigation Calculator

With the Vertical Navigation Calculator, the AirMap 500 can help you decide when to let down for an approach to an airport. In the following example, we're travelling to the Wichita Mid-Continent airport in Wichita, Kansas. It's identifier is shown at the bottom of the screen – KICT. We are travelling at 4500 feet, and need to be at the pattern altitude (about 2300 feet) by 5 nautical miles from the airport using a 450 fpm descent.

After determining the above information, use ↑ or ↓ to highlight each field, then press **ENT**. In each box, use the arrow keys to enter the data. When you're finished, highlight **ON** next to the "Vertical Nav" label and press **ENT**. A screen similar to the one below appears.

The solution to our vertical navigation problem shows at the top of the screen. Our current altitude is 4500 feet and at our current airspeed, we should begin our descent in 51 minutes and 18 seconds. If we maintain a 450 fpm descent starting in about 51 minutes, then we should reach pattern altitude 5 nautical miles before we reach the airport.

You can watch the clock count down your approach. If you increase your speed, the clock will decrease more quickly. If you slow down, it will take longer. Either way, when you reach the point at which you should begin your descent, the box at the top of the screen changes. Now in place of the timer, it indicates that you *should* be descending. Above that, it shows the altitude you *should* be at.
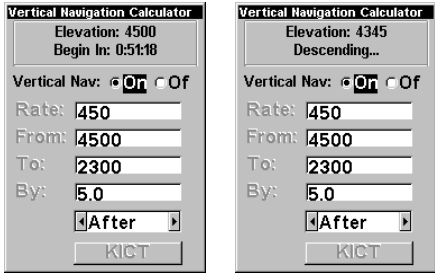
Vertical Navigation Calculator

To get to the vertical navigation calculator menu: while in Aviation Mode, press **MENU|MENU|↓** to **UTILITIES|ENT|↓** to **VERTICAL NAV |ENT**.

Section 4:
Land Operation

Keypad

AirMap keypad.

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

2. **PAGES** – Pressing this key switches the unit between the five different page screens in Land Mode. (Satellite, Position, Navigation, Map and Split Map.) Each page represents one of the unit's major operation modes.

3. **MENU** – Press this key to show the menus, which allow you to select or adjust a feature from a list.

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

5. **ENT/SAVE** (Enter & Save) – This key allows you to save data, accept values or execute menu commands. Also use it to quickly create waypoints or icons.

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

7. **FIND** – The Find key launches the AirMap search menus and some navigation functions.

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

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

Power/lights on and off

To turn on the unit, press **PWR**. To turn on the backlight, press **PWR** again. Pressing **PWR** once again will turn off the backlight.

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

Main Menu

Land Mode has a single Main Menu, which contains some function commands and some setup option commands. The instructions in this section will deal only with functions, the basic commands that make AirMap do something. AirMap will work fine for these instructions 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.*

To access the Main Menu from any Page: press **MENU|MENU**. To clear the menu screen and return to the page display, press **EXIT**.

Main Menu, Land Mode.

Pages

Land Mode has four Page displays that represent the four major operating modes. They are the Satellite Status Page, the Position Page, the Navigation Page and the Map Page. They are accessed by pressing the **PAGES** key. Pressing **PAGES** repeatedly scrolls among the four screens in an endless circular loop.

Each Page has a submenu screen associated with it. You access a Page Submenu by pressing the **MENU** key one time while the page is displayed. (Pressing the **MENU** key twice takes you to the Main Menu.)

Satellite Status Page

This page provides detailed information on the status of AirMap's satellite lock-on and position acquisition. 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. This 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!

NOTE:

Refer to Sec. 3, *Aviation Operation*, for further explanation and more illustrations of the Satellite Page.

1. To get to the Satellite Status Page: press **PAGE** repeatedly until the page you want appears.

2. To get to Satellite Status Menu: press **MENU**.
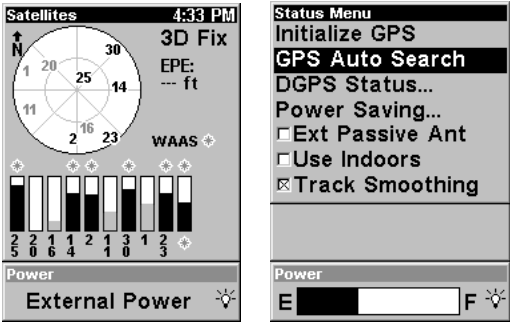
Satellite Status Page, left, Satellite Status Menu, right.

Status Menu

The Satellite Status Menu allows you to set your own GPS options such as power saving, track smoothing, and whether you want the GPS engine to stop searching (a power-saving function for use indoors).

Position Page

This text page provides detailed information on the position of AirMap's cursor. From this page you can determine your latitude, longitude, altitude, travel time, speed, and other useful information about your position and trip.

1. To get to Position Page: press **PAGE** repeatedly until the page you want appears.

2. To get to Position Page Sub Menu: press **MENU**.

Position Page, left, Position Menu, right.

Position Menu

The Position Menu allows you to set your own coordinate system, change your map datum or even set your local time.

Navigation Page

This screen has a compass rose that not only shows your direction of travel, but also the direction to a recalled waypoint. The navigation screen looks like the one in the following image when you're navigating to a waypoint. Your position is shown by an arrow in the center of the screen. Your trail history, or path you've taken is depicted by the line extending from the arrow. The large arrow pointing down at the top of the compass rose indicates the current track (direction of travel) you are taking.

NOTE:

Refer to Sec. 3, *Aviation Operation*, for further explanation and more illustrations of the Navigation Page.

1. To get to Navigation Page: press **PAGE** repeatedly until the page you want appears.

2. To get to Navigation Page Sub Menu: press **MENU**.
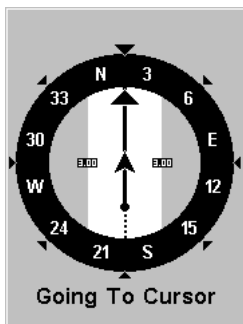
Navigation Page, left, Navigation Menu, right.

Navigation Menu

The Navigation Menu allows you to cancel navigation, set up alarms, and plan or edit your route.

Map Page

The map 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. 5.) If you're navigating to a waypoint, the map shows your starting location, present position, course line and destination. You don't have to navigate to a waypoint, however, to use 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 nautical miles to 4,000 nautical miles.

NOTE:

Refer to Sec. 3, *Aviation Operation*, for further explanation and more illustrations of the Map Page.

1. To get to Map Page: Map page is the default when AirMap is turned on. To switch from another page to the Map Page, press **PAGE** repeatedly until the page you want appears.

2. To get to Map Page Menu: press **MENU**.

NOTE:

On the Map Page, the screen shows an indicator of what AirMap's microprocessor is doing behind the scenes, similar to the floppy drive light on a PC. In the lower right corner of the screen, a special icon will appear and disappear from time to time. When this icon appears, AirMap is reading information from the MMC.
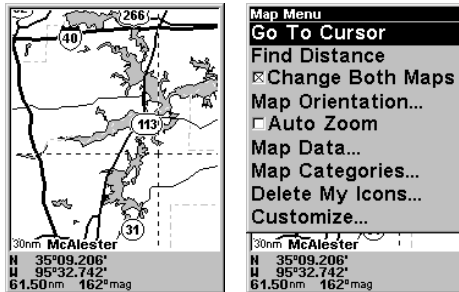
Map Page, left, Map Menu, right.

Map Menu

The map menu has many options. The map menu allows you to find distances, change the orientation of your map, view map data, and other helpful map functions.

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Moving Around the Map: Zoom & Cursor Arrow Keys

The map is presented from a bird's-eye view perspective. The current zoom range shows in the lower left corner of the screen. If the zoom range says "4 mi," the map shows an area 4 nautical miles wide from the left edge of the screen to the right edge 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.

You can pan or scroll the map northward, southward, eastward or westward by using the arrow keys, which launches the cross-hair map cursor. To clear the cursor, press **EXIT**, which jumps the map back to the current position or the last known position.

Find Distance From Current
Position To Another Location

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 the lower left-hand corner of the screen.

3. Press **EXIT** to return to regular operation.
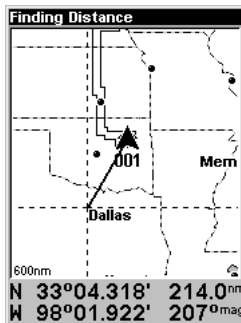
The distance to Dallas from the starting point is 214.0 nautical miles.

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 lower left-hand corner of the screen.

4. Press **EXIT** to clear the command and return to the page screen.

Find Your Current Position

Finding your current position is as simple as turning AirMap on. Under clear sky conditions, the unit automatically searches for satellites and calculates its position in approximately one minute or less.

NOTE:

"Clear sky" means open sky, unobstructed by terrain, dense foliage or structures. Clouds do not restrict GPS signal reception.

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 has as clear a view of the sky as possible, then turn the unit off and back on again.

If you have the cursor activated, any information the unit gives you will be based on the cursor position, not your own. If you want to find where you are, just press **EXIT** until the cursor goes away and the map snaps back to center on your position.

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. AirMap has 42 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 and *hold* **ENT** until the screen shows a "Save Icon" menu, then *release* the **ENT** key.

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

Save icon menu, left, Select symbol menu, right.

Create Icon at Current Position

1. While you are traveling, press and *hold* **ENT** until the screen shows a "Save Icon" menu, then *release* the **ENT** key.

3. Press ← or ↑ or → or ↓ 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, you can delete all icons represented by a particular symbol, or you can 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.

Load GPS Data Files from an MMC

GPS Data files, containing waypoints, routes, trails and event marker icons, must be copied from an MMC to AirMap's internal memory before AirMap can read them. Here's how:

1. Press **MENU|MENU|↓** to **SYSTEM SETUP|ENT|↓** to **TRANSFER MY DATA|ENT** and the screen below appears.

The Transfer My Data submenu asks if you want to save data to the MMC or load data from the MMC into AirMap's memory.

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 AirMap in order to activate the Load or Save commands.

To load data from the MMC to AirMap: press → to **LOAD|ENT**.

3. **Loading**: 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|ENT**. The unit will display a completion message when the data transfer is finished. To return to the Page view, press **EXIT|EXIT|EXIT**.

Navigate
Navigation is one of the most powerful reasons for owning an AirMap, and has already been addressed in Sec. 3. Land navigation is just as useful, though. Just like the air navigation options, you can get accurate information about where you want to go, how to get there, how long it will take, and other useful trip information.

Navigate Back to Man Overboard Waypoint
In Land Mode, this unit has a man overboard feature that shows navigation data to the location where the feature was activated. (This feature replaces Aviation Mode's "Find Nearest Airport" shortcut.) 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. The unit automatically begins navigating to the MOB waypoint.

Cancel Navigation
Press **MENU|MENU|↓** to **Cancel Navigation|ENT|←** to **Yes|ENT**.

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|ENT**.

3. Upon arrival at your destination, cancel navigation:
press **MENU|MENU|↓** to **Cancel Navigation|ENT|←** to **Yes|ENT**.

Navigate to Cursor Position on Map
1. Use arrow keys to center cursor cross-hair over the map object or location.

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

Navigate to an Icon
Use the Navigate to Cursor command above, and use the cursor to select the icon.

Navigate to Point of Interest (POI)
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 command. (see Sec. 6, *Searching*, for detailed instructions on POI searches.)

Whenever you locate a POI, the Point of Interest information screen appears (with phone number, position, etc.) and the **Go To** command is automatically highlighted in the command box. To navigate to that POI, press **ENT** and AirMap begins displaying navigation information to that location.

Navigate to a Waypoint
You can select any waypoint visible on the Map Page with the cursor, then use the Navigate to Cursor command. However, you can avoid scrolling the map to pick your waypoint if you use the Find commands:

1. Press **FIND|ENT**. To look up the nearest waypoint, press **ENT**, or to look by name (and scroll through the entire waypoint list), press ↓|**ENT**. For this example, 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**.

Navigate a Trail
NOTE:
> Trails are described in more detail later in this section, under the heading "Trails." If you are unfamiliar with plot trails, consider skipping ahead and reading the introduction to them before reading about trail navigation.

There are two methods for following your back trail. The simplest requires no menu commands at all, but provides no navigation information during the trip, such as the time to your destination. The other requires only three key strokes and provides a full range of navigation data. Try both methods and see which you prefer. When hiking at walking speed, we often just use visual back trailing because it is better at following each little turn on a foot path. At faster speeds, whether cruising at 120 kts or zipping down the highway, the Navigate Trail command is handy.

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

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

Navigate a Back Trail
1. Press **MENU|MENU|↓** to **MY TRAILS|ENT** and a screen similar to the one in the following image appears.

Trails Menu.

2. Press ↓ then use ↓ or ↑ to select a trail to navigate.

3. With the trail name highlighted, press **ENT|↓** to **NAVIGATE|ENT**.

4. Wait while AirMap creates a route from the trail. When the progress message disappears, the unit displays a trail information screen, with the **NAVIGATE** command highlighted in the top command box.

Tip: Back Track a Trail

Simply running the Navigate command will lead you along the trail from its starting point to its ending point — forward order. You can also *back track* a trail, or follow it in *reverse* order (from its ending point to its starting point.) You must first select the Reverse command to reverse the trail point order before you start navigating: press → to **REVERSE | ENT | ←** to **NAVIGATE**.

5. To follow the trail, press **ENT**. The unit begins showing navigation data along the trail. Follow the steering arrow on the Map Page or the compass bearing arrow on the Navigation Page.

NOTE:

If you are at or near the start of the trail, the arrival alarm will go off as soon as navigation begins because of your proximity to the trail's first point. Just press **EXIT** to clear the alarm.

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

Backtrack a Trail

See the "tip" paragraph in the previous entry, *Navigate a Trail*.

Routes

A route is a series of waypoints, linked together in an ordered sequence, that's used 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 a route in the unit, or on your computer if you have purchased our MapCreate 6 software.

PC-created Routes

When you're making routes exclusively for use in Land Mode, MapCreate is the easiest method for preparing them, simply because your PC's larger screen, keyboard and mouse are easier to manipulate than the pocket-sized AirMap.

To load a MapCreate route into AirMap, 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 AirMap. (See Sec. 2 for instructions on installing MMCs. To load the GPS Data File into AirMap memory, see the entry on *Transferring GPS Data Files between AirMap and a Computer* in this section.)

Routes Created in AirMap

If you plan on flying the route – or if you just want to make it quickly without using a computer – you can create a route in the unit. You do this by selecting existing waypoints from your waypoint list or the Aviation Waypoints, or by making new route waypoints on the map with cursor arrows and the Enter key.
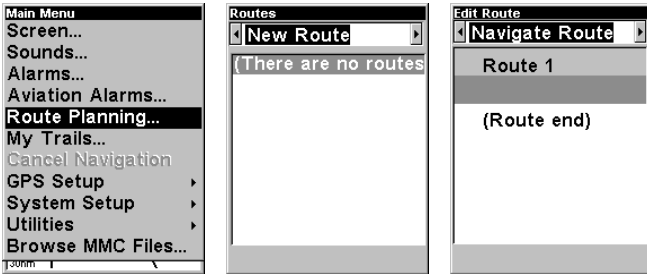
Route Planning on Main Menu is shown left. Center, New Route command on the Routes Menu. Right, Edit Route Menu with no waypoints in the waypoint list.

Adding Aviation Waypoints is the most effective way to build a route for a flight plan. To begin, press **MENU|MENU|↓** to **ROUTE PLANNING|ENT**. Make sure **NEW ROUTE** is selected at the top of the Routes Menu, and press **ENT** again.

To begin making your route, press ↓ to highlight the first empty space in the waypoint list. Pressing **ENT** will bring up the menu in the following image. Select **ADD AVIATION WAYPOINT** and press **ENT**.
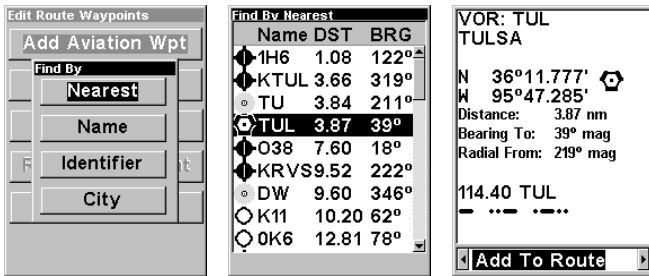
Process for adding an Aviation Waypoint to a route. At left, Find By menu appears after selecting Add Aviation Waypoint. Center, select the desired waypoint from the list (notice the symbols at the left showing the type of waypoint). At right, Waypoint Information screen with "Add to Route" option selected.

Keep adding routes in this way until you have plotted your whole route. Of course, you don't have to use just one method. You could add a handful of Aviation Waypoints but in between place some waypoints from the map, if you want to detour over a particular landmark. Or even include personal waypoints in your route, if you'd like to fly over a friend's house. Since you add one waypoint at a time, you can choose the best way to enter each one.

For another example, we'll go through the process of creating a Land Mode route using only the map option.

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

2. Press **ENT|↓** to **(ROUTE END)|ENT|↓** to **ADD FROM MAP|ENT**. The Map Page appears with the cursor showing.

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 position, you are already at the starting spot.)

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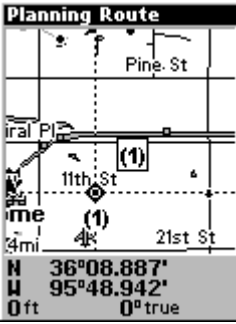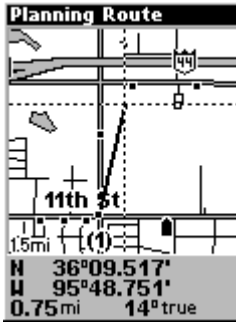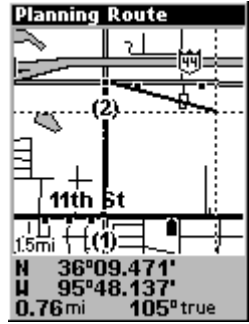
Route creation sequence, from left: Fig. 1. Set route waypoint (1) at 11th St. & 145th Ave. Fig. 2. Zoom in; move cursor north to set point (2) at 145th & Admiral. Fig. 3. With point (2) set, move cursor east to mark interstate on-ramp with waypoint (3). In figures 2 and 3, notice the rubber band line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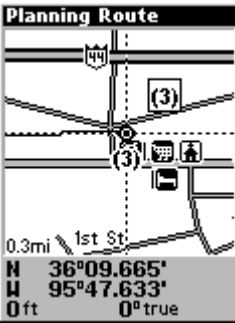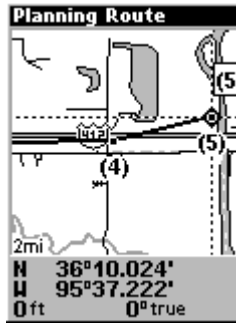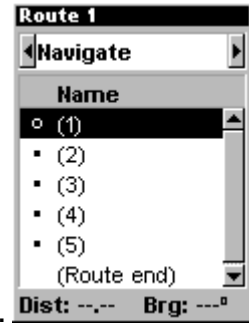
Route creation sequence, continued: Fig. 4. Point (3) set at on-ramp turn. Fig. 5. Waypoint (4) set at highway exit to frontage road leading to river. Waypoint (5) ends the route at a tree stand in the hunting area. Fig. 6. Press EXIT to save the route and you return to this screen.

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**. AirMap reverts to the Route screen, with the route automatically named "Route 1" and stored in AirMap's internal memory.

8. You can edit the name if you wish. Press ↑ to select the screen's command box, then press → to **EDIT NAME|ENT**. 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**.

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9. You can execute other route commands, such as **NAVIGATE**. With the command box active, just press → to highlight a different command, then press **ENT**.

10. If you are finished with the route for now, you can return to the last page displayed by pressing **EXIT|EXIT|EXIT**.

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 the route list|press ↓ or ↑ to select *route name*|**ENT**.

3. Press ← to **DELETE|ENT|←** to **YES|ENT**.

Save GPS Data Files to an MMC

1. Press **MENU|MENU|↓** to **SYSTEM SETUP|ENT|↓** to **TRANSFER MY DATA|ENT**.

2. The Transfer My Data menu includes a message which tells you if an MMC is present. If no MMC is present, you must first insert a card into AirMap in order to activate the Save command.

3. To save data *from* AirMap *to* the MMC: press **ENT** (for **SAVE**.)

4. To accept the default name "Data" for the GPS Data File, press ↓ to **SAVE|ENT**. (If you wish to rename the file, 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|ENT**.)

The unit will display first a progress then a completion message when the data transfer is finished. To return to the Page view, press **EXIT|EXIT|EXIT**.

Searching

In this example, we'll look for the *nearest* hotel or motel. 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 MapCreate 6. Always use a custom map if you want to be able to search for Points of Interest.

After AirMap has acquired a position:
1. Press **FIND|↓** to **MAP PLACES|ENT|↓** to **POI-LODGING**.

2. You could search the entire lodging category, but in this example we will narrow our search. Press → to **HOTELS/MOTELS|ENT|ENT**.

3. AirMap says it is calculating, then a list of hotels and motels appears, with the closest at the top of the list, and the farthest at the bottom of the list. The nearest is highlighted.
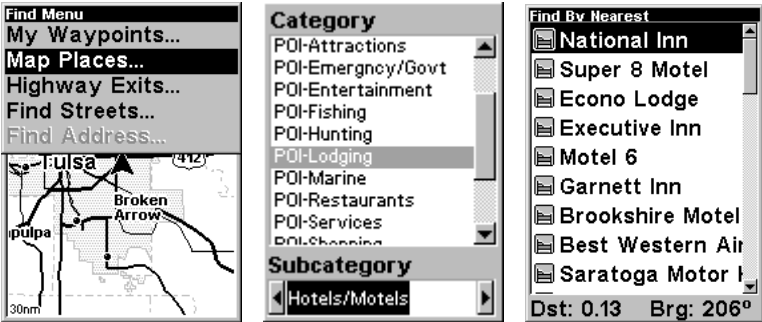
Find Map Places Menu, left; Category Selection menu, center; and list of the nearest motels, right.

4. If you wish, you could scroll ↑ or ↓ here to select another motel or hotel, but for now we will just accept the nearest one. Press **ENT**.

5. The POI information screen appears. (This is what makes AirMap handy as a business phone directory!) If you wanted to navigate there, you could press Enter, since the Go To command is highlighted. But we just want to see it on the map, so press → to **FIND ON MAP** | **ENT**.
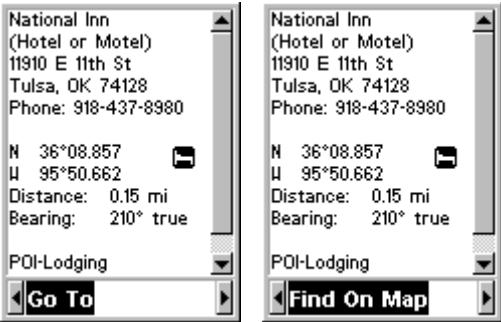
POI information screen on hotel nearest this position.
Screen shows name, street address, phone number, latitude/longitude, distance to the hotel and its compass bearing. Figure at left shows Go To command; right figure shows Find On Map command.

6. AirMap's map appears, with the cross-hair cursor highlighting the hotel's POI symbol. A pop-up name box identifies the POI. A data box at the bottom of the screen continues to display the location's latitude and longitude, distance and bearing.
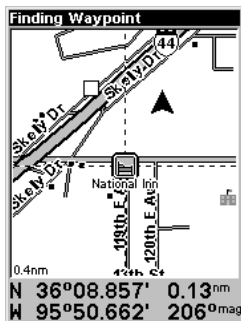
Map screen showing Finding Waypoint, the result of a lodging search.

7. To clear the search and return to the last page displayed, press **EXIT|EXIT|EXIT**. Press **EXIT** one more time if you want to clear the cursor and let the map return to the current or last known position. (Before you completely exited out of the Search menus, you could have gone looking for another place.)

Switch to Aviation Mode
To leave Land Mode and switch to Aviation Mode:
1. Press **MENU|MENU|↓** to **SYSTEM SETUP|↓** to **ENABLE AIRMAP|ENT**.

2. Unit asks, "Are you sure you want to turn on aviation mode?"

3. Press **←|ENT** and the unit switches to Aviation Mode.

Switch Back to Land Mode from Aviation Mode
To leave Aviation Mode and switch back to Land Mode:
1. Press **MENU|MENU|↓** to **SYSTEM SETUP|↓** to **DISABLE AIRMAP|ENT**.

2. Unit asks, "Are you sure you want to turn on land navigation mode?"

3. Press **←|ENT** and the unit switches to Land Mode.

Trails

A trail, or plot trail, is a string of position points plotted by AirMap 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.

AirMap lets you save up to 10 trails in its memory. Since you can copy these trails to MMCs in the form of GPS Data Files (*.usr format), the only true limit on the number of trails you can record is the number of MMCs you can carry in your pockets.

(For various trail options, see the *Trail Options* entry in Sec. 5.)

Create and Save a Trail

AirMap is set at the factory to automatically create and record a trail while the unit is turned on. It 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, AirMap begins recording the trail over itself.

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 a trail is set inactive, AirMap automatically creates and begins recording a new trail.

Delete a Trail

To erase or delete a trail: Press **MENU**|**MENU**|↓ to **MY TRAILS**|**ENT**|↓ to *trail name*|**ENT**|↓ to **DELETE TRAIL**|**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 **EXIT**|**EXIT**|**EXIT**|**EXIT** to return to the previous page display.

Transferring GPS Data Files
Between AirMap and a Computer

To copy GPS Data Files from AirMap's memory to an MMC, see the entry in this section on *Save GPS Data Files to an MMC*.

To copy GPS Data Files from an MMC into AirMap's memory, see the entry in this section on *Load GPS Data Files From an MMC*.

To copy GPS Data Files from an MMC to your computer, see the instruction manual that came with your MapCreate 6 mapping software or your MMC card reader.

Transferring and Loading Custom Maps
From Computer to AirMap

Custom maps work only from the MMC card or SDC card. When a card containing a Custom Map File is loaded into the unit, AirMap automatically loads the map into memory when the unit is turned on. The AirMap Express and Atlantis models are sold with a high-detail custom map already loaded on the unit's MMC.

Instructions for copying Custom Map Files to an MMC are contained in the instruction manual for your MMC card reader and MapCreate 6 software. For instructions on inserting an MMC into AirMap, see Sec. 2, *Installation/Accessories*.

Utilities

Utilities are useful tools for traveling or for outdoor activities.

NOTE:

> AirMap also includes a set of four Aviation-only utilities. These are
> discussed in Sec. 3, *Aviation Utilities.*

Alarm Clock

To get to the alarm clock menu: press **MENU|MENU|↓** to **UTILITIES|ENT|↓**
to **ALARM CLOCK|ENT**.

Sun/Moon Rise & Set Calculator

To get to the Sun/Moon menu: press **MENU|MENU|↓** to **UTILI-
TIES|ENT|ENT**.

Trip Calculator

To get to the Calculator menu: press **MENU|MENU|↓** to **UTILITIES|ENT|↓**
to **TRIP CALCULATOR|ENT**.

Trip Down Timer

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

Trip UP Timer

To get to the Up Timer menu: press **MENU|MENU|↓** to **UTILITIES|ENT|↓**
to **UP TIMER|ENT**.

Waypoints

A waypoint is simply an electronic "address," based on the latitude and
longitude of a position on the earth. A waypoint represents a location,
spot, or destination that can be stored in memory, then be recalled and
used later on for navigation purposes. Simply think of it as an elec-
tronic address. You can create a waypoint at the cursor position on the
map, or at your current position while you are navigating.

Create a Waypoint

These techniques use the Quick Save method, the fastest and easiest
way to create a waypoint.

Create Waypoint on Map

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

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

Create Waypoint at Current Position

While you are traveling, press **ENT|ENT**. The waypoint is saved and automatically given a name with a sequential number, such as "waypoint 002." The waypoint symbol and number appear on the map.

Create a Man Overboard Waypoint

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. The unit automatically begins navigating to the MOB waypoint. For further details, see the subject *Navigating Back to a Man Overboard Waypoint* earlier in this section.

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.

Delete a Waypoint

To delete a waypoint: press **FIND|ENT|↓** to **NAME|ENT|ENT|↓** to *waypoint name*|**ENT|→** to **DELETE|ENT|←** to **YES|ENT**. To return to the previous page, press **EXIT|EXIT**.

Edit a Waypoint
Waypoint Name

To edit waypoint name: press **FIND|ENT|↓** to **NAME|ENT|ENT|↓** to *waypoint name*|**ENT|→** to **EDIT NAME|ENT|←** to **YES|ENT**. To return to the previous page, press **EXIT|EXIT**.

Waypoint Symbol

To edit waypoint symbol: 1. press **FIND|ENT|↓** to **NAME|ENT|ENT|↓** to *waypoint name*|**ENT|→** to **EDIT SYMBOL|ENT**. 2. Use arrow keys to select desired symbol and press **ENT**. To return to the previous page, press **EXIT|EXIT|EXIT**.

Waypoint Position

To edit waypoint position: 1. press **FIND|ENT|↓** to **NAME|ENT|ENT|↓** to *waypoint name*|**ENT|→** to **EDIT POSITION|ENT**.

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

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

Waypoint Altitude

To edit waypoint altitude: 1. press **FIND | ENT | ↓** to **NAME | ENT | ENT | ↓** to *waypoint name* **| ENT | →** to **EDIT ALTITUDE | ENT**.

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

3. To return to the previous page: press **EXIT | EXIT | EXIT**.

Section 5:
System & GPS Setup Options

Alarms

This unit has several GPS alarms. The factory default setting has all the alarms turned on.

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 0.1 mile, then the alarm will flash a message when you come within 0.1 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 0.1 mile, then the alarm flashes a message if you drift 0.1 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 0.1 mile as an example, if you're anchored and your boat moves more than 0.1 of a mile, the alarm will flash a message and sound a tone.

You can use the Alarm Menu to adjust distance settings or to turn alarms off or on.

NOTE:

The AirMap also includes several Aviation Alarms, which are only available when the unit is in Air Mode. For detailed descriptions of the Aviation Alarms, see the following entry.
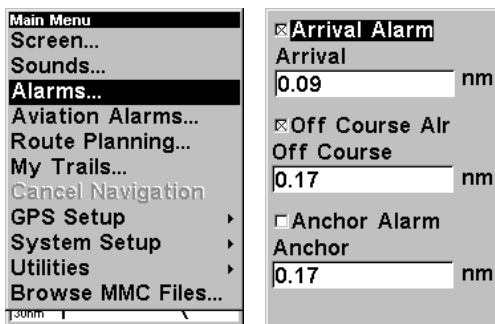
Alarms command, left; Alarm menu, right.

To change alarm settings:

1. Press **MENU|MENU|↓** to **ALARMS|ENT**.

2. Scroll ↓ or ↑ to select the desired category, then press **ENT**.

3. Press ↑ or ↓ to change the first character, then press → to the next character and repeat until the distance is correct.

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

IMPORTANT ALARM NOTES:
> Anchor Alarm – The anchor alarm may be triggered even when you're sitting still. This typically happens when using small (less than 0.05 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, since you may not be able to come close enough to the first waypoint to trip the arrival alarm.

Aviation Alarms

This unit has three airspace alarms that are triggered by any airspace that it's capable of showing. The alarms are three-dimensional in nature; that is, they are triggered by both horizontal distance and altitude.

The Time Alarm is a "look-ahead" alarm that (based on your current speed and track) sounds an alarm 10 minutes before you reach an airspace. The Near Alarm sounds when you are within one nautical mile of an airspace. Finally, the Inside Alarm sounds to let you know you have entered an airspace.

All of these alarms can be turned on or off using the Aviation Alarms menu. The limits that trigger them are adjustable from this menu as well.
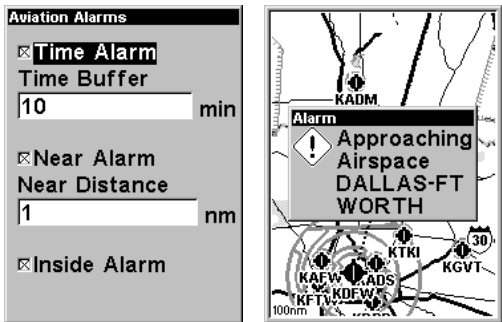
Aviation Alarms menu, left; a Time Alarm showing arrival at DFW International Airport in 10 minutes, right.

To change any of these settings while in Aviation Mode:
1. Press **MENU|MENU|↓** to **AVIATION ALARMS|ENT**.

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2. Scroll ↓ or ↑ to select the desired category, then press **ENT**.

3. In number boxes, press ↑ or ↓ to change the first character, then press → to the next character and repeat until the distance or time is correct.

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

Auto Satellite Search

To lock onto 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. The unit begins searching for the satellites using data that it acquired the last time it was turned on. This was probably 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 a short time, 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 onto the satellites, it should take less than a minute to find your position the next time it's turned on, provided you haven't moved more than approximately 100 miles from the last location it was used.
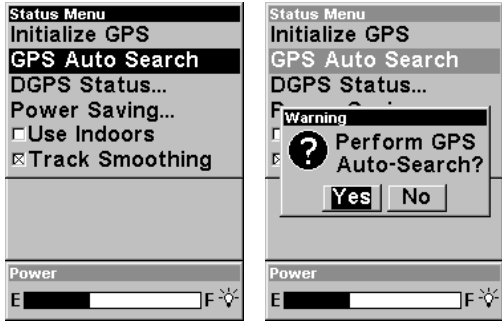
Satellite Status Menu.

You can force the unit to immediately kick into auto search mode. Here's how:

1. Press **PAGES** until you are on the "Satellites" screen.

2. Press **MENU|↓** to **GPS AUTO SEARCH|ENT** then ← to **YES|ENT**.

Check MMC Files and Storage Space

To check MMC Files:

1. Press **MENU|MENU|↓** to **BROWSE MMC FILES|ENT**.
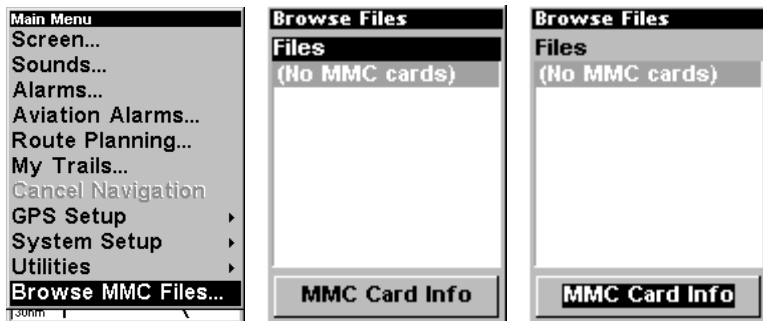
Main Menu, left, MMC File Browser, center & right.

Com Port Configuration

AirMap has one NMEA 0183 version 2.0 compatible communication ports, 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 data to another electronic device, such as an autopilot.
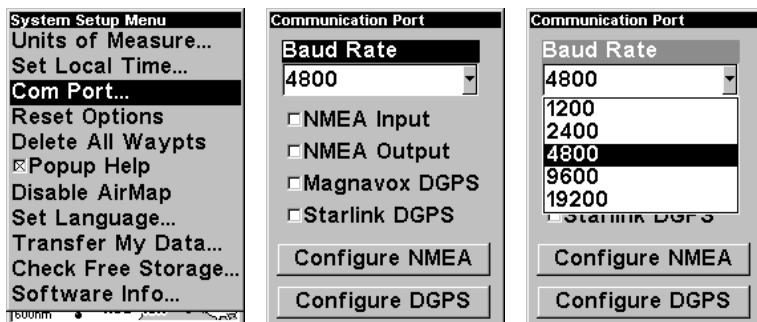
Menus for changing Com Port settings.

For connectors and wiring information for another device, consult the factory; phone numbers are in the back of this manual. To set Com Port Configuration:

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

2. Press **↓** to **COM PORT|ENT**.

Coordinate System Selection

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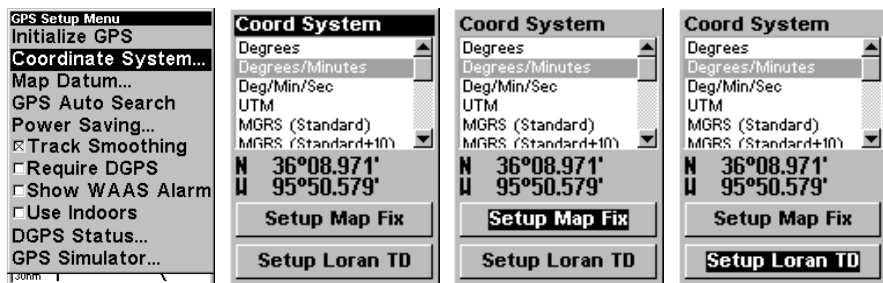
Menus for changing coordinate system used to display positions.

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

2. Press **↓** to **COORD 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 Military grids.

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 and Taiwan 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 alternate 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 select a coordinate system:
To change the coordinate system, press **ENT** while **COORDINATE SYSTEM** is highlighted. Press the ↑ or ↓ arrow keys to highlight the desired format. Press **ENT** to select it. Press **EXIT** to erase the menus.

To setup Loran TD:

NOTE:

    If the Loran TD conversion is chosen, you must enter the local Loran chain identification for the master and slaves. Do this by selecting "Setup Loran TD" at the bottom of the "Coordinate System" menu and select the ID. Press **EXIT** to erase 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.) 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.

Now press **MENU|MENU|↓** to **GPS SETUP|ENT|↓** to **COORDINATE SYSTEM|ENT|↓** to **SETUP MAP FIX|ENT**. The following left screen appears, and **MAP SCALE** is highlighted. Press **ENT** and enter the map's scale. This is generally at the bottom of the paper map. It's shown as a ratio, for ex-

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ample 1:24000. Press **EXIT** and the unit returns to the Configure Map Fix screen.

Configure Map Fix	Configure Map Fix
Map Scale	Map Scale
1: 0	1: 0
Select Origin	**Select Origin**
Origin	Origin
N 0°00.000'	N 0°00.000'
W 0°00.000'	W 0°00.000'
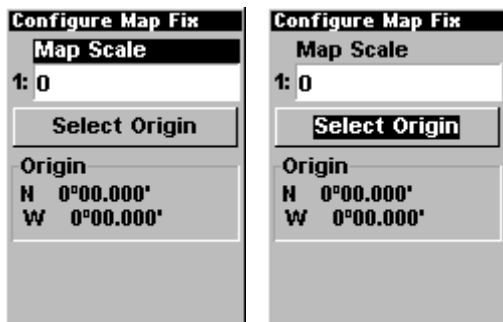
Configure a map fix so AirMap can find your position on a printed chart, sectional or topographical map.

Press ↓ to **SELECT ORIGIN|ENT|ENT** (**MY WAYPOINTS**) if you saved the reference point as a waypoint. 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; press **ENT** and the unit returns to the Configure Map Fix menu. Finally, press **EXIT** to erase this menu. Now press ↑ to **COORD SYSTEM|ENT**, select **MAP FIX** from the list and press **ENT**. All position information now shows as a distance from the reference point you chose.

Customize Page Displays

The Position, Navigation, and Map pages all have customizable options. These options decide which information is viewable on each page.

Customize Position Page

While on the Position Page press **MENU|↓** to **CUSTOMIZE|ENT**. Press ↓ or ↑ to select a display option. With the option highlighted, press **ENT** to check it (turn on) and uncheck it (turn off.) After all options are set, press **EXIT** to return to the page display.

Customize Navigation Page

While on the Navigation Page press **MENU|↓** to **CUSTOMIZE|ENT**. Press ↓ or ↑ to select a display option. With the option highlighted, press **ENT** to check it (turn on) and uncheck it (turn off.) After all options are set, press **EXIT** to return to the page display.

Customize Map Page

While on the Map Page press **MENU|↓** to **CUSTOMIZE|ENT**. Press ↓ or ↑ to select a display option. With the option highlighted, press **ENT** to check it (turn on) and uncheck it (turn off.) After all options are set, press **EXIT** to return to the page display.

GPS Simulator

The GPS simulator lets you use the unit as if you were outdoors navigating somewhere. You can set the starting location in latitude/longitude (Starting Position) or from a stored waypoint location (Select Starting Waypoint). You can steer your position on the map by using the arrow keys (Steer With Arrows) or by setting the track and speed in the boxes provided on simulator screen.

To get to the GPS Simulator:
1. Press **MENU|MENU|↓** to **GPS SETUP|ENT**.

2. Press **↓** to **GPS SIMULATOR|ENT**.

Make the desired settings, then turn the simulator on by highlighting the **SIMULATOR ON** box and pressing the **ENT** key. Press **EXIT** to erase this menu. A message appears periodically, warning you that the simulator is on. Repeat the above steps or turn the unit off to turn the simulator off.
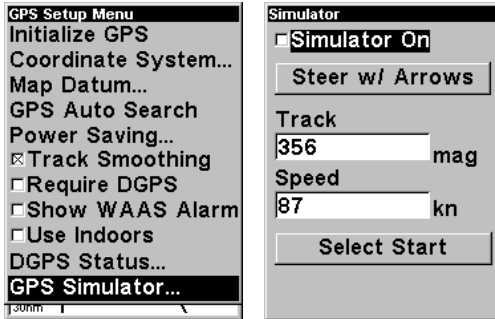
GPS Setup Menu, left, GPS Simulator Menu, right.

Map Auto Zoom

This receiver has an auto zoom feature that eliminates much of the button pushing that other brands of GPS receivers force you to make. 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 this feature on, from the **MAP PAGE**, press **MENU|↓** to **AUTO ZOOM|ENT**. 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 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 lets you select Navionics Maps; for instructions, see the *Navionics Charts* entry in this section.

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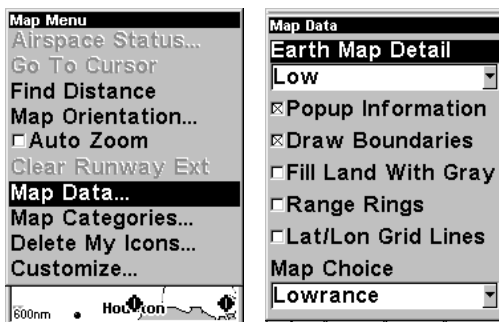
Map Menu, left, Map Data Menu, right.

Show Map Data

Press **MENU**|↓ to **MAP DATA**|**ENT**. Press **ENT** to adjust the level of detail using **EARTH MAP DETAIL**. After the option is set, press **EXIT** to return to the page display.

NOTE:

In Aviation Mode, turning **EARTH MAP DETAIL** to Off will clear all land map information from the map display, but the aviation map remains. You can also select other degrees of detail, from Low to High. This is a good way to quickly control clutter if you need to focus on just the air map.

Pop-up Map Info

Press **MENU**|↓ to **MAP DATA**|**ENT**. Press ↓ to **POPUP MAP INFO**. With the option highlighted, press **ENT** to check it (turn on) and uncheck it (turn off). After the option is set, press **EXIT** to return to the page display.

Map Boundaries

Press **MENU**|↓ to **MAP DATA**|**ENT**. Press ↓ to **MAP BOUNDARIES**. With the option highlighted, press **ENT** to check it (turn on) and uncheck it (turn off). After the option is set, press **EXIT** to return to the page display.

Fill Land Gray

Press **MENU**|↓ to **Map Data**|**ENT**. Press ↓ to **Fill Land Gray**. With the option highlighted, press **ENT** to check it (turn on) and uncheck it (turn off). After the option is set, press **EXIT** to return to the page display.

Map Overlays (Range Rings; Lat/Long Grid)

The map screen can be customized with rings that are 1/2 and 1/4 of the zoom range and/or grids that divide the plotter into equal segments of latitude and longitude.

To set range rings: Press **MENU**|↓ to **Map Data**|**ENT**. Press ↓ to **Range Rings**. With the option highlighted, press **ENT** to check it (turn on) and uncheck it (turn off). After the option is set, press **EXIT** to return to the page display.

To set Lat/Lon Grid: Press **MENU**|↓ to **Map Data**|**ENT**. Press ↓ to **Lat/Lon Grid**. With the option highlighted, press **ENT** to check it (turn on) and uncheck it (turn off). After the option is set, press **EXIT** to return to the page display.

Map Datum Selection

Maps and charts are based on a survey of the area that's covered by the map or chart. These surveys are called "Datums." Maps that are created using different datums will show the same latitude/longitude in slightly 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 position shows using the WGS-84 datum. However, it can show your position using one of 191 different datums.

To change the datum:
1. Press **MENU**|**MENU**|↓ to **GPS Setup**|**ENT**|↓ to **Map Datum**|**ENT**.

2. Scroll ↓ or ↑ 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.
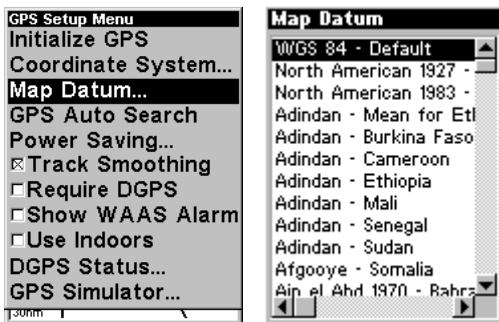
GPS Setup Menu, left, Map Datum Menu, right.

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 selectively turn on or off any of these items, customizing the map to your needs.

To get to Map Categories:

1. Press **MENU**|↓ to **MAP CATEGORIES DRAWN**|**ENT**.

2. Press ↑ or ↓ to select a category or subcategory. Press **ENT** to turn it off (no check) or on (checked). You can also press ← or → to select subcategories, so you could turn off all Rural and Minor Roads to reduce clutter, but leave on Major City Roads for landmarks.

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

Map Menu, left, Map Categories Menu, right.

Map Orientation

From the **MAP PAGE**, press **MENU**|↓ to **MAP ORIENTATION**|**ENT**. Press ↓ or ↑ to select an orientation option. With the option highlighted, press **ENT** to check it (turn on) and uncheck it (turn off). After the option is set, press **EXIT**|**EXIT** to return to the page display.
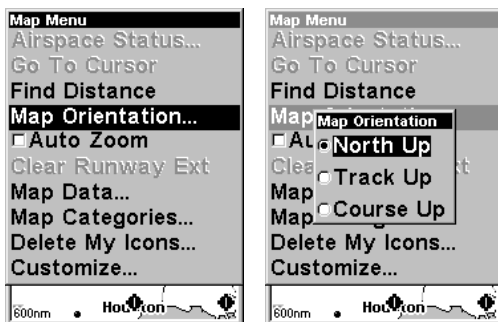
**Map Menu, left, Map Orientation window with
the North Up map orientation option selected.**

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're 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, an "N" shows on the
map screen to help you see which direction is north .

To select the desired mode, first press the **MENU** key, then select **MAP
ORIENTATION**, then select the desired mode. Press the **EXIT** key to erase
this menu.

Navionics® Charts

Your AirMap can display Navionics® electronic charts on MMCs. They
work just like a MapCreate custom map on an MMC.

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.)

WARNING:

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

2. From the Map Page, press **MENU|↓** to **MAP DATA|ENT|↓** to **MAP
CHOICE|ENT**. Use **↑** or **↓** to select the *Map Name*, then press
ENT|EXIT|EXIT.
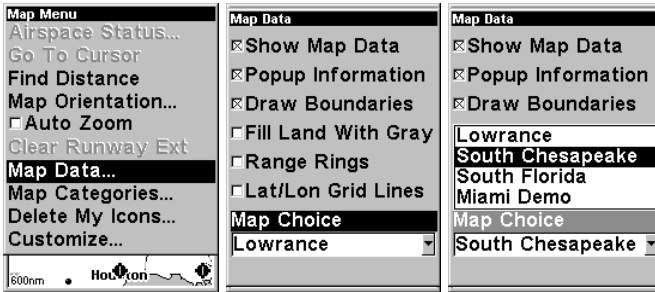
These figures show menu sequence (from left to right) for selecting a Navionics chart for the South Chesapeake Bay area.

3. To turn off a Navionics chart, From the Map Page, press **MENU**|↓ to **MAP DATA**|**ENT**|↓ to **MAP CHOICE**|**ENT**. Use ↑ or ↓ to select **LOWRANCE**, then press **ENT**|**EXIT**|**EXIT**.

Port Information
Navionics charts contain Port Services information, represented by anchor icons on the map display. An example is displayed in the following figure.

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

2. Press **FIND**|**ENT** to display the Port Services Information screen.

The Port Services information screen has two windows. The top window lists the various service categories. The lower window lists the detailed services available in each basic category.
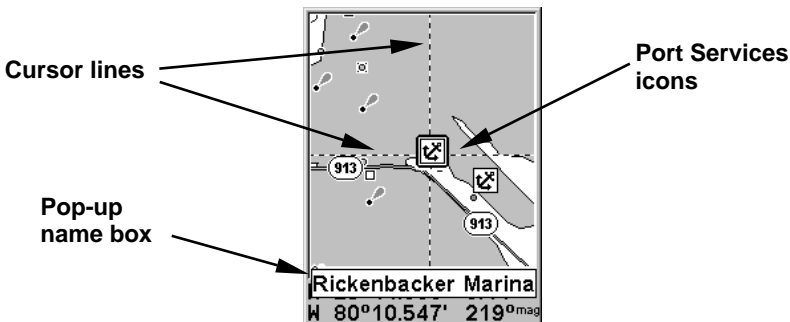
Navionics chart showing Port Services icon selected by cursor.

3. To scroll through the Service Categories window: press **ENT** then use ↑ or ↓ to see the types of services available. As you highlight a different category, the list in the lower window changes. To return to the Map Page, press **EXIT**|**EXIT**.

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4. The Repair Services category includes a long list of items in the Detailed Services window. To scroll through the Detailed Services window: from **SERVICE CATEGORIES**, press ↓ to **DETAILED SERVICES|ENT**, then use ↑ or ↓ to read the list of available services. To return to the Map Page, press **EXIT|EXIT**. To return to the top service category window, press **ENT|↑**.
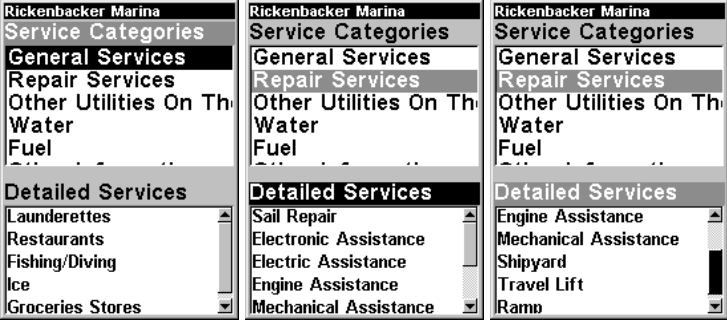
Port Services information screens.

Tidal Current Information

Navionics charts contain Tidal Current information, represented at large zoom ranges by a box icon with the letter "C." The icon stands for a Tidal Current Station location. An example is displayed at right.

When you zoom in to a sufficiently small zoom range, the icon itself 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. An example is displayed in the following figure.

To view Tidal Current information:

1. Use the arrow keys to move the cursor over a Tidal Current Station icon. When selected, a pop-up name box appears.
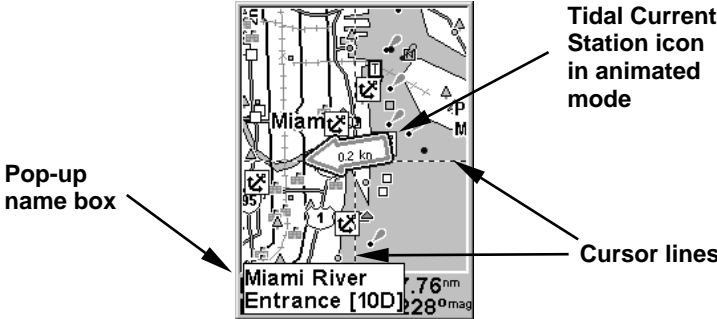
Navionics chart showing Tidal Current Station icon selected by cursor. In this example, the current is flowing to the west at 0.2 kn.

2. Press **FIND|ENT** to display the Tidal Current Information screen.
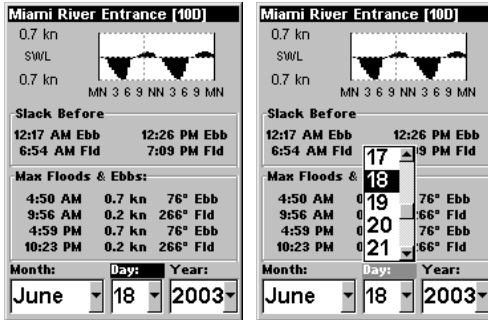
Current Information screen.

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

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

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

Tide Information

Navionics charts contain Tidal Information, represented at large zoom ranges by a box icon with the letter "T." The icon stands for a Tidal Station location. An example is displayed at right.

When you zoom in to a sufficiently small zoom range, the icon itself 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. An example is displayed in the following figure.

To view tide information:

1. Select a Tide Station icon: use the arrow keys to move the cursor over an icon. When it is selected, a pop-up name box appears.

2. After selecting the Tide Station icon, press **FIND|ENT** to display the Tide Information screen.
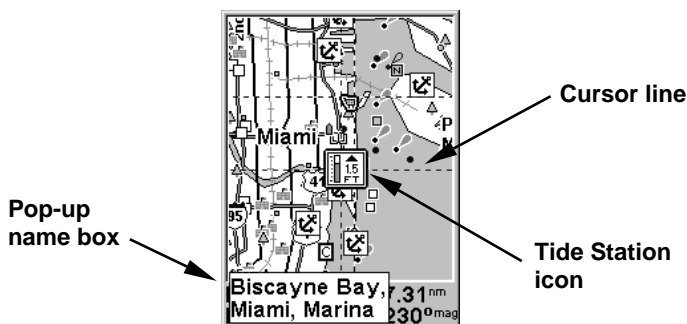
**Navionics chart showing Tide Station icon selected by cursor.
In the example above, the tide is at 1.5 feet and rising,
as shown by the up arrow at the top of the icon.**
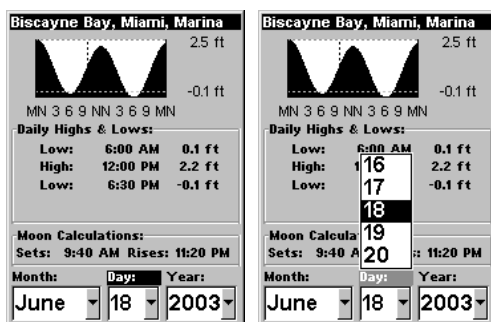
Tide Information screen.

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

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

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

Pop-up Help

Help is available for virtually all of the menu labels on this unit. By highlighting a menu item and leaving it highlighted for a few seconds, a "pop-up" message appears that describes the function of the menu item. This feature is on by default.

To set up Popup Help: Press **MENU|MENU|↓** to **SYSTEM SETUP|ENT|↓** to **POPUP HELP**. With the option highlighted, press **ENT** to check it (turn on) and uncheck it (turn off). After the option is set, press **EXIT|EXIT** to return to the page display.

This example shows the Pop-up Help message for the Route Planning command, located on the Main Menu.

Power Saving

AirMap contains a battery capacity indicator, and will also flash low battery warning messages when battery power declines to a certain level. When plugged into the DC cigarette lighter adapter, the power indicator displays the "External Power" message.
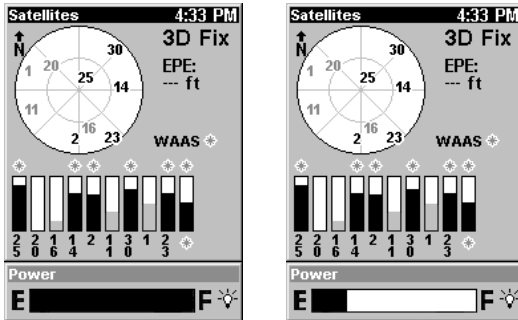
Battery capacity shown in the Power box at bottom of Satellite Page. Figure at left shows full power with fresh batteries. At right, batteries show approximately 25 percent of their power is left.

The power save feature conserves battery power by changing the position update rate. We recommend you test the power save feature in known surroundings and determine its capabilities before venturing into unknown

territory. Experiment with modest settings, such as 1 second update (300ms) or 1 second update (200ms) and see if accuracy is adequate for you.

WARNING:

> Full power settings will always give you the best, most accurate performance with AirMap. Power save functions can extend battery life, but aggressive power saving settings can reduce GPS accuracy, particularly in demanding situations when signal availability is less than ideal. It is up to you to decide if position accuracy or battery consumption is the most important consideration for a particular navigation situation.

In potentially risky navigation situations, we suggest you consider the standard operating procedure of professional cave explorers, who never enter an undeveloped cave with fewer than *three* sources of light (a main light and *two* backups.) Even if you do carry a couple of spare sets of batteries, remember: *a prudent navigator never depends on only one source of navigation information.* A good map and compass are important companions for you and your AirMap.

To access the Power saving feature:

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

2. Press **→** or **←** to move the slider bar. The left end of the scale is minimum power saving (full battery power); the right end of the scale is maximum power saving (minimum battery power.)

3. To return to the last page displayed, press **EXIT|EXIT**.
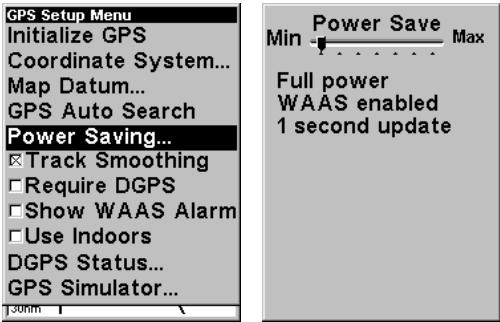
Power Saving command, left; and Power Save menu, right.

Stop GPS Engine

There is another function that will help preserve battery life when practicing with the unit indoors. Most of the time, the unit will not be able to find a satellite (unless you are practicing by a large window!) After a few moments of unfruitful scanning, AirMap will ask you if it should stop searching for satellites or continue searching. When this

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message appears, the **STOP SEARCHING** command is highlighted. To turn off the GPS engine and save power, press **ENT**.

Use Indoors

If you don't want to wait for AirMap to prompt you to switch to the inside setting, you can manually switch to indoor operation:

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

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

3. You can return to this command and press **ENT** again to turn the feature off, or just turn the unit off and back on again. AirMap will automatically resume searching for satellites.

Use Indoors selection box on GPS Setup Menu. With the box selected as in this figure, the GPS engine is turned off to save power.

Reset Options

To reset all features to their factory defaults:

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 or plot trails.

Reset Options command, left, and the Reset Options Menu, right.

Require DGPS

You can force AirMap to require DGPS for reporting a valid position. (The default setting, off, uses DGPS automatically, but doesn't require it to yield a position.) Here's how to turn it on and off.

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

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

3. You can return to this command and press **ENT** again to turn the feature off.
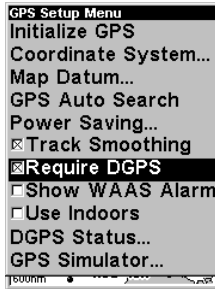
Require DGPS command on the GPS Setup Menu.

Screen Contrast and Brightness

To access these screen commands, you first press **MENU|MENU|ENT**.

Once in the Screen menu:
To adjust the display's contrast:
1. The **CONTRAST** slider bar is already selected. Press → or ← to move the bar. The left end of the scale is minimum contrast; the right end is maximum contrast. Adjust the screen so that you see white, black & 2 shades of gray at the top of the screen.
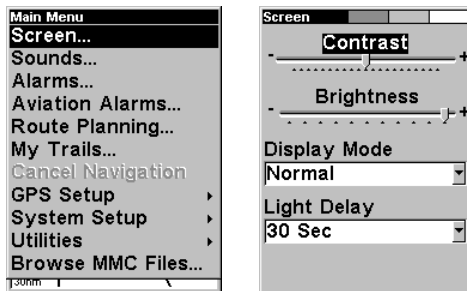
Screen Command, left, and Contrast bar, right.

To adjust the display's brightness:
1. Press ↓ to **BRIGHTNESS**. Press → or ← to move the bar. The left end of the scale is minimum backlight brightness; the right end is maximum backlight brightness.
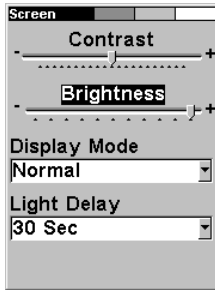
Screen Command, left, and Contrast bar, right.

To adjust the screen's display mode:

1. Press ↓ to **DISPLAY MODE**|**ENT**|press ↑ or ↓ to select *mode*|**EXIT**.
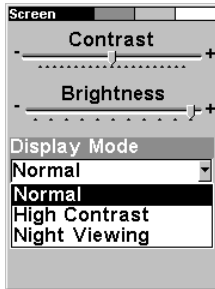
Display Mode menu.

To adjust the display's back light delay options:

1. Press ↓ to **LIGHT DELAY**|**ENT**|press ↑ or ↓ to select *mode*|**EXIT**.

2. To leave the screen settings and return to the last page displayed, press **EXIT**|**EXIT**.
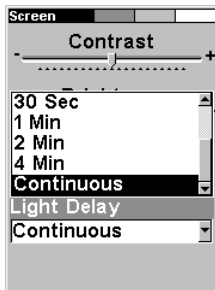
Light Delay menu. Setting shown is "continuous." The backlight time will automatically change to "continuous" when the unit is attached to an external power source.

Set Local Time

The local time and date are saved when a waypoint is created. Begin by pressing **MENU**|**MENU**|↓ to **SYSTEM SETUP**|**ENT**|↓ to **SET LOCAL TIME**|**ENT**.
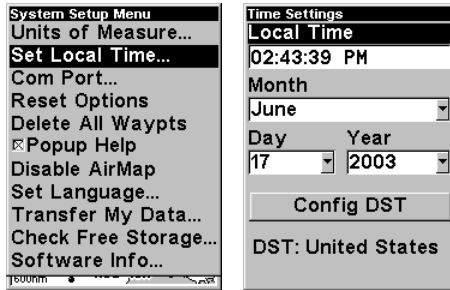
Set Local Time Command: left, Main Menu; center System Setup menu. At right, the Time Settings menu.

Once in the Time Settings menu:

To set Local Time: Press **ENT**. Press ↑ or ↓ to change the first character, then press → to move the cursor to the next character. Repeat until the time is correct, then press **ENT**.

To set the Month: Press ↓ to **MONTH|ENT**. Press ↑ or ↓ to select the month, then press **ENT**.

To set the Day: Press ↓ to **DAY|ENT**. Press ↑ or ↓ to select the day, then press **ENT**.

To set the Year: Press ↓ to **YEAR|ENT**. Press ↑ or ↓ to select the year, then press **ENT**.
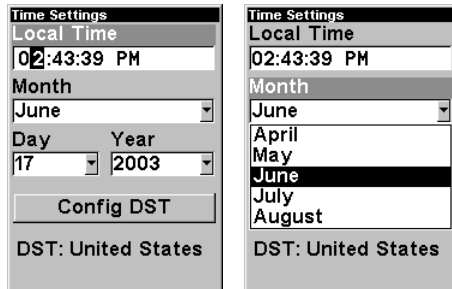
Adjusting the time, left, Adjusting the month, right.

The last field in this menu is **CONFIG DST**. This feature allows your unit to automatically adjust with the time change caused by Daylight Saving Time (you should only have to set it once). You may select which set of rules matches DST in your region, or simply accept the default.

Once you have each field set the way you want, press **EXIT** repeatedly until you return to the previous page.

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 or introduce a new feature or function. You can find out what software version is running in your AirMap by using the Software Info command.
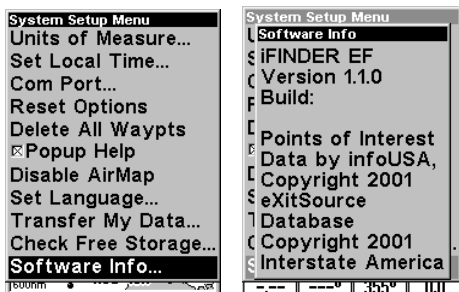
System Setup menu with Software Info command selected, left. At right, the Software Info screen.

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

2. Read the information displayed on the screen.

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

Sounds and Alarm Sound Styles

Sounds triggered by key strokes and alarms can be adjusted.

To access the Sounds menu, press **MENU|MENU|↓** to **SOUNDS|ENT**.
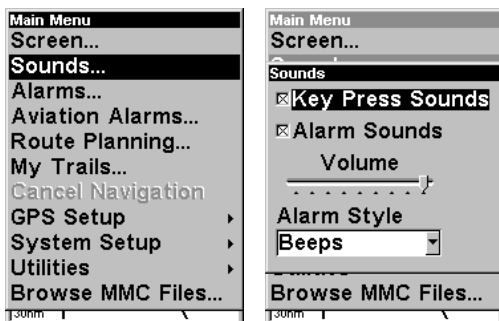
At left, Main Menu with Sounds command selected. At right, the Sounds menu.

Once in the Sounds menu:

To set Key Sounds: With the option highlighted, press **ENT** to check it (turn on) and uncheck it (turn off). After the option is set, press **EXIT|EXIT** to return to the page display.

To set Alarm Sounds: Press ↓ to **ALARM SOUNDS**. With the option highlighted, press **ENT** to check it (turn on) and uncheck it (turn off). After the option is set, press **EXIT|EXIT** to return to the page display.

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To set Alarm Style: Press ↓ to **ALARM STYLE|ENT**. Press ↑ or ↓ to change the style, then press **ENT**. After the option is set, press **EXIT|EXIT** to return to the page display.

## Track Smoothing

This is a factory setting 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.
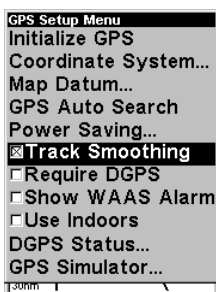
Track Smoothing option, turned on.

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, you can display or hide trails, make them flash on the screen or not flash, create a new trail, delete a trail, etc.

General Trail Options

To access the Trails Menu:

1. Press **MENU|MENU|↓** to **MY TRAILS|ENT|ENT**.
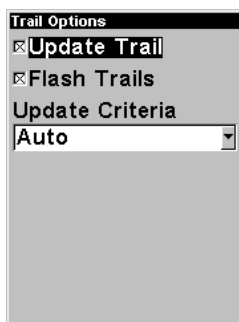
Main Menu, left, Trails Menu, center, Trail Options, right.

Delete All Trails

To remove all of the trails from memory: from the Trails Menu, press →
to **DELETE ALL|ENT|←** to **YES|ENT**.

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Flash Trails on Screen Option
Press ↓ to **FLASH TRAILS**. With the option highlighted, press **ENT** to check
it (turn on) and uncheck it (turn off).

Trail Options menu: Flash Trails.

Update Trail Option
This menu lets you change the way the trail updates occur.
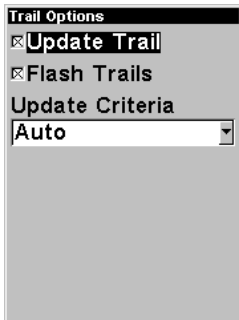
Trail Options menu.

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

Press ↓ or ↑ to **UPDATE TRAILS**. With the option highlighted, press **ENT** to
check it (turn on) and uncheck it (turn off).

Update Trail Criteria (Auto, Time, Distance)
The options are automatic, time, or distance. When it's in the default
automatic mode, the unit doesn't update the plot trail while you're
traveling in a straight line. Once you deviate from a straight line, the
unit "drops" a plot point (trail waypoint) 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 taken away and placed at the end of the trail.
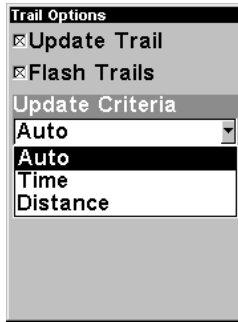
Trail Options menu.

Press ↓ to **UPDATE CRITERIA** | **ENT** | press ↓ or ↑ to select *criteria type* | **ENT**.

Trail Update Rate (Time, Distance)

You can update a trail by time, with a range from 1 second to 9999 seconds; the default is 3 seconds. You can update by distance, with a range from 0.01 miles/nm/km to 9.99 miles/nm/km; the default is 0.10 miles.

With Update Criteria selected, press ↓ to either the rate or distance data entry boxes and press **ENT**. Press ↑ or ↓ to change the first character, then press → to the next character and repeat until the entry is correct. Press **EXIT** | **EXIT** to return to the Trail Options Menu.
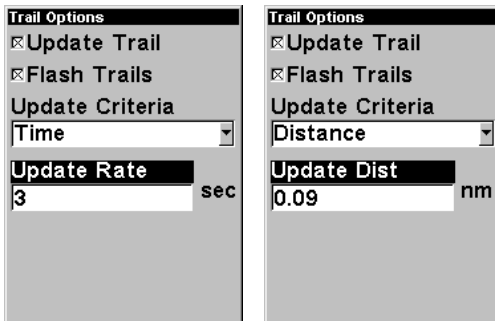
Trail Options menu.

Specific Trail Options
New Trail

To manually start a new trail or delete a trail: From the Trail Options Menu, press → to **NEW TRAIL** | **ENT**. The trail menu appears as seen below:
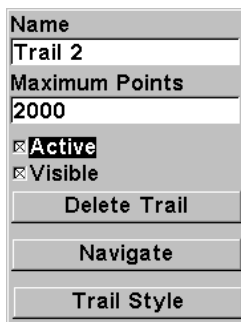
Trail menu.

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

Press ↓ or ↑ to highlight the section you wish to change, then press **ENT**. Press **EXIT** to erase this menu.

Units of Measure

This menu (shown below) sets the speed and distance (statute, nautical miles, meters), depth (feet, fathoms, or meters), temperature (degrees Fahrenheit or Celsius) and heading (true or magnetic) units. To change the units, you first press **MENU|MENU|↓** to **SYSTEM SETUP|ENT|ENT**.
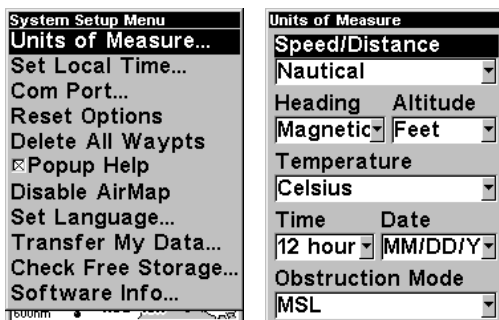
System Setup menu, left, Units of Measure Menu, right.

To set Speed/Distance Unit of Measure: Press **ENT**. Press ↑ or ↓ to change the Speed/Distance, then press **ENT**. After the option is set, press **EXIT|EXIT** to return to the page display.

To set Heading: Press ↓ to **HEADING|ENT**. Press ↑ or ↓ to change the heading, then press **ENT**. After the option is set, press **EXIT|EXIT** to return to the page display.

To set Time Format: Press ↓ to TIME FORMAT|**ENT**. Press ↑ or ↓ to change the time format, then press **ENT**. After the option is set, press **EXIT|EXIT** to return to the page display.

To set Date Format: Press ↓ to DATE FORMAT|**ENT**. Press ↑ or ↓ to change the date format, then press **ENT**. After the option is set, press **EXIT|EXIT** to return to the page display.

Obstruction Mode determines how AirMap displays the height of obstructions on the Map Page. If you change it to AGL (Above Ground Level), then the Map Page will show an obstruction's height above the surrounding terrain. If you set it on MSL (Mean Sea Level), the Map Page will show the obstruction's altitude above sea level. Note that this setting affects *only* the height of obstructions displayed on the Map Page.

To set Obstruction Mode: Press ↓ to OBSTRUCTION MODE|**ENT**. Press ↑ or ↓ to change the mode, then press **ENT**. After the option is set, press **EXIT|EXIT** to return to the page 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. Press ↓ to SET LANGUAGE…|**ENT**.

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

Section 6: Searching

Whether you are in Aviation Mode or Land Mode, AirMap's search functions all begin with the **FIND** key, and the search menus work the same in each mode. However, the Aviation Mode searches appear only in Aviation Mode (while the general searches appear in both Aviation and Land mode).
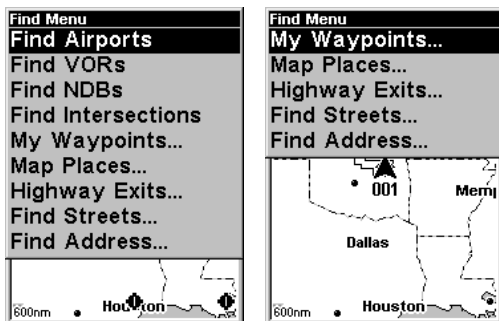
Aviation Mode Find menu, left; Land Mode Find menu, right.

NOTE:

> You can search for items even if AirMap hasn't acquired a position yet, or start from a position other than your own. When you do a search, distance and bearing to the selected item will be calculated from AirMap's current position. If AirMap hasn't acquired a position, it will use the last known position. If the cursor is active, AirMap will always begin the search at the cursor. You can look up items by name, or search for the item nearest to you.

Aviation Mode Searches

Find An Airspace (Using Cursor)

On the Map Page, you can select airspaces with the cursor by scrolling over the airspace border. When the airspace is selected, the line defining its border will expand. Press **FIND|ENT** and an Information Page will appear showing you details about the selected airspace. To return to the previous page, press **EXIT**.

NOTE:

> The position, distance, and bearing information shown on the waypoint information screen are based on the *cursor position* within the airspace, not on the airspace itself. This means you can scroll the cursor to the far side of the airspace to check how far it is across, or move it to the exact spot you plan on entering the airspace for more precise navigation information.
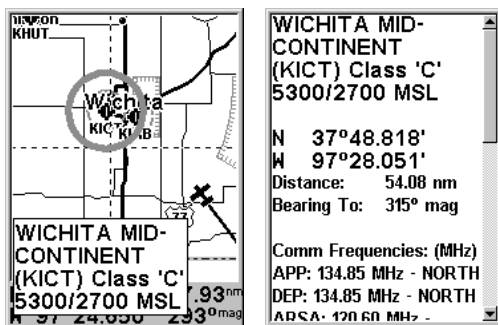
On the left, we have selected the airspace around Wichita Mid-Continent Airport. On the right, you can see the Airspace Information page.

Find Airports *(Aviation Mode only)*

1. Press **FIND|ENT**.

2. If searching for the *Nearest* airport, press **ENT**. If searching for an airport *By Name*, press ↓ to **NAME|ENT**. You can also search *By Identifier*, and *By City*.
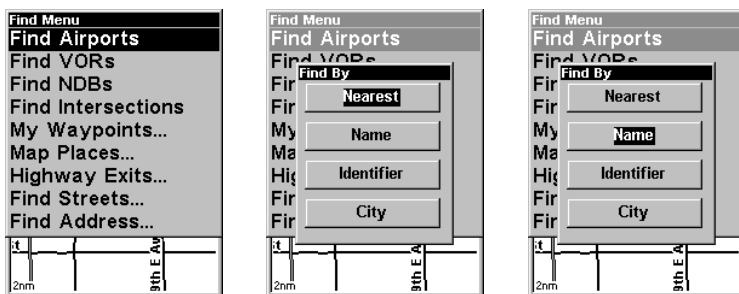
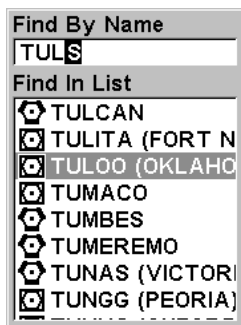**Find menu, left, and Find By Nearest, center, Find By Name, right.**

3. **If you're looking for nearest**, AirMap says it is calculating, then a list of airports appears. The closest is highlighted at the top of the list and the farthest is at the bottom of the list. Press **ENT** and the waypoint information screen appears. To find the airport, press → to **FIND ON MAP|ENT**. To return to the previous page, press **EXIT|EXIT|EXIT|EXIT**.
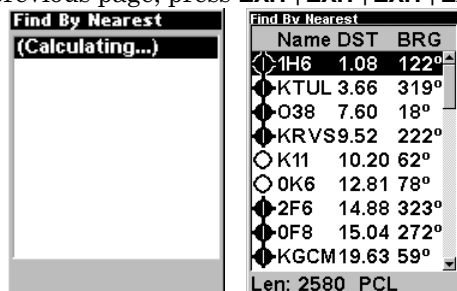
Calculating message, left, and list of the nearest airports, right.

4. **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.** Jump down to the lower selection list by pressing **ENT**, then press ↓ or ↑ to select an airport from the list, then press **ENT**. The waypoint information screen appears. To find the airport, press → to **FIND ON MAP|ENT**. To return to the previous page, press **EXIT|EXIT|EXIT|EXIT|EXIT**.
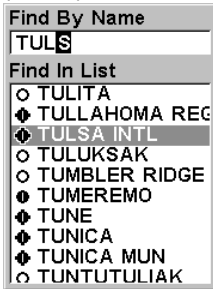

Find By Name menu.

5. **If you're looking by identifier or by city**, the method is the same as by name (described in step 4). Use the arrow keys to enter the airport's identifier or the name of a city, and the AirMap will show you all available airports matching the criteria you entered.

Find VORs *(Aviation Mode only)*

1. Press **FIND|↓** to **FIND VORs|ENT**.
2. If searching for the *Nearest* VOR, press **ENT**. If searching for a VOR *By Name*, press ↓ to **NAME|ENT**. You can also search *By Identifier*, and *By City*.
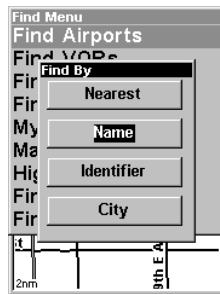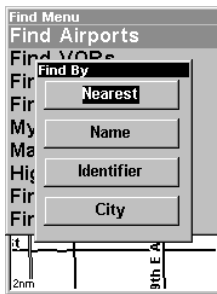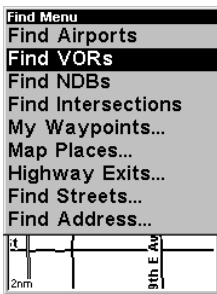

Find menu, left, and Find By Nearest, center, Find By Name, right.

3. **If you're looking for nearest**, AirMap says it is calculating, then a list of VORs appears. The closest is highlighted at the top of the list and the farthest is at the bottom of the list. Press **ENT** and the waypoint information screen appears. To find the VOR, press → to **FIND ON MAP|ENT**. To return to the previous page, press **EXIT|EXIT|EXIT|EXIT**.
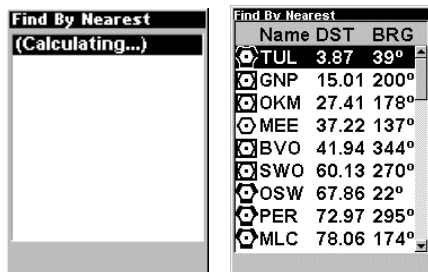
Calculating message, left, and list of the nearest VORs, right.

4. **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.** Jump down to the lower selection list by pressing **ENT**, then press ↓ or ↑ to select a VOR from the list, then press **ENT**. The waypoint information screen appears. To find the VOR, press → to **FIND ON MAP|ENT**. To return to the previous page, press **EXIT|EXIT|EXIT|EXIT|EXIT**.
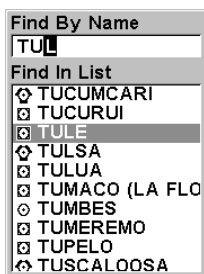
Find By Name menu.

5. **If you're looking by identifier or by city**, the method is the same as by name (described in step 4). Use the arrow keys to enter the VOR's identifier or the name of a city, and the AirMap will show you all available VORs matching the criteria you entered.

Find NDBs *(Aviation Mode only)*

1. Press **FIND|↓** to **FIND NDBs|ENT**.

2. If searching for the *Nearest* NDB, press **ENT**. If searching for an airport *By Name*, press ↓ to **NAME|ENT**. You can also search *By Identifier*, and *By City*.
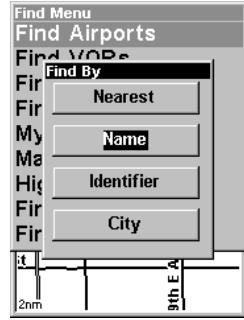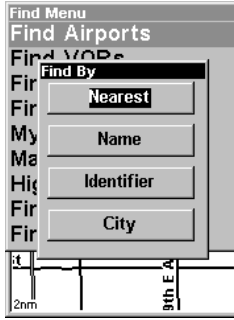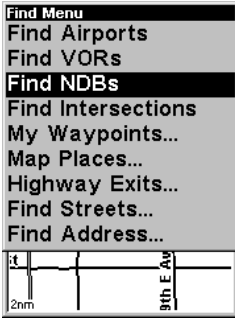
Find menu, left, and Find By Nearest, center, Find By Name, right.

3. **If you're looking for nearest**, AirMap says it is calculating, then a list of NDBs appears. The closest is highlighted at the top of the list and the farthest is at the bottom of the list. Press **ENT** and the waypoint information screen appears. To find the NDB, press → to **FIND ON MAP|ENT**. To return to the previous page, press **EXIT|EXIT|EXIT|EXIT**.

Calculating message, left, and list of the nearest NDBs, right.

4. **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.** Jump down to the lower selection list by pressing **ENT**, then press ↓ or ↑ to select an NDB from the list, then press **ENT**. The waypoint information screen appears. To find the NDB, press → to **FIND ON MAP|ENT**. To return to the previous page, press **EXIT|EXIT|EXIT|EXIT|EXIT**.

Find By Name menu.

5. **If you're looking by identifier or by city**, the method is the same as by name (described in step 4). Use the arrow keys to enter the NDB's identifier or the name of a city, and the AirMap will show you all available NDBs matching the criteria you entered.

Find Intersections *(Aviation Mode only)*

1. Press **FIND** | ↓ to **FIND INTERSECTIONS** | **ENT**.

2. If searching for the *Nearest* intersection, press **ENT**. If searching for an airport *By Identifier*, press ↓ to **IDENTIFIER** | **ENT**.
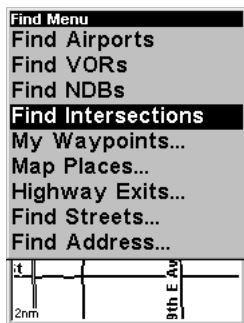
Find menu, left, and Find By Nearest, center, Find By Identifier, right.

3. **If you're looking for nearest**, AirMap says it is calculating, then a list of intersections appears. The closest is highlighted at the top of the list and the farthest is at the bottom of the list. Press **ENT** and the waypoint information screen appears. To find the intersection, press → to **FIND ON MAP** | **ENT**. To return to the previous page, press **EXIT** | **EXIT** | **EXIT** | **EXIT**.
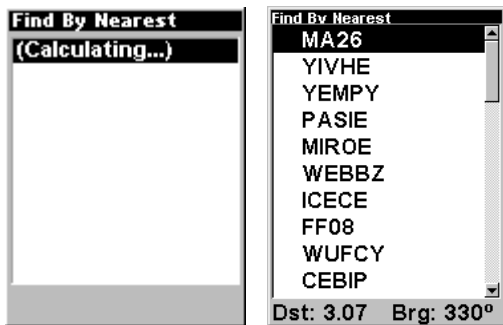
Calculating message, left, and list of the nearest intersections, right.

4. **If you're looking by identifier**, there are two options: **A.** You can **spell out** the identifier 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 identifier is correct, then press **ENT|ENT**. **B.** Jump down to the lower selection list by pressing **ENT**, then press ↓ or ↑ to select an intersection from the list, then press **ENT**. The waypoint information screen appears. To find the intersection, press → to **FIND ON MAP|ENT**. To return to the previous page, press **EXIT|EXIT|EXIT|EXIT|EXIT**.
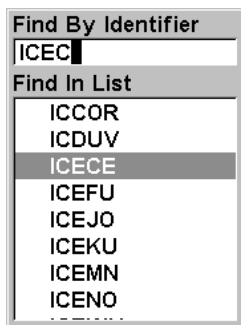
Find By Name menu.

Land Mode Searches
Find Addresses

1. Press **FIND|↓** to **ADDRESSES|ENT**.

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

Find Address Menu.

3. Enter a portion of the name until you see it appear in the list below, then hit **ENT** to jump to the list. Then use ↑ or ↓ to highlight and select it from the list. (**To enter an address number**, press ↓ or ↑ to **ADDRESS|ENT**. Press ↑ or ↓ to change the first number, then press → to move the cursor to the next number and repeat until the number is correct, then press **ENT**.) To return to the previous page, press **EXIT**.

4. To enter a street name, press ↓ or ↑ 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. To return to the previous page, press **EXIT**.

Tip:

When entering a street name, do *not* enter the street's compass direction (N, S, E or W) in the street name field. Just enter the number, or name. If the example below had been a search for "324 E. 9th St," you would enter "9th" and press **ENT**. The AM500 will generate a list of all possible 9th streets, and let you choose the one you want.

Find street field, left, Find street by name menu, center, Street entry complete, right.

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5. **To enter a city name**, press ↓ or ↑ to **CITY|ENT**. You will be prompted whether you would like to find addresses only within a particular city. This option is designed so if you have a city already entered you can choose not to search in a city. If you select yes, 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 city name from the list, then press **ENT**. The city name you selected is now in the city field. To return to the previous page, press **EXIT**.

NOTE:

> It is recommended that you not enter a city name unless the list you are given is too large when you try searching without one. Air-Map can search quicker without a city entered, and you save time by not entering one in.
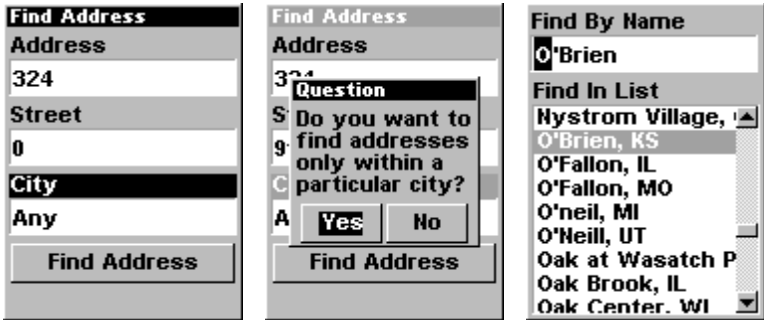
Find city field, left, Search in particular city only option, center, Find City by name, right.

Find Any Item Selected by Map Cursor

1. With an item selected by the cursor, press **FIND|ENT**. To return to the previous page, press **EXIT**.
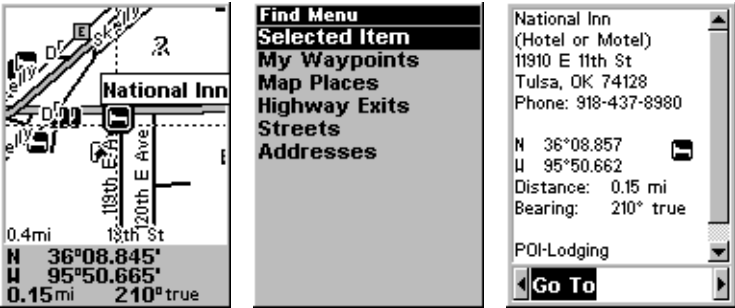
A POI selected by the cursor, left, The Find Menu, center, POI information screen, right.

NOTE:

You can "navigate" to the POI by pressing **ENT** while in the POI information screen.

Find Interstate Highway Exits

1. Press **FIND|↓** to **HIGHWAY EXITS|ENT**.

Land Mode Find menu, right.

2. First select a highway by pressing **ENT**. There are two options: **A.** You can **spell out** the highway 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 low selection list by pressing **ENT**, then press ↓ or ↑ to select a highway from the list, then press **ENT**.
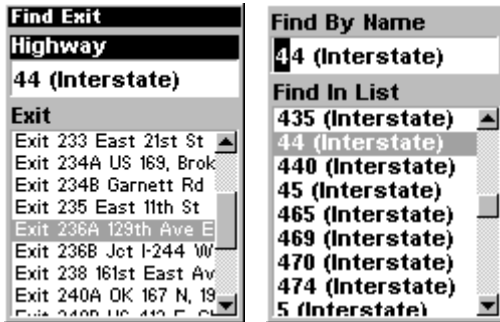
Find Exit using the Highway Name.

3. Once you have selected a highway you can then select an exit by pressing ↓ then pressing ↓ or ↑ until you find the exit, then press **ENT**.

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.

Selected exit.

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.
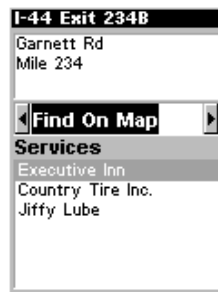
"Go To" option, left, "Find On Map" option, right.

Find Map Places

1. Press **FIND**|↓ to **MAP PLACES**|**ENT**.

Land Mode Find menu, right.

2. Press ↓ or ↑ to select a POI category then press **ENT**. You will be given two options: Search by nearest or by name.

NOTE:
> To narrow your search press → to select a subcategory before pressing **ENT**.

Map Places category menu.

3. **Search by nearest POI.** Press **ENT**. The "find by nearest" menu will show a "calculating" screen then a list of nearest POI's. Press ↓ or ↑ to the selected POI and press **ENT**.
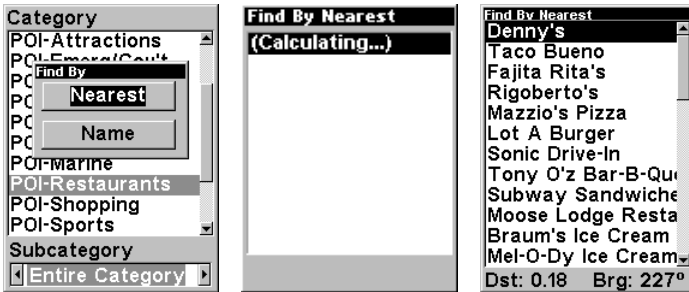
Find by nearest option, left, Calculating screen, center, POI list, right.

4. **Search by name of 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**.
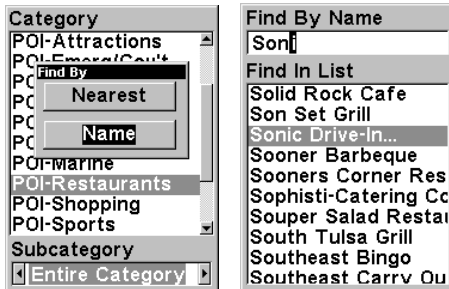
Find by name option, left, Find by name menu, right.

5. You are then shown the POI's information screen. You can choose to "Go To" the POI by pressing **ENT** or find it on the map by pressing ↓|**ENT**.
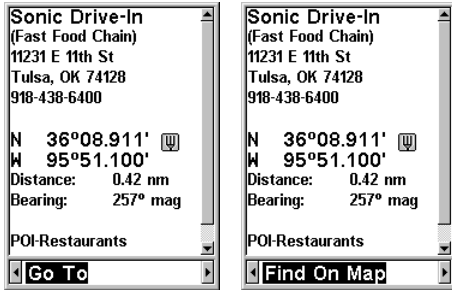
"Go To" POI option, left, "Find on Map" POI option, right.

Find Streets or (Street) Intersections

1. Press **FIND**|↓ to **STREETS**|**ENT**.

Land Mode Find menu, right.

2. **To find a street.** Press **ENT**. 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.** Jump down to the lower selection list by pressing **ENT**, then press ↓ or ↑ to select a street from the list, then press **ENT**. Then press ↓ to Find First Street and press **ENT**. Press ↑ or ↓ to the street you are searching for and press **ENT**.
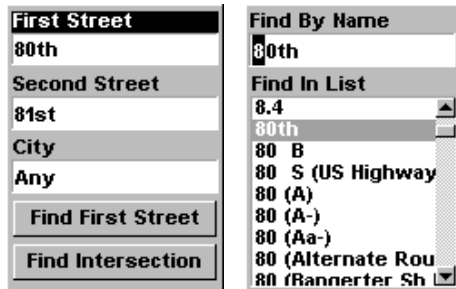
Find streets or intersections menu, left, Find street by name, right.
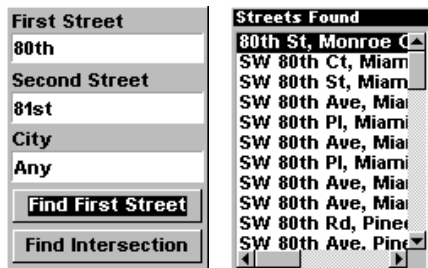
Find first street, left, Street found, right.

3. **To find an intersection.** First enter an address into the "first street" field by pressing **ENT**. 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.** Jump down to the lower selection list by pressing **ENT**, then press ↓ or ↑ to select a street from the list, then press **ENT**. Repeat this process for the second street. Now press ↓ to "find intersection" and press **ENT**. A "working" screen appears and then a list of intersections. Press ↑ or ↓ to the intersection you are searching for and press **ENT**.
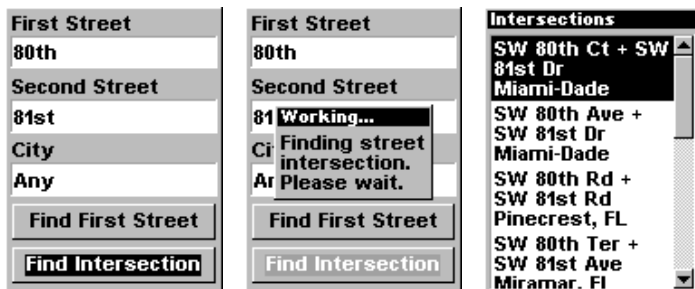
Find intersection, left, and "Working" menu, center, Intersection list, right.

Find Waypoints

1. Press **FIND|ENT**.

2. If searching for the *Nearest* waypoint, press **ENT**. If searching for a waypoint *By Name*, press ↓ to **NAME|ENT**.
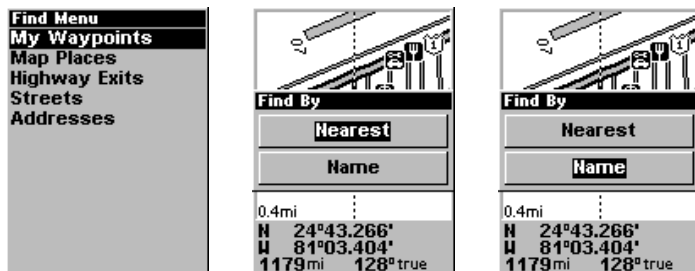
Find menu, left, and Find By nearest, center, Find by name, right.

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3. **If you're looking for nearest**, AirMap says it is calculating, then a list of waypoints appears. The closest is highlighted at the top of the list and the farthest is at the bottom of the list. Press **ENT** and the waypoint information screen appears. To find the waypoint, press → to **FIND ON MAP** | **ENT**. To return to the previous page, press **EXIT** | **EXIT** | **EXIT** | **EXIT**.
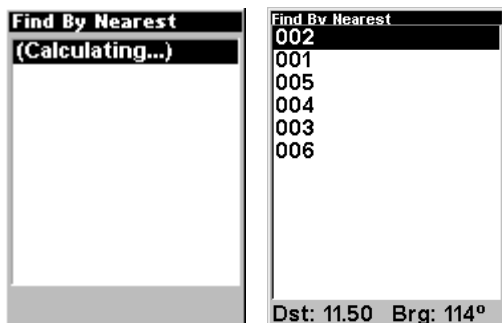
Calculating message, left, and list of the nearest waypoints, right.

4. **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.** 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 information screen appears. To find the waypoint, press → to **FIND ON MAP** | **ENT**. To return to the previous page, press **EXIT** | **EXIT** | **EXIT** | **EXIT** | **EXIT**.
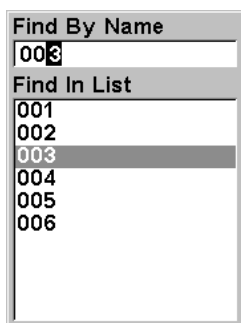
Find By Name menu.

Notes

Section 7: 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 (Leeward
Islands)

Arc 1950; Mean for Bot-
swana, 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. He-
lena 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) - Efate &
Erromango Islands

Bermuda 1957 - Bermuda

Bissau - Guinea-Bissau
Bogota Observatory -
Colombia

Bukit Rimpah - Indonesia
(Bangka & Belitung Is-
lands)

Camp Area Astro - Ant-
arctica (McMurdo Camp
Area)

Campo Inchauspe - Ar-
gentina

Canton Astro 1966 -
Phoenix Islands

Cape - South Africa

Cape Canaveral - Baha-
mas, 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, Gibraltar, Greece, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland

European 1950
Mean for Austria, Denmark, France, West Germany, Netherlands, Switzerland

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 Islands

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 (Excluding Mindanao)

Luzon
Philippines (Mindanao)

Mahe 1971
Mahe Island

Massawa
Ethiopia (Eritrea)

Merchich
Morocco

Midway Astro 1961
Midway Islands

Minna
Cameroon

Minna
Nigeria

Montserrat Island Astro 1958; Montserrat (Leeward Islands)

M'Poraloko
Gabon, Nahrwan, Oman (Masirah Island)

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, Costa Rica, El Salvador, Guatemala, Honduras, 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) in-
cluding Louisiana, Mis-
souri, Minnesota

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 Salvador
Island)

North American 1927
Canada (Alberta, British
Columbia)

North American 1927
Canada (Manitoba, On-
tario)

North American 1927
Canada (New Brunswick,
Newfoundland, Nova
Scotia, Quebec)

North American 1927
Canada (Northwest Ter-
ritories, Saskatchewan)

North American 1927
Canada (Yukon)

North American 1927
Canal Zone

North American 1927
Cuba

North American 1927
Greenland (Hayes Penin-
sula)

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 Is-
lands, Wales

Ordinance Survey
Great Britain 1936 -
England

Ordinance Survey
Great Britain 1936 -
England, Isle of Man,
Wales

Ordinance Survey
Great Britain 1936 -
Scotland, Shetland Is-
lands

Ordinance Survey
Great Britain 1936 -
Wales

Pico de las Nieves
Canary Islands

Pitcairn Astro 1967
Pitcairn Island

Point 58

Sweden

Santo (DOS)
1965 Espirito Santo Is-
land

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, Bo-
livia, Brazil, Chile, Co-
lombia, Ecuador, Guy-
ana, 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, Galapa-
gos)

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

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.

Notes

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Notes

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4. This License Agreement will terminate immediately without prior notice from us if you fail to comply with or violate any of the provisions of this Agreement. Upon termination, you will promptly return all products containing one or more Databases to us.

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DATABASES LIMITED 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 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 accessories such as power cables, please contact:

1) Your local aviation equipment dealer or consumer electronics store. Most quality dealers that handle avionics equipment, marine electronics or other consumer electronics should be able to assist you with these items.

To locate a Lowrance aviation dealer near you, visit our web site, www.lowrance.com and look for the 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 the knobs or mounting bracket with your unit.

2. If you are sending a check for repair, please place your check in an envelope and tape it to the unit.

3. 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.

4. Pack the unit in a suitable size box with packing material to prevent any damage during shipping.

5. Write the Return Authorization (RA) number on the outside of the box underneath your return address.

6. 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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